Pedagogy and Practice: Teaching and Learning in Secondary Schools

Leadership guide

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Leadership guide

Contents

Introduction

This guide is for all secondary school leaders and teachers as they seek to improve teaching and learning both within their own institutions and in collaboration with colleagues in other schools. It provides information about the *Pedagogy and practice* study guides, looks at ways that schools may use them to support their own plans for improvement and how teachers may use them to further their own professional development.

This booklet is divided into five sections.

- The first section outlines the central importance of teaching and learning to whole-school improvement.

- The second section provides an overview of the *Pedagogy and practice* study units and explains how they have been produced.

- The third section looks briefly at continuing professional development (CPD), emphasising the role of reflection, coaching, opportunities to test out ideas in the classroom and receiving feedback to fully embed practice. This is further supported by the publication, *Leading and coordinating professional development in secondary schools* (Ref. DfES 0682-2004).

- The fourth section describes the ways in which the units may be used to support CPD.

- The fifth section provides guidance and a framework for assessing CPD needs to identify the study units that should be followed. Finally, there is guidance on where to find further information and support.

1 Teaching and learning and whole-school improvement

A systematic and integrated approach to staff development, that focuses on the professional learning of teachers and establishes the classroom as an important centre for teacher development, is central to successful school improvement.

Hopkins, Harris, Singleton and Watts (2000) *Creating the conditions for teaching and learning.* David Fulton Publishers. Used with permission.

The *Pedagogy and practice* materials consist of a suite of 20 study guides supported by a series of video sequences on DVD. They have been created to support the professional development of teachers working at secondary level and have been refined in the light of a national pilot involving over 500 schools. The materials are designed to be used in a variety of ways, for example by teachers collaborating in networks across schools; by groups within schools (subject or cross-subject teams); by pairs, as in peer coaching or coaching and mentoring; or even by individuals.

ASTs and other leading professionals can use them to support their work with colleagues.

The principles in the following table may be used to ensure that CPD can play an integral part of school improvement.

Principles of school improvement	Implications for CPD
Focus systematically on teaching and learning	The classroom should be the focus and the primary site for improving teaching and learning. CPD will involve both enquiry into and reflection on classroom practice, and opportunities to learn from good practice.
Base all improvement activity on evidence about relative performance	Professional development needs should be identified at three levels: school, team and personal. School and team development needs should be identified through whole-school review; personal needs should be identified through performance management.
Build collective ownership and develop leadership	CPD should draw in as many people as possible to build expertise across the school, enable individuals to both contribute and lead, and so make the success of whole-school initiatives more assured. Professional development arising out of school and team priorities places individual development in the context of whole-school improvement.
Involve collaboration with other organisations	Teachers should have regular opportunities for collaborative working (e.g. joint planning, team teaching, observation and feedback, coaching). Successful collaboration requires time for teachers to share their learning with colleagues. It may be necessary to go beyond the department or school to find suitable colleagues to work with.

Create time for staff to learn together	It is important to create opportunities, both internally and externally through links with other schools, for staff to learn with and from others. The value of informal learning as well as effective use of structured time should also be recognised.
Embed the improvements in the school's systems and practices	The professional development system should be integrated with other planning and review cycles. Individual professional development should endeavour to meet whole-school, team and personal needs.

Many schools have improved by applying these principles and by paying particular attention to teaching and learning. The headteacher in video sequence M1 makes this point. Notice the emphasis on developing the school as a professional learning community.

> 'The two main areas of activity that have had the greatest impact on our improvement have been the focus on teaching and learning and the professional development of teachers. We set out a strict priority to become a professional learning community. In other words, we are all here to learn and we are all here to do our jobs better.'

It is worth pausing at this point to watch the whole sequence.

Two teachers in video sequences M2 and M3 also make the point that a whole-school focus on teaching and learning can bring dividends. One explains how they created agreement across the whole staff about what a 'good lesson' should look like. Developing and agreeing a teaching and learning policy across the whole school, or partnership of schools, is a powerful strategy. It brings ownership and a sense of community to the school or partnership.

The second teacher in the sequence explains what happened in their school:

> 'Across the whole school we are using the same approach, so the pupils are comfortable and know what to expect. … It may be true to say that teaching experienced teachers how to plan a lesson would have been treated with a bit of suspicion, but it is also true to say that everyone is completely convinced that this has added real quality to our work.'

You might like to watch video sequences M2 and M3 now, and consider as a senior leadership team or as a subject leader how you might use the video to introduce staff to the *Pedagogy and practice* materials.

Unit 1 Structuring learning provides a good starting point for schools wishing to develop their own 'good lesson guide'. Particularly important are the actions taken by some schools to include the entire school community in promoting a whole-school approach to teaching and learning. Increasingly, schools are involving not only teachers and teaching assistants, but also other adults such as governors and parents. Another very powerful strategy is to invite the pupils themselves to contribute to the policy.

2 *Pedagogy and practice*: study units

An effective teacher has a wide-ranging repertoire of different teaching and learning models, strategies and techniques and knows how to create the right conditions for learning. The choice is determined by the nature of the learning objective. The Key Stage 3 National Strategy booklet *Key messages: Pedagogy and practice* (Ref. DfES 1025/2003) provides guidance on the relationship between pedagogic approaches (teaching models), teaching strategies, techniques and methods of creating the conditions for learning in order to inform lesson design.

The units are divided into four distinct colour-coded categories: Designing lessons, Teaching repetoire, Creating effective learners and Creating conditions for learning. The units in the Creating effective learners category support the Key Stage 3 National Strategy whole-school initiatives.

The study guides do not require teachers to attend any external course, although they do complement the Key Stage 3 National Strategy's training. A unit requires about five hours of study and five hours of work in the classroom. Each contains:

- a clear presentation of the main ideas;

- case studies;

- tasks and classroom assignments;

- practical tips;

- opportunities for reflection;

- a summary of related research;

- suggestions for further professional development and guidance;

- an opportunity to set future targets, perhaps related to performance management;

- accompanying video sequences.

Designing lessons

Unit 1 Structuring learning: This key unit provides teachers with a model for the process of designing lessons. It starts by considering factors affecting lesson design, including the influence of the type of learning objective on the choice of approach. It goes on to explore effective methods of sharing learning objectives with pupils. There is guidance on how to structure learning by splitting lessons into a series of episodes, and on choosing from a range of strategies and techniques to motivate pupils. Finally, there is an examination of three pedagogic approaches – direct interactive, inductive and exploratory – to show how they can help pupils develop tools for learning, such as inductive thinking or enquiry skills.

Unit 2 Teaching models: This unit develops further the principles and practice of teaching reviewed in unit 1. It explores a range of teaching models and encourages teachers to review their teaching practice against the models described. For each teaching model outlined, episodes are clearly defined showing how the model might be applied in classrooms. There are also some examples to illustrate ideas, and the importance of metacognition within each is made explicit. This will enable pupils to use the technique to support their own learning.

Unit 3 Lesson design for lower attainers: This unit explores a range of strategies and techniques that will help pupils who tend to learn more slowly. It demonstrates the importance of 'assessment for learning' – research has shown that lower-attaining pupils, in particular, make significant gains when these techniques are used. There are also guidelines on developing literacy and numeracy skills in the context of different subjects, and on strategies for aiding recall.

Unit 4 Lesson design for inclusion: This unit considers some principles for ensuring the inclusion of all pupils in lessons, and how to hold them all into the learning process. It provides a first insight into the needs of many groups that need to be included, such as boys, EAL, lower attainers, gifted and talented and SEN pupils. It considers various episodes in a lesson, such as starters and plenaries, and some early strategies that help to ensure all pupils are actively engaged and are able to make progress in their learning in all subjects.

Unit 5 Starters and plenaries: The beginnings and ends of learning sequences are important. This unit describes the purpose and importance of starters and plenaries at the beginnings and ends of lessons, and also within lessons as part of teaching episodes. It provides a range of strategies and ideas as well as guidance on planning and making starters and plenaries effective.

Teaching repertoire

Unit 6 Modelling: Modelling is a powerful strategy that can be used across all subjects to help pupils to learn and to develop confidence in a new skill or procedure. This unit sets out the principles of this strategy and provides guidance on how to introduce modelling into lessons and make it effective.

Unit 7 Questioning: This unit outlines the different types and purposes of questioning. It explains how to organise questioning for whole-class and group work, and offers strategies such as providing 'wait time' for making it effective. Bloom's taxonomy is used to provide a framework for planning questions that challenge and develop pupils' thinking. Alternatives to direct questioning are also explored.

Unit 8 Explaining: This unit looks at the purpose of explanations in teaching and outlines the characteristics, features and skills of successful explanations. It explores different types of explanation, how to plan for them, which strategies are effective – particularly for those involving abstract ideas. It also provides guidance on how to support pupils in planning and articulating their own successful explanations.

Unit 9 Guided learning: This unit explores how the principles and approaches involved in guided reading and writing can be used to support guided *learning* in subjects across the curriculum. It describes an instructional sequence for the teacher working with small groups, which is integrated into lessons to act as a bridge between whole-class teaching and independent work. It provides a range of examples and addresses practical questions of organisation including time, classroom layout, management of behaviour and resources.

Unit 10 Group work: This unit looks at how effective group work can help to improve pupils' speaking, listening, thinking, problem-solving and social skills. It emphasises the need for establishing clear rules and procedures and sets out a range of techniques to ensure pupil engagement and cooperation, such as allocating roles and setting group targets. Methods for structuring group work, such as 'snowballs', 'jigsaws', 'envoys' and 'rainbows', are suggested and the benefits and limitations of different grouping criteria explored.

Unit 11 Active engagement techniques: This unit explores what is meant by engagement and why it is important. A range of strategies to motivate and engage pupils is examined, for example directed activities related to text (DARTs) to promote active reading, strategies to promote active listening, thinking strategies, and the use of drama across subjects.

Creating effective learners

Unit 12 Assessment for learning: This unit explores what is meant by assessment for learning and its importance. It explains how good assessment practice can contribute to better learning and higher achievement. This unit focuses on the key characteristics of assessment for learning and examines a range of practical strategies for incorporating these principles into classroom routines.

Unit 13 Developing reading: This unit focuses on improving pupils' ability to understand and to respond to written texts. It considers teaching subject-specific vocabulary; how teachers can support pupils by clarifying the approach they need; how pupils need to access their prior knowledge before they read; some of the ways pupils can be encouraged to engage with text and some aspects of note-taking. It shows how the teacher can use shared and guided reading to enable pupils to develop more independence and skill as readers.

Unit 14 Developing writing: This unit focuses on improving the quality of pupils' writing through actively teaching the techniques they will need. Pupils write best when they know what, how and why they have to write. Writing is often best taught through teacher modelling and then sharing the writing with the class. The route is from examples, modelled and shared work, through guided writing to independence.

Unit 15 Using ICT to enhance learning: The use of ICT in classrooms enhances learning and teaching. This unit looks at the relationship between teachers' use of ICT as a medium for teaching and the development of pupil capability. There are guidelines on the use of classroom support assistants and technicians, on classroom management and on organisation in the ICT-rich classroom.

Unit 16 Leading in learning: This unit provides an introduction to thinking skills by clarifying the nature of higher-order thinking and different approaches to 'teaching' thinking. It also provides practical guidance for improving the teaching of aspects of thinking skills lessons, such as improving the teaching of the plenary, helping pupils to see the relevance of thinking in everyday contexts and developing their use of 'thinking words'.

Unit 17 Developing effective learners: Through the use of case studies, this unit explores what is meant by an effective learner, what learning skills might be expected of pupils at each key stage and how learning skills can be developed within subjects.

Creating conditions for learning

Unit 18 Improving the climate for learning: The physical environment can make a significant difference to learning, and this unit explores how even small changes to the classroom can help. It looks at arranging furniture to suit the teaching approach and creating displays that really contribute to learning. Teacher–pupil relationships are another important factor in classroom climate, and the unit also describes how pupil expectation and motivation can be improved through the use of appropriate classroom language.

Unit 19 Learning styles: This unit outlines some of the current thinking and research on learning styles. It provides advice on how to identify different learning styles but, more importantly, emphasises the need to provide a variety of activities to suit different styles, over time. There is guidance on how to plan and adapt activities to accommodate visual, auditory and kinaesthetic learners.

Unit 20 Classroom management: The emphasis in this unit is on developing the concept of teaching behaviour that is conducive to learning. The fundamentals of good pedagogy and practice, which are explored in the other units, are the bedrock of successful teaching and learning. Consideration is given to the core values and beliefs which underpin the teacher's relationships with the pupils. Just as importantly, pupils' perceptions of effective teaching are examined. Pupils respond positively to clear structures and routines, and the teacher's verbal and non-verbal language is pivotal in securing and maintaining relationships for learning.

3 The Key Stage 3 National Strategy and the continuing professional development of teachers

Effective leadership is the key to schools making good use of the Key Stage 3 National Strategy. With greater freedom and flexibility, teachers are now able to select and use the Strategy materials that are most appropriate to the individual learning needs of their pupils.

The Key Stage 3 National Strategy plays a key role in helping teachers to realise the government's vision of providing high-quality continuing professional development (CPD) to teachers. It provides well-researched, extensively trialled material, as well as 'on-the-job' support from consultants, advanced skills teachers (ASTs) and other leading professionals including leading teachers and subject leaders.

These study units provide professional development through active enquiry, measured and timely support and enable networking and collaborative working.

> 'We found it really good to work in pairs; for long-serving teachers like me it added real interest to the planning.'

(Teacher of 20 years' experience)

> 'We have been looking for a way to share the skills staff already have and these units provide us with a useful vehicle for doing this. More of our staff CPD will be like this now with staff working in groups, rather than going out on individual courses. The units help establish a common language which enables us to identify strategies that suit us and our pupils.'

(Deputy headteacher)

David Hargreaves (2003) in his publication *Working laterally: how innovation networks make an education epidemic*, which advocates creating networks of teachers in and between schools in order to spread good practice and to generate innovation and improvement, underlines the importance of teachers collaborating when he states:

> *The best way to spread new practices that people choose voluntarily is on a peer-to-peer basis*.

Developing effective approaches to CPD

There has been much research, particularly in the past two decades, on the effectiveness of staff development. In particular, Joyce and Showers have shown that in order to really embed change in pedagogy, a number of elements are required. These are indicated in the table on the next page, where elements of training are related to impact in terms of long-term change.

Training method	Level of impact			
	General awareness of a new approach	Understanding of how to implement the approaches in a new context	Internalising the new approach	Able to apply the new approach in a range of contexts
Presentation of the approach through workshop or reading	evidence			
Modelling of the new approach by demonstration or video	evidence	evidence		
Practice in non-threatening settings, e.g. simulated	evidence	evidence	evidence	
Constructive feedback on performance	evidence	evidence	evidence	evidence
In-class support such as coaching by peer or expert	evidence	evidence	evidence	evidence

Adapted from Hopkins, Harris, Singleton and Watts (2000) *Creating the conditions for teaching and learning*. David Fulton Publishers. ISBN: 1853466891. Used with permission.

4 How to use the study units

The study units have been designed with maximum flexibility in mind. They do not require attendance at external courses. Teachers of varying experience and competence can use them. While they are best used by groups or pairs of teachers working collaboratively, they could be used by an individual teacher (who should still have the support of a mentor or coach). They focus on the classroom as the workshop for professional development. However, while the study units offer flexibility, there is also a need to introduce an element of rigour into their use. Successful changes in practice depend on an understanding of the theory behind the change, so it is important not to 'cherry pick'.

The study units offer a means by which teachers can investigate and develop a teaching competence or skill in a practical manner that will have an immediate impact on classroom activity and pupil learning.

The way in which the study units are used in a school will depend on the culture of the school, current and competing priorities, resources, and strengths and weaknesses of teaching and learning. It will depend on the maturity and robustness of the schools' CPD provision. During the pilot, schools used the study units in a variety of ways. Some are described in Table 1.

Table 1

Mode of use	Advantages and disadvantages
Whole-school use of single unit	Provides a whole-school focus on a single set of related issues, and a coherent set of expectations and experiences for pupils *but* … could compete with alternative priorities for some teachers.
Subject department use of single unit	Provides a whole-department focus on a single set of issues *but* … may have less impact on pupils if not supported by whole-school approaches.
Whole-school use of a range of units	Provides a whole-school focus on strengthening teaching and learning based on priorities identified by audits *but* … individual changes in teaching and learning styles may have less impact on pupils if not supported by whole-school approaches.
Teaching and learning development group use of a single unit or range of units	Allows schools to build expertise and experience of new approaches where whole-staff involvement may not be possible *but* … may not have significant impact on pupils until new approaches are more widely adopted.
NQT, GTP or trainee use of a single unit or a range of units	Based on an assessment of needs and the use of the NQTs' career entry development profile, could provide a useful 'rolling programme' of skill acquisition *but* … needs to be part of a coherent induction programme and have the support of an induction tutor or mentor.
Use of units across a group of schools, e.g. a LIG collaborative	Provides valuable opportunities to share and build on experiences beyond those available in a single school *but* … confidence and expertise may need to be developed before it can be shared.

School leaders' promotion of and support for the study units

The study units are designed to ensure that most of the activities are carried out in classrooms with pupils. Teachers using the study units will require encouragement, time and resources from those with leadership roles, especially if the going gets tough. Most teachers will benefit from the support of a coach, induction tutor, mentor or Key Stage 3 consultant who is able to listen, encourage, guide and provide feedback. Peer coaching is extremely effective in creating a shared dialogue in which both the coach and coached teacher learn and adopt new models within a confidential and non-threatening relationship. Where the coached teacher may need a more direct relationship with a mentor or line manager, the opportunity to receive feedback and discuss changes in practice is an essential feature of the use of the study units.

Senior leaders involved in performance management, timetabling and networking should:

- take an active interest and make it clear that they are promoting the use of the study units;

- consider how use of the units can support objectives in performance management;

- use the study units to support developments identified in the school improvement plan;

- consider how to timetable teachers' learning as well as that of pupils;

- provide planned opportunities for teachers to meet, plan, observe others and reflect;

- use, with subject leaders, the Teaching and learning evaluation schedule (see page 17) to build a picture of teaching and learning across the school and to identify priorities for development;

- discuss with the LEA Key Stage 3 Strategy manager or lead consultant how Key Stage 3 consultants can be used to support the work;

- discuss with other schools in a collaborative or network how they may be used to support a plan for improvement;

- ensure that the impact on learning is evaluated rigorously using the Follow-up review (see page 29).

Senior leaders including CPD coordinators and Strategy managers should:

- take an active interest in the use of the study units and make it clear that they are promoting their use;

- agree, with subject leaders and senior leaders, a programme of support for teachers using a study unit;

- explore ways in which teachers' CPD activities can be accredited (see *Leading and coordinating professional development in secondary schools* (Ref. DfES 0682-2004));

- consider how the units can be used on school closure days to promote collaborative work;

- set up school network groups and identify similar groups in other schools and across the LEA;

- use the Teaching and learning evaluation schedule (see page 17) to investigate which units could best be used by particular groups of teachers (e.g. supply teachers, NQTs) and the support that they would need to be successful;

- ensure that the use of the study units is evaluated rigorously using the Follow-up review (see page 29).

Subject leaders should:

- seek active and practical support from senior leaders;

- use the Teaching and learning evaluation schedule (see page 17) to build a picture of teaching and learning and to identify priorities for development;

- agree which units can be used or support departmental priorities as well as whole-school implementation of units;

- encourage teachers using the units and help them to network with other teachers;

- create time on departmental meeting agendas to discuss teaching and learning issues and especially work relating to the units;

- ensure that the use of the study units is evaluated rigorously using the Follow-up review (see page 29), and discuss with teachers involved how changes in teaching and learning brought about by using the units may require integration into the scheme of work;

- discuss with the CPD coordinator, Strategy manager and other senior leaders how success with the units can be disseminated more widely across the school;

- encourage teachers involved to plan lessons together, to observe each other teaching and to discuss outcomes;

- create a teaching and learning information board or area within the school website;

- discuss with senior leaders how timetabling can enable collaborative work;

- discuss with the LEA Key Stage 3 National Strategy manager or lead consultant how Key Stage 3 consultants could support the work, both of the team and of subject and team leaders.

LEA support and advice

The LEA school improvement adviser (SIA) can provide advice and support on how to make the best use of the *Pedagogy and practice* study units and in particular:

- how to develop support collaboratives;

- where to seek LEA or other external support;

- how to manage CPD within a collaborative or network, including advice on timetabling;

- researching local sources of accreditation for teachers.

The LEA CPD adviser can provide advice about:

- networking and collaboration between schools;

- effective methods of CPD within and between schools;

- local partners able to support schools;

- how CPD can be integrated into school improvement cycles.

The LEA Key Stage 3 National Strategy manager can provide advice about:

- how the Key Stage 3 consultants can support collaborative or network initiatives;

- whom to contact to provide training on coaching, networking and building capacity.

The LEA Key Stage 3 National Strategy consultants can provide:

- training for coaching (for ASTs and teachers);

- coaching for classroom teachers;

- mediation of the study units, working directly with groups of teachers.

Accreditation of the study units

Following discussions with the Universities Council for the Education of Teachers (UCET) it has been agreed that teachers who use the self-study material contained in the *Pedagogy and practice* pack will be eligible to receive accreditation up to and including Master's level. Colleagues wishing to seek accreditation for the study they are about to undertake (or have undertaken) should register with their local higher education institution as soon as possible. Details are given in *Leading and coordinating professional development in secondary schools* (Ref. DfES 0682-2004).

5 Using the Teaching and learning evaluation schedule

This schedule is intended to assist individual teachers, pairs or groups of teachers to identify areas of teaching and the *Pedagogy and practice* units that will be most appropriate for study. An individual's development of their teaching is best achieved when it is shared and supported by another, often more experienced or skilled, colleague, and where ideas for improvement can be tried out in the classroom, observed, reflected upon and discussed. *It is recommended that teachers use the units in collaboration with another colleague who can act as their mentor or coach.*

The Teaching and learning evaluation schedule (see page 17) is intended for use by the following:

1. Individual teachers and groups of teachers.

2. The mentor, coach, induction tutor or other supportive colleague. It provides a means to help identify and then discuss the professional development needs of an individual teacher or a group of teachers. It can be used as a focus for lesson observation.

3. School leaders who wish to identify and plan for professional development for departments or other teams of teachers. It can be used as a focus for lesson observation.

Individual teachers and groups of teachers

In the Teaching and learning evaluation schedule (see page 17) you will find a series of tables corresponding to each of the *Pedagogy and practice* units, and within each there is a series of statements of effective practice in that area of teaching. The recommended procedure is as follows:

- consider each statement and tick the cell that indicates how much it is a feature of your practice;

- look back at the ticks you have placed on the sheet and highlight the areas which reflect your strengths;

- look back at the ticks you have placed on the sheet and highlight the areas which indicate your development needs;

- record your strengths and development needs on the Record of strengths and development needs (see page 28);

- discuss these with your mentor or coach to help you decide which study unit to tackle first;

- complete the action plan in the Record of strengths and development needs.

Once you have worked through the study unit and the action plan, you should meet with your mentor or coach to review your progress using the Follow-up review (see page 29).

Mentor, coach, induction tutor

The teacher or group that you are working with should be using the Teaching and learning evaluation schedule (see page 17) to help them identify the areas and the study units which most reflect their strengths and their development needs. When you discuss their self-evaluation with them, you should make your judgements from as many sources as possible, for example:

- observation of their teaching (by you or another colleague, if appropriate);

- units of work and lesson plans;

- marking and record keeping;

- career entry and development profile (CEDP), which all NQTs have.

You should then decide on the areas (e.g. structuring learning, questioning) in which the teacher or the group has most strengths, and the areas which are most in need of development. After that, set up a meeting to discuss and compare your analysis with that of the teacher or the group in order to agree and record (using the Record of strengths and development needs, see page 28) a prioritised action plan based on the use of the study units.

When the teacher has completed the study unit and the action plan, you should convene a meeting to review and record their progress using the Follow-up review (see page 29).

School leaders

Use the Teaching and learning evaluation schedule (see page 17) to help you identify and plan for professional development for departments or other teams of teachers. You should make your judgements based on as many sources as possible, for example:

- observation of teaching (by you or another colleague, if appropriate);

- units of work and lesson plans;

- marking and record keeping;

- Ofsted reports.

Then decide which areas (e.g. structuring learning, questioning) are strongest and which aspects are most in need of development. After that, set up a meeting to discuss your analysis with those involved in order to agree and record a prioritised action plan based on the use of the study units (using the Record of strengths and development needs, see page 28). Try to ensure that a mentor or coach is included at the start and throughout the process to provide good support, discussion and reflection for the participating teachers.

When the teachers have completed the study unit and the action plan, you should convene a meeting to review and record their progress using the Follow-up review (see page 29).

Teaching and learning evaluation schedule

Consider the feature of teaching and learning identified in the left-hand column of the evaluation schedule. Identify whether the feature is always evident, only sometimes evident, or not evident at all, and then tick the appropriate box.

Unit 1   Structuring learning

When designing lessons to structure learning I/we/teachers …	Always	Sometimes	Never
have a clear understanding about the nature and use of learning objectives and how they inform choice of teaching model, strategy or technique			
have a good knowledge of teaching repertoire and are able to select appropriately to meet learning objectives			
make a clear distinction between objective and outcome and are able to share this effectively with pupils so that they understand what is expected of them			
are clear about the purpose of starters and plenaries and separate starters from the introduction in a clear way			
divide lessons into clear 'episodes', each of which has a clear outcome			
sequence episodes to make logical sense and to enable pupils to sustain concentration and to structure learning			
have a good understanding of the three teaching models: direct, inductive and enquiry, and are able to employ them appropriately			

Unit 2   Teaching models

When designing lessons with teaching models in mind I/we/teachers …	Always	Sometimes	Never
have an overview of a range of teaching models, e.g. inductive, deductive, metaphor, concept attainment and constructing meaning			
understand the episode sequence in each model			
match the teaching model to learning objectives so that the teaching is efficient and effective			
make metacognition explicit to pupils as part of the teaching			
make opportunities for sharing approaches to teaching with colleagues			

Unit 3   Lesson design for lower attainers

When designing lessons for groups of lower attainers I/we/teachers …	Always	Sometimes	Never
involve pupils in identifying what helps them learn			
design lessons that support lower-attaining pupils through structures that allow progress in small steps			
help pupils connect ideas in every lesson so that they see the 'big picture' and concentrate on, and constantly reinforce, the key concepts			
include techniques to develop recall in every lesson			
pay attention to the key skills of literacy and numeracy (data handling) in every lesson			
make sure the examples given to illustrate key points relate to the reality of pupils' life experiences, and do not make assumptions that pupils see abstract ideas in the way that the teacher does			
use a high proportion of interactive teaching, including clear demonstrations and modelling of skills and procedures			
use assessment for learning regularly in every lesson			

Unit 4   Lesson design for inclusion

When designing lessons for inclusion I/we/teachers …	Always	Sometimes	Never
know and understand the data about particular individuals and groups in classes, and their specific learning needs			
plan lessons with specific groups in mind, and plan in advance how to include them in each episode (e.g. starter, plenary)			
include other adults, when available, not only as support in class, but also to plan in advance what each adult will do			
know strategies and techniques to include various groups in each part of the lesson			
know and understand the considerations that Ofsted and others have offered about particular groups			

Unit 5   Starters and plenaries

When designing lessons I/we/teachers …	Always	Sometimes	Never
use starters and plenaries as a consistent part of classroom practice			
begin lessons with whole-class interactive involvement and make a distinction between the starter and the introduction (sharing of objectives and outcomes)			
plan starters to accommodate the range of ability levels in classes, ensuring that they are well paced and motivating, and either link to the main part of the lesson or meet longer-term ongoing objectives			
with clear outcomes in mind, use 'mini-plenaries' during lessons and review learning within an episode			
allocate sufficient time in lessons for plenaries to take place and plan to finish early			
involve pupils fully in each plenary, making sure they occupy more time talking than the teacher does			

Unit 6   Modelling

When modelling I/we/teachers …	Always	Sometimes	Never
have a good knowledge of the principles of modelling as a strategy			
understand when it can be used to address learning objectives related to skill, process and procedure acquisition, particularly when these are new			
make sure the thinking is explained as the process is gone through and it does not become merely a demonstration			
support first attempts with scaffolds, which are gradually withdrawn to encourage independence			
share success criteria effectively with pupils			

Unit 7   Questioning

When questioning I/we/teachers …	Always	Sometimes	Never
know when to use questioning to meet specific learning objectives and develop understanding			
use a wide range of questions for different purposes, effectively including closed and open questions in a balanced manner			
use techniques that encourage pupils to respond effectively, such as using 'wait time' and a 'no-hands' rule			
plan to use questioning to encourage extended responses from pupils by adopting appropriate techniques such as asking, 'Can you add to that?' or 'Who else could add a comment?'			
plan and use sequences of questions that encourage higher-order thinking			
use Bloom's taxonomy to plan questions for whole classes and groups in advance			

Unit 8   Explaining

When explaining I/we/teachers …	Always	Sometimes	Never
use explanations effectively to explore the purpose of a lesson			
use the different logical structures of explanations to address processes, cause and effect, relationships, concepts, and attitudes and values			
use the characteristics of a good explanation, particularly a dynamic opening, clarity, signposts, models and analogies, props, questions, and connections to experience			
use models and analogies when needed to support abstract ideas			
define any key terminology and words in advance of any explanation			
know and understand how to support pupils to develop their own explanations through scaffolding			

Unit 9   Guided learning

For guided learning I/we/teachers …	Always	Sometimes	Never
understand and use the principles of guided learning and how to apply them in subjects			
use guided learning when the particular lesson or stage of learning requires it			
organise groups so that their point of need and stage of progress are appropriate			
adjust what is said and done in response to pupils' progress			
pitch work at a challenging level, using the group to enable pupils to access learning beyond their individual stage of development			
make good use of teaching assistants to support the rest of the class			

Unit 10   Group work

For group work I/we/teachers …	Always	Sometimes	Never
establish clear rules and procedures for group work			
know and understand a range of techniques that can be used to manage group work, such as snowballs or jigsaws			
allocate roles in groups and set group targets			
set clear expectations of groups in terms of outcomes			
regularly set time limits for aspects of group activity that make sense and are related to the outcome expected			
organise seating arrangements and mixture of pupils to enable effective groupings			
intervene effectively in group work to enable groups to make progress, by using appropriate questioning techniques to maintain momentum			

Unit 11   Active engagement techniques

For active engagement strategies I/we/teachers …	Always	Sometimes	Never
establish good relationships with pupils so that they feel supported, valued and respected			
ensure pupils understand what they are to do in the lesson and how this links with previous learning			
use starter activities that engage and stimulate pupils' interest			
challenge pupils to consider apparently conflicting ideas			
support literacy, when appropriate, with engaging activities that are effective (DARTs)			
use techniques for stimulating pupils' thinking in a range of tasks			
encourage pupils to engage in collaborative work, such as writing, problem solving and presentations			

Unit 12　Assessment for learning

For assessment for learning I/we/teachers …	Always	Sometimes	Never
separate learning objectives from learning outcomes and ensure these are shared effectively with pupils			
help pupils to recognise the standards they are aiming at so that they can achieve them			
provide opportunities for pupils to engage in peer assessment and self-assessment so that they better understand the criteria for success			
provide feedback that pupils find helpful and which identifies what they need to do to improve			
provide regular opportunities for both pupils and teachers to review and reflect together on progress			
use the outcome of assessment of pupils to inform appropriate changes in teaching and ensure that progress and weaknesses are addressed			

Unit 13　Developing reading

When developing reading I/we/teachers …	Always	Sometimes	Never
ensure pupils understand subject-specific vocabulary in context			
ensure pupils are clear about the approach to reading they need			
find out what they already know before they read			
plan to use active reading strategies to secure engagement with the text			
ensure pupils know how to take notes relevant to the task			

Unit 14   Developing writing

When developing writing I/we/teachers …	Always	Sometimes	Never
are clear about both the reason for the writing and its audience			
use examples of texts to establish conventions			
model the kind of sentences or text required			
ensure pupils have an outline to work to			
intervene while pupils are writing to secure improvement			
set clear targets for improvement which may take account of whole-school priorities			

Unit 15   Using ICT to enhance learning

When using ICT to enhance learning I/we/teachers …	Always	Sometimes	Never
understand how pupil capability in ICT contributes to their learning in the subject			
can use ICT confidently as a medium for teaching and learning			
have awareness of what is being taught in discrete ICT lessons			
plan for the use of ICT on a regular basis			
identify the role of support assistants and technicians in lessons using ICT			
use ICT to support planning and administrative tasks			

Unit 16   Leading in learning

For developing thinking skills I/we/teachers …	Always	Sometimes	Never
plan and teach lessons explicitly to improve thinking skills, and include this in schemes of work			
help pupils make connections between thinking in classrooms and in everyday contexts through stories, analogies etc.			
focus plenaries on how tasks have been done, not just on what answers have been produced			
understand the relevance of the National Curriculum thinking skills to performance in their subject			
support pupils in their development of an explicit vocabulary of thinking words			

Unit 17   Developing effective learners

For developing effective learners I/we/teachers …	Always	Sometimes	Never
provide opportunities for pupils to evaluate their work and consider how they might improve			
teach pupils how to search for information and seek assistance with their learning			
foster a good range of learning skills among the pupils			
have a clear understanding of what is meant by an effective learner			
help pupils to improve their skills in organising their learning and planning their work with care			
have a range of strategies for developing pupils' thinking skills			
make opportunities to discuss effective learning at whole-school or departmental level			

Unit 18   Improving the climate for learning

When improving the climate for learning I/we/teachers ...	Always	Sometimes	Never
have strategies for moving pupils from surface learning to deep learning			
create good momentum and pace in lessons			
allocate sufficient time at the end of lessons to review learning			
create effective displays in classrooms which support pupils' learning			
use language positively in the classroom to support learning			
foster good interpersonal relationships and mutual respect in the classroom			

Unit 19   Learning styles

For learning styles I/we/teachers ...	Always	Sometimes	Never
plan activities where pupils engage well with the material and make good progress			
take pupils' preferred learning styles into account when designing lessons			
can identify the preferred learning styles of pupils			
help pupils to become aware of their own learning preferences			
create learning environments to support a range of preferred learning styles			

Unit 20   Classroom management

For classroom management I/we/teachers …	Always	Sometimes	Never
identify and establish the core values and beliefs underpinning classroom practice			
use the language of respect and praise			
avoid confrontation			
apply rewards and consequences consistently			
develop rules and routines			
adopt a solution-focused approach to achieve positive outcomes			

Record of strengths and development needs

Look back at the ticks placed in the tables and identify the areas (e.g. *lesson design, questioning*) of greatest strength and the areas that are most in need of developing. Discuss and compare your analysis with that of the colleague you are working with in order to agree a prioritised action plan. If you are working entirely on your own, you will need to prioritise your development needs and to use the associated unit.

Record of strengths and development needs
Strengths
Development needs (indicate an order of priority with a brief explanation of your rationale for the highest priority)
Action
Date

Follow-up review

The follow-up review should be conducted once there has been time to complete the study unit and other tasks identified in the action plan. The review sheet should express the agreement following discussions between the teacher using the study unit and the mentor, coach or induction tutor and should be used to record the previously agreed actions, successes, a review of development needs and any further action needed (within either the focus study unit or another study unit).

Follow-up review sheet
Unit title:
Previously agreed actions:
Impact on pupil achievement:
Review of development needs:
Actions:
Date

References

- Hargreaves, D. (2003) *Working laterally: how innovation networks make an education epidemic*. Ref: DfES 0825/2003.

- Hopkins, D. (2002) *Improving the quality of education for all*. David Fulton. ISBN: 1853466492.

- Hopkins, D., Harris, A., Singleton, C. and Watts, R. (2000) *Creating the conditions for teaching and learning*. David Fulton Publishers. ISBN: 1853466891.

Other useful publications

- *Narrowing the achievement gap*. This publication with accompanying CDs shows how five schools attempted school improvement through staff development. It can be obtained from DfES (Sonia Ford) on 0207 925 7477.

- *Sustaining Improvement: a suite of modules on coaching, running networks and building capacity.* Ref. DfES 0565-2003 G. This publication with accompanying CDs and DVD shows how to improve coaching, run networks and assess and improve the capacity of your school to improve itself.

- Harris, A. and Chapman, C. (June 2002) *Effective leadership in schools facing challenging circumstances*. A summary of findings from research undertaken with and for the National College for School Leadership. The full report is available from www.ncsl.org.uk/research.

- National College for School Leadership (2002) *Making the difference: successful leadership in challenging circumstances*. This NCSL publication sets out eight strategies for improvement, breaking them down into shorter-term and longer-term actions.

department for
education and skills
creating opportunity, releasing potential, achieving excellence

Raising
Standards
Standards and Effectiveness Unit

INVESTOR IN PEOPLE

*Pedagogy and Practice:
Teaching and Learning in
Secondary Schools*

Unit 9: Guided learning

Teaching repertoire

How to use this study guide

This study unit offers some practical strategies that teachers use to guide pupils' learning. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide, you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to guided learning. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community. Record successes in your CPD portfolio.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 9, Guided learning, when working through this unit.

Guided learning

Contents

Introduction

Successful guided work

When guided group work is a regular feature of lessons, pupils:

- learn to collaborate and provide feedback to each other on learning;

- take greater responsibility for sustaining discussion;

- are expected to contribute and build on each other's ideas;

- take on board subject terminology and learn to express and explain ideas clearly;

- reflect on their own learning and consider progress towards personal targets;

- feel a sense of achievement, which can be immediately confirmed by the teacher.

Common issues

The range of attainment and rates of progress in secondary classes widen significantly. Following whole-class teaching, pupils usually need further support and interaction with the teacher and each other to consolidate and extend knowledge, skills and understanding and to tackle misconceptions. However, unless this part of the lesson is carefully planned, the contact teachers have with pupils as the lesson unfolds can often be too fleeting, sporadic and reactive to have a significant impact on their progress.

Effective guided work requires a certain amount of advance preparation by the teacher, so that the particular needs of a group can be met.

Resolving the issues

Guided learning is a powerful procedure for pitching work at appropriate levels for differing groups within the class, so that all pupils make good progress. It enables pupils with SEN to be taught in inclusive settings and guarantees that the highest attainers also get close attention from the teacher on a systematic basis. Guided group work is most likely to be effective if the teacher:

- only uses guided groups when the particular lesson and stage of learning require it;

- organises guided groups so that the social and academic mix is appropriate, and explains this clearly to the pupils;

- trains the whole class to work productively and independently to allow the teacher to spend quality time with one group;

- understands the principles of guided learning and how to apply them in different contexts;

- is able to make effective use of a teaching assistant to support the rest of the class on a one-to-one basis whilst a guided session is taking place.

1 Organising guided work

What is guided learning? A springboard for independence

Guided learning is an instructional sequence for small groups which is integrated into lessons to provide a bridge between whole-class teaching and independent work. It is direct teaching and works best when pupils are acquiring and developing concepts or skills in a subject. It can also be used to consolidate and refine skills and understanding. Guided sessions are flexible and can last from 10 to 30 minutes depending on the nature of the task and objectives. It is not a discrete or separate programme, but is one part of a rich, challenging and coherent curriculum.

It is about pupils *taking control of their learning* through a managed process. In a guided learning group:

- pupils are grouped according to ability, or particular learning need;

- the teacher plans the session, which is structured to provide pupils with just the right amount of challenge and support so that they can begin to stretch themselves as learners;

- the emphasis is on supporting pupils so that they learn to work independently on a particular aspect.

Guided learning enables teachers to support and challenge pupils by intervening in a sustained and proactive way *at the point of learning*, as pupils read, write, talk, design, plan, make or practise. It helps to develop personalised learning since it is a means of tailoring teaching and learning to the needs of individual pupils. It does this by grouping pupils to provide structured support and challenge inside or

outside normal lessons to address aspects of progress and specific needs. Guided learning builds pupils' independence through focused intervention, interaction and collaboration.

In guided learning groups, the teacher does more than 'listen in', or 'join in'. It is a place where you continue to teach, but are much closer to the pupils – you can monitor their responses, and adjust what *you* say or do, and what you ask *them* to do or say, accordingly. It is assessment for learning in action.

As with all good teaching, good subject knowledge and assessment are prerequisites for an effective guided session. Groups should be formed on the basis of the stage of progress or point of need of the pupils. They involve a small group of pupils, usually between four and six, and can take place in or outside the classroom. They are led by a teacher or, with structured notes and guidance, a teaching assistant. Sometimes the teacher will remain with the group for the duration of the guided session, but this is flexible. At appointed times during the session it is possible for the teacher to circulate among the other pupils working independently to monitor and support their work.

For guided work to take place, an effective learning climate needs to be established with the whole class, including good behaviour and positive relationships, clear routines and a well-presented environment. Guided work is helped with the greater number of teaching assistants available in schools.

Once the rationale is established, the routines are in place and pupils accept that the teacher will at times spend more sustained time with specific groups, both independent and guided work become more productive as the outcome for both is a reduced dependency on the teacher.

Becoming familiar with guided work   30 minutes

Watch video sequence 9a. It shows a Year 8 English lesson, towards the end of a sequence of work in which pupils are being taught how to plan, organise and compose an extended piece of persuasive writing. The video clip shows the part of the lesson (approximately half an hour after the start) when the teacher joins a group of pupils and conducts a short guided writing session while the rest of the class work independently on their own writing.

The clip is a rich resource, and bears several viewings to yield the full extent of what occurs. If this is your first opportunity to see a guided session 'in action', concentrate during your first viewing on how the teacher has structured the session.

You might like to make a note as you watch to capture the 'stages' in the guided writing, which are based on the idea of an 'instructional sequence'. This is dealt with in more detail in the next section of this unit.

Now consider the following question:

How might guided writing be used across the curriculum?

Section 2 of this unit provides some responses to this question.

Practical tips   What about the time?

The use of time for guided sessions will vary according to different subjects. In core subjects guided work could be used as part of a systematic and ongoing rotating programme, whereas in other subjects it could be used as a one-off focus to address identified issues in learning. This could be for challenging high attainers or tackling misconceptions or problems with progress for specific groups.

- Ensure tasks and resources are well organised, reducing the necessity for teacher intervention.

- Reduce the time of the guided session according to lesson length.

- Ask the guided group to do some preparation at home prior to the session.

- Ensure that the final share/evaluate/transfer stage of the sequence takes place as a critical part of learning, since this will increase the likelihood that the learning will be consolidated for application in other contexts.

- Start small: use smaller chunks of time and build towards more substantial guided sessions. Start with times when you would naturally 'break off' to visit the whole class.

- The strategy should ultimately save time if crucial misconceptions are resolved.

- Ensure pupils are clear about the purpose of tasks and the outcomes.

- Monitor the activities of the class.

- In the early stages of development, use support from a leading professional or a consultant, where possible.

- Arrange for extra adult support, for example from a teaching assistant, for lessons that include guided learning sessions.

- Make clear to the whole group the purpose of guided learning.

- Use learning partners.

- Use stimulating, engaging materials/tasks.

2 Comparing guided reading and writing

Guided reading is a time when the teacher structures and supports pupils' reading and response through a carefully planned 'instructional sequence'. The stages of the sequence with the teaching intentions are given below.

Guided reading can be used across the curriculum using both fiction and non-fiction texts. It can be used to develop investigation and research skills in a range of subjects using texts such as newspaper reports, encyclopaedias, textbooks and websites. In some subjects, for example history, using guided reading for fiction would also be relevant.

The structural sequence of guided reading provides a framework that can be used in guided sessions to develop skills and other aspects of learning in subjects, such as planning procedures in science or the design process in D&T.

Guided reading	
Learning sequence	**Teaching intention**
Introduction	to introduce the text
	to support recall
	to make connections
	to encourage prediction and speculation
	to recap on prior learning
Strategy check	to make explicit a range of reading strategies and cues
	to make explicit the learning objectives and outcomes
Independent reading	to monitor as pupils read, checking for accuracy, fluency and comprehension
	to give pupils focused attention (teacher-on-the-shoulder)

Table continues

		to give pupils the chance to develop reading stamina and range
Returning to the text		to go back to the text encouraging pupils to identify details and points which require clarification, exemplification or discussion
		to support pupils in developing critical and deeper responses to the text
		to use the text to review the application of a key reading strategy (such as re-reading, skimming, scanning)
		to tackle misconceptions
		to establish a critical dialogue around the text, exploring personal preferences and probing and extending responses
		to assess comprehension and the use of appropriate reading strategies
Review		to return to and reinforce the learning objectives
		to reflect on progress made and strategies used
		to prepare for further learning
		to transfer the skills and knowledge to other contexts
		to evaluate strategies and texts

In guided writing, the pupil writes with 'the teacher on the shoulder' providing support and intervention. It involves the teacher 'handing the pen to the pupil' but providing support *in the act of writing*, rather than leaving the pupil alone and then marking a finished piece (when it is often too late to tackle problems or act on missed opportunities). Guided writing has potential across the curriculum as it enables you to support pupils at the point when they are planning, drafting, composing or revising their writing. It enables you to provide specific support to tackle how pupils can express what they know. It is particularly useful when pupils are working on an extended piece of writing that requires them to sustain a line of thought, provide an explanation, convey an argument or provide a detailed evaluation. And it's useful for pupils of all abilities. You can both support weaker writers, as well as challenge and extend those who are more proficient.

There are at least three types of guided writing session depending on the stage of the writing process being addressed: that is planning, drafting and reviewing. Only the drafting sequence is included here, since it is the stage that receives least attention.

Guided writing: drafting	
Learning sequence	**Teaching intention**
Introduction	to establish the task
	to identify prior knowledge
	to clarify the main features of the text
	to make connections to similar texts by other writers
	to confirm audience and purpose
Cue in	to refer back to planning for writing
	to provide a way in to writing
	to provide alternative starting points
	to highlight strategies for writing (e.g. visualising)
Try/improve	to generate text
	to explore different possibilities for the text
	to identify key points in the text for consideration
	to open up linguistic choices and options
	to add, delete or substitute words, phrases, sentences
	to tackle misconceptions
	to mediate knowledge (about language)
	to move or reorder parts of the text
	to extend and develop, or shorten the text
Share/appraise	to praise and build confidence, identifying strengths
	to use terminology to generalise about language and writing
	to discuss writing with peers and with the teacher
	to assess the progress of the writer and the text
Review	to reflect on what worked
	to return to and reinforce the learning objectives
	to reflect on progress made and strategies used
	to prepare for further learning
	to transfer the skills and knowledge to other contexts

The two sequences when placed alongside each other can be summarised as follows.

Guided reading sequence	Guided writing: drafting
introduction to text	introduction
↓	↓
strategy check	cue in
↓	↓
independent reading and related task	try/improve
↓	↓
return to the text: developing response	share/appraise
↓	↓
response and review (reading target and next steps)	review

Task 2

The structure of guided work   20 minutes

1 What are the similarities in the structure of guided reading and writing?

2 Do you note any potential applications of such an instructional sequence to the subject you teach?

Possible answers

1 Both structures:

   – represent an instructional sequence of key teaching episodes;

   – begin by establishing a focus for the task with the whole group;

   – move to supported application by pupils;

   – conclude with group reflection to establish progress and identify further learning targets.

2 By considering how learning works in guided reading and writing, it should be possible to explore how the sequence can be applied in other contexts. This is what you will go on to do now.
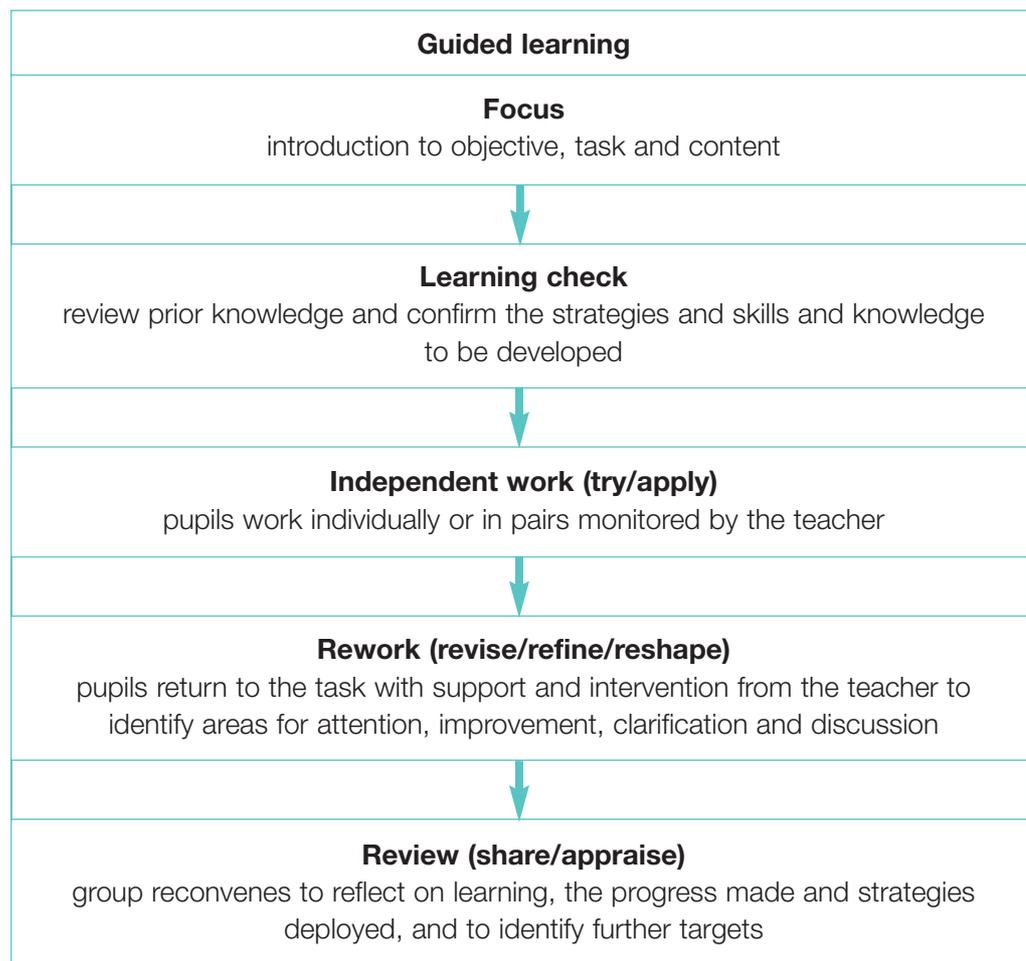
- Make the learning objectives clear.

- Use whole-class starters and plenaries, reminding independent groups they will be feeding back at the end of the lesson.

- Make sure you are positioned to have regular views of the whole class.

- Start with groups you know well and with whom routines are well established.

- Use preparatory lessons to establish ground rules for those not in the guided group.

3 The guided learning sequence

The structural sequences of guided reading and writing have generic features. One possible means of describing this generic pattern is provided below. Each stage can be linked to and derives from the stages in guided reading and writing. This sequence provides a framework which can be used in guided sessions to develop the knowledge, skills and understanding in subjects across the curriculum.

Guided learning
Focus introduction to objective, task and content
↓
Learning check review prior knowledge and confirm the strategies and skills and knowledge to be developed
↓
Independent work (try/apply) pupils work individually or in pairs monitored by the teacher
↓
Rework (revise/refine/reshape) pupils return to the task with support and intervention from the teacher to identify areas for attention, improvement, clarification and discussion
↓
Review (share/appraise) group reconvenes to reflect on learning, the progress made and strategies deployed, and to identify further targets

The purpose of the introduction and learning check is to establish the task, identify prior knowledge and make explicit the strategies and skills which will be used in the session. In these 'focus' and 'check' parts of the session, the teacher also scaffolds the learning, handing over responsibility and control for the task to the pupil prior to the independent work taking place.

Then, as pupils undertake the activity, individually or in pairs (independence here means of the teacher, but not necessarily of each other), the teacher initially monitors, identifying strengths and possible areas for attention and discussion.

The pupils are then encouraged to return to the task, with support and guidance from the teacher or each other, to discuss and revise the work, refining their knowledge, understanding and skills. This part of the session is critical, and challenging for the teacher, since it is a point in which the instructional conversation between the teacher and pupil, if handled well, can produce significant developments and acceleration in learning.

It is crucial that pupils' strengths are indicated and that pupils are given the confidence and support to revise and reshape their work in a constructive and positive way. Misconceptions and obstacles to progress also need to be tackled. Pupils need to see this reworking and discussion of their efforts as an integral part of learning to bring about improvement and not a comment on inadequacies or incompetence.

The session concludes with group reflection on the progress made and strategies used, with the aim of reinforcing the learning objectives, discussing how the skills and knowledge can be applied elsewhere and identifying further targets for learning.

Task 3

Getting started   45 minutes

View video sequence 9b showing a guided session in a Year 7 mixed-ability class history lesson on King John. The focus at this stage is on why he could be seen as a bad king. The objectives of the lesson are to use evidence to support opinions and to write well-structured paragraphs.

Watch the video sequence and use what you know about guided teaching to consider the following questions:

1 How clear is the guided learning sequence?

2 What is the impact on pupils' progress?

3 How might the sequence be developed?

Commentary

1 The teacher uses the stages of the guided learning sequence to structure pupils' progress in literacy and in the subject. She ensures that significant time is provided for the share/evaluate/transfer section at the end to enable pupils to reflect on what they have learned and the approaches they have used.

2 The sequence shows pupils making progress in their use of historical evidence through improved vocabulary, sentence construction and paragraph organisation. They discuss and collaborate in pairs and across the group, and at times are given the opportunity to construct sustained contributions. The

teacher enables them to refine and reshape their writing in order to orchestrate a range of historical information, and helps them to identify what they need to do to continue to improve when working independently.

3   In the early stages of the guided sequence, the teacher highlights the objectives and success criteria and enables pupils to activate prior knowledge. It may also be useful to confirm and model learning strategies more explicitly in this part of the session, for example how to make best use of the scaffolded support for the tasks.

There are three other video sequences you could watch involving art and design, D&T and MFL, which also illustrate guided learning in different subjects (video sequences 9c, 9d, 9e).

Task 4

Planning and trying it out   1 hour

Now plan a guided learning session in your subject, using the sequence. Choose a class you are confident will manage independent work well, and form a group that has similar needs or aspects of progress to be addressed.

You could use the chart in resource 1, page 21 as a format for planning your lesson as it helps, particularly in the early stages, to plan explicitly the five sections of the sequence. You can, however, use any system which you feel is manageable and effective.

The guided group can have specific objectives for their session, or the same objectives as the rest of the class, depending on the purpose of the session, the focus of subject progression and the needs of the group.

Use the following list of questions to help you review how your session went.

• Did you complete all of the stages of the sequence?

• How well did the selected pupils respond?

• How well did they work as a group?

• What was the impact on their work?

• How well did the other pupils remain on-task?

• How well could all pupils reflect on their progress in the plenary of the class lesson?

Practical tips   What about behaviour?

• Establish clear expectations and standards (see unit 1).

• Reinforce expectations regularly.

• Praise and reward appropriate behaviour (see unit 20 and video sequence 20a).

• Use learning partners (see unit 4).

Tips continue

- Establish protocols for group work/talk for the guided group and the rest of the class (see unit 10).

- Model the learning disposition (see unit 6).

- Make it clear that pupils will be expected to feed back from the guided group to the whole class and vice versa.

4 The principles of guided learning

Using guided learning is not about sticking rigidly to any given structure. The guided learning sequence is underpinned by clear principles for teaching and learning. Making these explicit will enable you to apply the guided learning sequence flexibly to suit your own subjects, contexts and pupils, rather than adhering rigidly to any given structure or timing.

Read the first part of the summary of research on pages 15–18 which sets out some of the theoretical principles that underpin guided group work.

Task 5	Using the principles of guided learning	90 minutes

Refer to the list of principles for guided learning which are outlined at the start of the summary of research on page 15. Plan and teach another guided learning sequence, keeping the principles clearly in mind, especially the idea of joint construction, using the group as a powerful engine to drive the learning beyond where pupils are individually.

Use the chart in resource 2, page 22 as a means of evaluating how well your session went.

Practical tips	What about resources?

- Ensure resources for the rest of the class are organised and accessible.

- Use the learning environment as a support for learning, with displays, checklists and prompts visible, particularly for literacy and numeracy and also learning strategies.

- Use ICT as a support for learning.

- Organise resource and book boxes ('independence boxes') and equipment which can be carried between rooms.

- Ensure dictionaries, thesauri and other resources to support independent research are available.

- Plan the use and deployment of resources with colleagues within the department to support independent work.

5 The teacher's role

Reflecting on the role   10 minutes

Considering the examples of guided learning you have watched so far, how would you describe the teacher's role in guided learning?

How does the teacher have a positive impact on learning?

The teacher as mediator

In guided learning the teaching is active and interactive. If guided learning is to work well then the intervention of the teacher to bring about effective learning is crucial. Such intervention to bring about a result in learning has been called 'mediation' (Vygotsky). The idea of mediation, or intervening, is a very important component of the teacher's role in fostering learning in general and guided learning in particular.

The teacher can be seen to be mediating at three important points:

• typically when the session is introduced, the teacher does a number of important things which help pupils make sense of the forthcoming activity – stimulating, activating knowledge, focusing, establishing relevance or purpose (connecting), instructing, scaffolding;

• during the activity as pupils are working: supporting, intervening, guiding;

• after the activity, where the full meaning/significance of the activity can be explored: articulating, making meaning, connecting, exploring, drawing analogies, generalising.

The diagram below illustrates the notion in relation to the five parts of the guided sequence.

Mediation				
Mediation		Mediation		Mediation
Focus/Check	→	Independent work/Rework	→	Review
stimulating		observing, challenging		articulating
focusing		supporting		making meaning
connecting		intervening		exploring
instructing		guiding		connecting
activating knowledge				generalising

The central section of any guided learning session involves the pupils doing the activity or task. During this time the teacher intervenes, supports, challenges, guides pupils through the work. The teacher will also be carrying out a number of active roles including listening, observing and assessing to be better informed about subsequent intervention; highlighting critical features of the task that might be overlooked; maintaining an orientation to the task; and challenging assumptions.

An important idea in guiding is to give only just enough help, so that pupils do not develop dependency. This has been termed *contingent teaching*. A guided group allows a teacher to attune more closely to the pupils in the group both the level of difficulty of the task and the challenge and support provided by the teacher. This means that pupils can grapple with challenging material, problems, questions and issues which may be beyond them individually. This constructive effort is critical in building pupils' capability and also in creating a positive disposition to learn.

The teacher is helping the pupils make sense of the learning material or stimulus and the learning experience. In this sense the teacher can be magnifying and sharpening the learning outcome. It should be added that, if presented effectively, guided learning provides an excellent opportunity to model behaviours of effective learning, teaching pupils the behaviours of lifelong learning.

Task 7	The active role of the teacher	1 hour

Revisit one of the video sequences which you have viewed and this time consider the teacher's role by answering the following question:

- How does the teacher intervene to move the pupils on in the learning?

You can use the following prompts and the chart in resource 3, page 23 to focus your viewing, noting any examples of teacher behaviour which you think:

- help pupils make sense of the learning material;

- maintain an orientation to the task;

- attune the challenge and support to the group;

- teach pupils learning behaviours;

- sharpen and increase the learning outcomes.

Task 8	Observation	1 hour

Arrange to teach a guided learning sequence and be observed. The observer can use the chart in resource 3, page 23 to make notes.

Then discuss the quality and nature of your intervention in the guided session with the observer. Treat this as a dialogue or coaching conversation, rather than one-way feedback from the observer.

What about health and safety?　　　　　　　　　　**1 hour**

Work with a colleague in your subject and conduct a risk assessment. What are the potential issues and how might they be overcome or minimised?

For instance:

Issue
Practical sessions in science or D&T

Possible solutions

- Only use guided sessions in non-practical situations.

- Use guided learning when there will be another adult in the room, e.g. consultant / NQT / student teacher. Treat it as a team-teaching opportunity.

- Use teaching assistants to run guided learning sessions or to monitor the rest of the class while you run the guided session. (Training may be required.)

- Use monitoring 'sweeps' at points during the guided session, moving around the rest of the class.

Summary of research

Principles for guided learning

The theoretical principles underpinning guided learning are consistent with those informing teaching and learning across the Strategy. They can be summarised as follows.

- Learning is a social activity in which talk is fundamental.

- Knowledge is jointly constructed and achieved.

- 'Scaffolding' provides support and focus through a gradual shifting of responsibility and control to the pupil.

- Metacognition, consciously focusing on and reviewing learning strategies and progress, is integral to learning.

- Language, thinking and learning are interrelated.

- Motivation and the disposition to learn are important parts of learning.

- Learning is structured into distinct episodes that follow a clear sequence which increases in cognitive demand.

- Teaching is designed to outpace rather than follow development.

- Teaching and learning are interactive, being part of a structured, focused dialogue between teacher and pupils and amongst pupils themselves.

The idea of social construction (the first two points and the last one) is based on the work of Bruner and Vygotsky. In simple terms, a group is capable of better solutions than an individual. The processes in the joint thinking and talk can gradually be internalised and applied by the individual, pupils rehearsing socially what they later can apply individually. The difference between what individuals can do alone and what they can do with the assistance of more capable peers or the teacher, Vygotsky called 'the zone of proximal development' (also translated more recently as 'the zone of potential development').

Scaffolding helps the learner to connect prior learning with new learning. It involves the teacher guiding pupils' learning through interactive direct teaching (e.g. modelling, demonstrating and questioning) and also by constraining the tasks set to provide focus and support. Limiting the scope and freedom of the activity reduces ambiguity while retaining challenge, enabling the teacher to manage the pace and process by which pupils take increasing control of the task and the learning.

Metacognition is about the pupil taking control of their learning by integrating prior and new knowledge; solving problems individually and in groups; and consciously reviewing progress and strategies to check that the right information is being used, no incorrect assumptions have been made and there aren't better ways of doing the task. It helps if pupils have a vocabulary for thinking and reflecting on learning. Metacognition is particularly important with tasks which are hard, and enables pupils to accept that learning involves uncertainty and difficulty.

Motivation is an important part of learning. Carol Dweck (2000), an American psychologist, has identified two main kinds of motivation to learning: performance orientation and learning orientation.

Learning orientation	Performance orientation
• a belief that effort leads to success	• a belief that ability leads to success
• a belief in one's ability to improve and learn	• a concern to be judged as able and a concern to perform
• a preference for challenging tasks	• satisfaction in doing better than others or in succeeding with little effort
• derives satisfaction from personal success at difficult tasks	• emphasis on interpersonal competition, normative public evaluation
• applies problem solving and self-instruction when engaged in task	• helplessness: evaluates self negatively when task is difficult

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The performance-oriented learner is more likely to give up when the task is difficult or when receiving low grades. The learning-oriented learner, on the other hand, is more likely to persevere and show resilience, to be influenced by grades to a lesser

degree and to display other characteristics such as critical curiosity, creativity, and positive learning relationships and attitudes. Guided learning is therefore as much about building a positive orientation in the learner as about teaching skills or strategies the learner might use. Clearly, however, these aspects are interrelated since one means of bringing about a learning orientation is enabling pupils to achieve well and make good progress.

Language, thinking and learning are interrelated. Pupils' progress in language and literacy is affected by their capacity to think and learn. Language is also important in the development of information processing, reasoning, enquiry, creative thinking and evaluation. The teacher needs to use effective questioning to challenge learners to articulate their thoughts and to develop their thinking and learning by justifying and explaining their ideas and opinions. This has been called putting a 'press' on pupils' language.

The guided session is part of a broad learning sequence for the lesson or number of lessons, acting as a link between initial whole-class work and subsequent independent work. However, the guided session itself is also divided into clear sections to form a regular and systematic instructional sequence of its own (which is described in more detail through this unit).

Teaching is about accelerating pupils' development and learning so that they move quickly beyond what they can already do to new learning. The learning needs to be pitched so as to avoid, on the one hand, boring repetitive work, and, on the other, tasks and interventions that are totally beyond pupil capability. In cognitive psychology this is known as 'cognitive conflict'. All pupils need opportunities to struggle and think through challenging problems and issues. Teacher intervention needs to be skilfully judged so that pupils receive enough support to keep them going, but enough challenge to maintain a fast rate of progress. Guided learning, because it is focused on carefully selected groups, enables teachers to do this more effectively.

Guided reading and writing as the basis for guided learning

Guided reading is a recent development (during the last 30 years) and arose from approaches to the teaching of reading developed in New Zealand by Don Holdaway. These emphasised the collaborative experience of reading as a support structure to develop pupils' reading strategies and skills. Guided reading has been used with considerable success in the Primary National Strategy and the English strand of the Key Stage 3 National Strategy.

Guided reading creates a social context for reading and responding to texts. The teacher needs to give detailed consideration to the pupils' engagement and stage of progress so the text needs to be carefully chosen and teaching closely attuned to pupils' needs.

Guided writing differs from guided reading in that the teacher–pupil interaction in guided writing is often more akin to a small-group version of whole-class shared writing (that is, the teacher usually retains more involvement and control than in guided reading). The main thrust of guided writing, however, is to give control to the pupils with 'the teacher on the shoulder'.

Guided writing as a whole is not as well developed in schools as guided reading.This is partly because writing has traditionally been seen as a silent, solitary

and private effort on which there should be limited intrusion so as not to stifle pupil expression, originality and creativity. While this concern is understandable, many pupils find the move from whole-class teaching to independent writing difficult. So they do not achieve as well as they should when faced with the blank page or screen, even when provided with scaffolds such as writing frames. Guided writing challenges traditional assumptions since it uses discussion (teacher to pupil and amongst pupils themselves) to make explicit a writer's choices, decisions, tactics and skills, 'drawing writing into talk'. As the writing takes shape, the teacher opens up alternatives for pupils by discussing and extending the linguistic patterns and semantic options available to them and by highlighting that writing is an exciting process where texts can be improved and can create different effects and meanings through revisions and changes. As in guided reading, the small-group context assists the teaching in exploiting common concerns while attuning the teaching to the individuals within the group.

References

- Beard, R. (1998) *National Literacy Strategy: Review of research and other related evidence*. University of Leeds, 38–39. Available at www.standards.dfes.gov.uk.

- DfES (2002) *Training materials for the foundation subjects*, unit 11, handout 11.2. Ref. DfES 0350/2002.

- DfES (2003) *English department training 2003/04: Improving writing course handbook*. Ref. DfES 0399/2003.

- Dweck, C. (2000) *Self theories: their role in motivation, personality and development*. Psychology Press. ISBN: 1841690244.

- Harrison, C. *Roots and research, Key Stage 3 English.* Ref. DfES 0353/2002.

- Holdaway, D. (1984) *The foundations of literacy*. Heinemann. ISBN: 0868960144.

Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on your pupils?

Here are some suggestions as to how you may develop practice further:

- Identify possible opportunities for guided learning from medium-term planning. Select aspects of knowledge and skills that are particularly appropriate for guided learning sessions.

- Plan and teach a sequence of guided learning sessions for a particular class

over a half-term. Evaluate their effectiveness by assessing the progress of all the pupils in the class.

- Consider how you might apply in whole-class teaching the types of intervention you were using in the guided work (for instance using questions to mediate and exchange ideas across the group rather than between individuals and the teacher, or allowing sustained responses from pupils without teacher interruption or comment). Try them out with a class who are used to guided work. Evaluate the impact they have on the quality of whole-class interaction and the standards of pupils' responses.

- Present your work to other colleagues in the department or even to the whole staff. Be clear and candid about positive features which you found and also any problems and challenges to be addressed. Also provide evidence of the impact on pupils' learning and standards of attainment.

- The DVD that accompanies this material also includes three other extracts from guided learning sessions in the following subjects: MFL; art and design; and design technology. Having worked through this unit, you may wish to view one or more of these extracts and consider how guided work can enhance teaching and learning in subjects where there is a greater emphasis on oral work, and on practical activity. If your subject is one of those featured on the DVD, you may wish to use the video, and some of the material you have worked through, as the basis for a departmental meeting at which you consider the potential of guided work to improve standards in the subject.

For further reading, the following publications are recommended:

- DfES (2002) *Guided reading in English at Key Stage 3.* Ref. DfES 0044/2002.

- DfES (2002) *Group reading at Key Stage 3: material to support group and guided reading in Years 7, 8 and 9.* Ref. DfES 0674/2002.

- DfES (2002) *English department training 2002/03, Y7 Session 3 Improving writing* pp. 21–24. Ref. DfES 0313/2002.

- DfES (2003) *ICT in the Literacy Hour: independent work and guided reading*. Ref. DfES 0015/2003.

- Fountas, I. C. and Pinnell, G. S. (1996) *Guided reading: good first teaching for all children*. Heinemann. ISBN: 0435088637.

- Holdaway, D. (1984) *The foundations of literacy*. Heinemann. ISBN: 0868960144.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Task 10	Setting your targets	40 minutes

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

Resource 1

Chart for task 4

Teaching group Guided group:	
Teaching objective(s):	
Resources	
Teaching sequence Focus Learning check Independent work Rework Review	
Evaluation	

Resource 2

Chart for task 5

Guided learning lesson: **Class**:

Group:

Objectives:

Learning principle	Practice
social	
interactive	
scaffolding	
metacognition	
episodes	
challenge	

Resource 3

Chart for tasks 7 and 8

Guided learning lesson: **Class**:

Group:

Objectives:

Teaching	Practice
Making sense of the learning material	
Maintaining an orientation to the task	
Attuning the challenge and support	
Teaching learning behaviours	
Sharpening outcomes	

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Raising
Standards
Standards and Effectiveness Unit

INVESTOR IN PEOPLE

Cambridge University Press 09-2004

*Pedagogy and Practice:
Teaching and Learning in
Secondary Schools*

**Unit 12: Assessment for
learning**

Creating effective learners

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How to use this study guide

This study unit offers some practical strategies that teachers can use to improve their understanding and practice of assessment for learning.

Assessment for learning is a key to personalised learning because it is a powerful means of helping teachers to tailor their teaching to pupils to get the best improvement, and to involve, motivate and help them to take the next steps in learning.

The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers. By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to specific aspects of assessment for learning. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 12, Assessment for learning, when working through this unit.

Assessment for learning

Contents

Introduction

When assessment for learning is well established in a classroom pupils are:

- actively involved in their own learning;

- able to judge the success of their work and set and understand targets for improvement;

- able to take responsibility for their own progress.

Common issues

Where assessment for learning is not a strong feature in classrooms, pupils do not tend to develop the skills necessary to take charge of their own learning. They may not fully understand what it is that they are trying to learn or what successful outcomes will look like. As a result they are unable to assess the quality of their own work or engage constructively in identifying what they need to do to improve specific aspects of their learning. Pupils do not readily talk about their learning and rarely take responsibility for their own progress. This can lead to disengagement with the learning process and sometimes to poor behaviour.

Resolving the issues

Research has shown that assessment for learning can have a significant effect on how well pupils achieve in terms of their attainment, behaviour, motivation, engagement and their ability to work independently. These improvements are encouraged when assessment for learning is embedded as part of normal classroom practice. In such classrooms, what is to be learned is made clear to pupils, as well as the standards at which they are aiming. Time is found within classroom routines for discussion about how well work meets a particular set of criteria or standards, not only between teachers and pupils but also between the

pupils themselves. Feedback to pupils tells them what they have done to meet criteria so far and what else they need to do. Routines are planned to provide the time for this to happen. Finally, every pupil's confidence is improved because the expectation is that they can achieve, and joint consideration of assessment data demonstrates this.

1 What is assessment for learning?

Assessment for learning has been defined as:

> *The process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there.*

Quoted from *Assessment for Learning: 10 Principles* by the Assessment Reform Group, 2002, available from aaia.org.uk.

The following key characteristics identify assessment for learning in practice.

Assessment for learning:

- is embedded in a view of teaching and learning of which it is an essential part. Assessment for learning is not something extra or 'bolted on' that a teacher has to do. Pupil learning is the principal aim of schools and assessment for learning aims to provide pupils with the skills and strategies for taking the next steps in their learning;

- involves sharing learning goals with pupils. If pupils understand the main purposes of their learning and what they are aiming for, they are more likely to grasp what they need to do to achieve it;

- aims to help pupils to know and recognise the standards that they are aiming for. Learners need to be clear about exactly what they have to achieve in order to progress. They should have access to the criteria that will be used to judge this, and be shown examples or models where other learners have been successful. Pupils need to understand what counts as 'good work';

- involves pupils in peer and self-assessment. Ultimately, learners must be responsible for their own learning; the teacher cannot do that for them. So pupils must be actively involved in the process and need to be encouraged to see for themselves how they have progressed in their learning and what it is they need to do to improve. Teachers need to encourage pupils to review their work critically and constructively;

- provides feedback, which leads to pupils recognising their next steps and how to take them. Feedback should be about the qualities of the work with specific advice on what needs to be done in order to improve. Pupils need to be given the time to act on advice and make decisions about their work, rather than being the passive recipients of teachers' judgements;

- involves both teacher and pupil in reviewing and reflecting on assessment data (information). Pupils need to have opportunities to communicate their evolving understanding and to act on the feedback they are given. The interaction between teacher and pupil is an important element of developing understanding and promoting learning;

- is underpinned by confidence that every student can improve. Poor feedback can lead to pupils believing that they lack 'ability' and are not able to learn. Pupils will only invest effort in a task if they believe they can achieve something. The expectation in the classroom needs to be that every pupil can make progress in his or her learning.

Based on: Assessment Reform Group (1999) *Assessment for learning: beyond the black box*. University of Cambridge, Faculty of Education. ISBN: 0856030422.

The following table suggests some teaching strategies that will support the development of assessment for learning in your classroom.

Key characteristics of assessment for learning	Teaching strategies
Sharing learning objectives with pupils	- share learning objectives at the beginning of the lesson and, where appropriate, during the lesson, in language that pupils can understand - use these objectives as the basis for questioning and feedback during plenaries - evaluate this feedback in relation to achievement of the learning objectives to inform the next stages of planning
Helping pupils to know and recognise the standards they are aiming for	- show pupils work that has met criteria with explanations of why - give pupils clear success criteria and then relate them to the learning objectives - model what it should look like, for example exemplify good writing on the board - ensure that there are clear shared expectations about the presentation of work - provide displays of pupils' work which show work in progress as well as finished product
Involving pupils in peer and self-assessment	- give pupils clear opportunities to talk about what they have learned and what they have found difficult, using the learning objectives as a focus - encourage pupils to work/discuss together, focusing on how to improve - ask pupils to explain their thinking: 'How did you get that answer?' - give time for pupils to reflect upon their learning - identify with pupils the next steps in learning

Providing feedback that leads pupils to recognising their next steps and how to take them	• value oral as well as written feedback
	• ensure feedback is constructive as well as positive, identifying what the pupil has done well, what needs to be done to improve and how to do it
	• identify the next steps for groups and individuals as appropriate
Promoting confidence that every pupil can improve	• identify small steps to enable pupils to see their progress, thus building confidence and self-esteem
	• encourage pupils to explain their thinking and reasoning within a secure classroom ethos
Involving both teacher and pupil in reviewing and reflecting on assessment information	• reflect with pupils on their work, for example through a storyboard of steps taken during an investigation
	• choose appropriate tasks to provide quality information (with emphasis on process, not just the correct answer)
	• provide time for pupils to reflect on what they have learned and understood, and to identify where they still have difficulties
	• adjust planning, evaluate effectiveness of task, resources, etc. as a result of assessment

Task 1

What does the research tell us?　　　　　　**20 minutes**

Research demonstrates that good practice in assessment for learning can bring about significant gains in pupil attainment.

As you read through the summary of research on pages 19–21, consider the key factors that improve learning through assessment and reflect on your current practice with a class of your choice. Highlight the points in the text for which you are already developing effective practice in assessment for learning.

Assessment in everyday lessons   **20 minutes**

Watch video sequence 12a, part of a Year 7 music lesson.

As you watch the video look for examples of the key characteristics of assessment for learning (pages 3–4) in action. The sequence is not meant to demonstrate every aspect of assessment for learning but you should be able to identify a number of the techniques used.

Having read the research, watched the video clip and reflected on your own practice, you should now have a broad overview of what is involved in assessment for learning. You may find some areas of your practice that are well developed and others that could be developed further. The activities in this unit expand on the principles and strategies in more detail and will help you to implement assessment for learning in your classroom.

The intention is not that you adopt all of the techniques at once but that you work through the ideas over a period of time with one or two of the classes that you teach. Eventually, as the strategies become secure and you identify the benefits of each, assessment for learning can become embedded within normal practice. As the research indicates, there is some evidence that assessment for learning has a bigger impact on pupils who have made slower progress in the past. This is hardly surprising since it is these pupils who often have found it difficult to recognise what is expected.

2 Sharing learning objectives and learning outcomes

A significant feature of assessment for learning is the sharing with pupils of both the learning objectives and the expected learning outcomes in a clear and explicit way. The teacher makes it clear that the learning objective is what the pupils are intended to learn, and that the learning outcomes define how achievement can be demonstrated by the pupils.

Unit 1 Structuring learning, which is about lesson design, makes the point that thinking through both the learning objectives and the expected learning outcomes in advance of the lesson is the key to successful lesson planning. The nature of the objectives will determine what teaching approach (or model) you use, and the strategies and techniques you will employ to ensure that the learning is effective and efficient.

Learning objectives

Research shows that, all too often, pupils have a good surface understanding of individual tasks but little sense of the purpose of the task and, ultimately, what they are required to learn. Sharing learning objectives with pupils helps them recognise what they are trying to learn and why.

Identifying the learning objectives   10 minutes

A common pitfall in the sharing of learning objectives is to identify what pupils are going to **do** in the lesson, rather than what they are going to **learn**.

Highlight which of the following are learning objectives as opposed to activities:

1 to know how to evaluate a product against a design specification;

2 to create a Christmas decoration for a front door;

3 to know the characteristics of earthquakes;

4 to understand how you can group text graphics and symbols together to make an image that means something and has an effect on people;

5 to draw and label a diagram of the eye;

6 to debate whether King William deserved to win the Battle of Hastings;

7 to understand the main causes of World War 1 and their immediate consequences;

8 to complete activities 1b, 2c and 3a, page 41, from your textbook;

9 to learn to interpret pie charts;

10 to improve our skills in dribbling a ball.

Answers can be found on page 24.

Learning objectives can be categorised into different types, and common stems can be used to share them with pupils, for example:

By the end of the lesson you will:

- **know that** … (for knowledge: factual information, such as names of people or equipment, places, symbols, formulae etc.);

- **understand how/why** … (for understanding: concepts, reasons, effects, principles, processes etc.);

- **develop / be able to** … (for skills: using knowledge, applying techniques, analysing information etc.);

- **develop / be aware of** … (for attitudes and values: empathy, caring, sensitivity towards social issues, feelings, moral issues etc.);

- **explore and refine strategies for** … (creating, designing, hypothesising, exploring alternatives).

An alternative, to give pupils some consistency, is to phrase objectives in terms of the stem: '**We are learning to …**'.

Once the objective is made clear, a short description of what will happen during the lesson might be appropriate, but it is important to separate this from the objective. Pupils also need to know and recognise the standards they are aiming for. It is essential that teachers are clear about their expectations and communicate these to pupils. When the learning objective is made explicit, then it should also be made clear what the learning outcomes for a task or set of tasks should look like.

Learning outcomes

The learning outcome will specify what is expected from the pupil as the result of a task or an episode within a lesson. It will explain the criteria for success. This can be accomplished in a number of different ways, for example:

1 by using stems such as:

- What I am looking for is … (for you to be able to use different tints to produce a …);

- What I expect from everyone is … (that you use the idea of energy to explain why …);

- To be successful you … (will need to identify where words have different meanings and explain their effects).

The language used in describing learning outcomes is product related, for example: be able to … describe … compare … explain … generalise … create. These criteria can be written out (possibly on cards) and presented to pupils to consider during the lesson.

2 by clarifying what is expected through the use of questioning.

- To produce a good … what do you think you will need to do?

- How will you make sure that …?

- What do we already know that will help you …?

- What do we mean by creativity?

3 by looking at examples of pupils' work and discussing which features meet the criteria and why.

Task 4

Sharing learning objectives and clarifying learning outcomes   **20 minutes**

Video sequences 12b (science), 12c (ICT) and 12d (music) show the introductions to three lessons. Note how the teachers share the purpose with the pupils and indicate the outcomes that are expected. The clips illustrate different approaches, which are identified in the following table.

Reflect on your own introductions to lessons: how do you communicate your objectives and expectations to the pupils? Decide on one of the techniques that you observed in the video which you feel would work well in one of your lessons. Try it out and evaluate the impact on the standard of pupils' work.

Which strategies did the teacher use to share learning objectives and outcomes with pupils?	How did the teacher make sure that the pupils understood the learning objectives and outcomes?
Science sequence • uses 'WALT' and 'WILF' to introduce objectives and outcomes • uses just one learning objective and one learning outcome • further explains nature of outcome (fact file) and what it will look like • provides 'big picture' in terms of scientists' concerns regarding the environment	• clarifies understanding of 'certainty' through questioning pupils • assesses pupils' initial understanding of the 'facts' and 'theories' and the need to weigh up certainty of scientific understanding (through paddle exercise) • clarifies format of the fact file
ICT sequence • uses flipchart to share learning objectives and outcomes with pupils • reflects on learning objectives • keeps to just two learning objectives • goes through and breaks down the learning outcomes • provides success criteria cards • links success criteria back to principles of good design, underpinning learning outcomes on flipchart	• asks questions to probe understanding of learning outcomes and rationale behind them • sets a brief task to help assess their understanding of the planned outcome • exemplifies the outcome, which helps set standard aimed for • uses success criteria cards to provide reference points during lesson to make sure pupils understand 'what I am looking for'
Music sequence • overview of lesson placed in context of previous lesson • uses cards to give stories for pieces of music • exemplifies achievement of learning objectives and helps set standard by using a piece of music • provides cards with objectives and success criteria	• pupils are questioned about previous lesson • questions pupils to ensure they understand elements of music • uses a piece of music to exemplify the success criteria • questions pupils about success criteria • cards provide reference during lesson

3 Helping pupils recognise the standards they are aiming for

At times, sharing learning outcomes at the start of a task is not enough, and there may well be occasions when more time needs to be spent on helping pupils understand what they have to do to reach a particular standard. The research evidence and teachers' own practice indicate that this is time well spent. Pupils need:

- to be shown 'what a good one looks like';

- to be told why it is considered 'good' and what specific features contributed to that judgement;

- to be given some suggestions about what to do, or to include, in order to reach a similar standard;

- to be told what they need to do to reach the next stage in their learning.

The following are some ways in which this can be achieved:

- **modelling** (see unit 6) is particularly useful for introducing a new skill, procedure or convention (such as a text type);

- **showing and discussing good examples and bad examples** is useful for a wide range of products, such as artefacts, texts, written designs, diagrams and new behaviours;

- **teacher-led discussion against criteria** is useful for judging a piece of work and demonstrating how some aspects match the criteria and some do not. This helps pupils begin to understand which qualities are being sought. Explaining mark schemes to pupils can also help here;

- **peer and self-assessment against criteria** can be used for a wide range of products and have many benefits (see section 4).

These activities are often used when teachers recognise that pupils are not performing as successfully as they might. They are examples of assessment informing teaching: rather than ploughing on regardless, the teaching takes account of previous work and changes direction to meet a need. The following video sequence illustrates this well.

Task 5

Improving the writing of conclusions   20 minutes

Watch video sequence 12e and note how the science teacher involves pupils in improving their written conclusions. This illustrates a slightly different technique.

After watching the sequence, reflect on an aspect of work that some of your pupils do not do well. Use one of the techniques to plan part of a lesson, with the aim of enabling pupils to improve in this area. After the lesson, assess the outcome. How might you refine the technique still further? Did some pupils require more help than others? If so, how might this be managed? Consider these pupils as you work through the next section on peer and self-assessment.

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4 Peer and self-assessment

Pupils are more likely to make rapid progress in their learning if they understand what they are aiming for – the intended learning outcome – and can assess what they need to do to achieve it. Peer and self-assessment are much more than simply marking their own or each other's work. In order to improve learning, it must be an activity that engages pupils with the quality of their work and in reflecting on how to improve it. Peer assessment provides pupils with valuable feedback, enabling them to learn from and support each other. It also adds a valuable dimension to learning: the opportunity to talk, discuss, explain and challenge each other enables pupils to achieve more than they can unaided. Self-assessment promotes independent learning, helping pupils to take increasing responsibility for their own progress.

Pupils do not become self-evaluative overnight. The development of peer and self-assessment takes planning, time, patience and commitment. When pupils don't understand the intended learning outcomes they find it difficult to move beyond the superficial. By planning and using a range of techniques, and by dedicating time to allow pupils to reflect on and discuss their learning, teachers can develop pupils' assessment skills.

The process of developing peer and self-assessment needs to be tackled in stages. In the beginning the pupils may need to have the process modelled for them. It is useful to have examples of work that demonstrate the intended learning outcomes, produced either by previous pupils or by yourself. These can then be discussed with the whole class, preferably on OHT or a whiteboard, so that you can model the approach before expecting pupils to assess either each other's or their own work. 'Thinking aloud' while critiquing can help pupils develop the necessary language and approach. Unit 6 Modelling will give you more detail about how to do this. Having demonstrated the process with an anonymous piece of work, the students can then begin to assess each other's work.

Reflection

This is a teacher talking about her experience of studying A Level English:

'I didn't manage to produce a grade A essay even once. Part of the problem was that I didn't know what one looked like and if I had asked to see one I would have been accused of cheating. I kept on producing those C grade essays and I didn't have a clue what I needed to do to get better.'

Reflect on your own experiences of learning. Were standards always made explicit for you? How can you help your students feel more secure about how they can make progress?

Task 6

Using criteria in peer assessment: four video case studies   30 minutes

Making standards explicit is key to unlocking understanding. Asking pupils to use common criteria to judge each other's work can do this. Video sequences 12f, g, h and i show four approaches to using criteria in different lessons: a Y8 RE lesson, a Y10 science lesson, a Y7 ICT lesson and a Y8 English lesson.

Pupils do not naturally find it easy to critique other pupils' work and they need to be taught structures of language that they can use. Encourage them to start with positive language, identifying where criteria have been met before discussing where things are missing and then making suggestions about what to do to fully meet the criteria. Stress the importance of evidence to support their judgements. The task below suggests some ways of doing this.

Task 7

Developing a language for peer assessment   **30 minutes**

Decide on a lesson in which you are going to provide an opportunity for peer assessment. Will pupils be in pairs or small groups? Think about how you are going to introduce this strategy and about the language you want the pupils to use when discussing each other's work. Consider producing 'an ideal solution' or a set of progressive steps against which they assess and identify what they need to do to improve.

Plan an oral prompt sheet or a writing frame that will be given to your pupils to support this strategy. The following stems may be a useful starting point:

- you have met the criteria here by …

- this is your best sentence because …

- you could improve this example further by …

- you have not met this part of the criteria because …

- to reach the next stage you need to include more of …

Ensure that sufficient time is planned into the lesson to allow for discussion and subsequent action.

Make a note of how this activity went. How would you refine it to make improvements?

In its simplest form you can use self-assessment to ascertain levels of prior knowledge and pupils' perceptions of their own starting point. For example, you could begin a topic with a self-assessment activity that encourages pupils to think about 'where they are now' in their learning. A science teacher beginning a topic on digestion might begin by asking the pupils to assess their current understanding of some of the key vocabulary by 'traffic-lighting'. This can be returned to after the teaching input so that the pupils can see how they have made progress in a very explicit way. This type of self-assessment can take place at any point during the course of a lesson, or series of lessons.

In the classroom, teachers will need to:

- explain the intended learning outcomes behind each task;

- plan for peer- and self-assessment opportunities in lessons;

- train pupils over time to assess their own work and the work of others and develop an appropriate language;

- frequently and consistently encourage pupils' self-reflection on their learning;

- guide pupils to identify their next steps.

Pupils cannot actively engage in effective peer and self-assessment unless they understand the learning goals and the standards they are aiming for. Self-assessment is learned and developed through peer assessment, and doing this helps pupils learn a valuable skill that will serve them well throughout secondary education and beyond.

5 Providing feedback

Learners need information and guidance in order to plan the next steps in their learning. Oral and written feedback are closely interrelated and provide opportunities for teachers to identify learners' strengths and to give clear and constructive advice on which areas need improvement. A supportive classroom ethos is essential so that pupils feel safe to take risks, for example by giving speculative responses to challenging questions. Once teaching routinely provides good oral feedback, then it is possible to provide more informative and selective written feedback.

Oral feedback

Oral feedback is a powerful force for moving pupils on and will be the most regular and interactive form of feedback. It is both direct (targeted to individuals or groups), but also indirect (others listen and reflect on what has been said).

The main purposes of using different types of feedback are to:

- acknowledge what pupils have learned and encourage them to reflect on and extend their learning still further;

- recognise that pupils need time to reflect on their learning;

- encourage pupils to pose further questions to clarify or further develop their own or each other's thinking;

- encourage pupils to make next steps.

Teachers' comments should always be both positive – recognising pupils' efforts and achievements to date, and developmental – offering specific details of ways forward.

| Task 8 | **Considering some examples** | **30 minutes** |

Consider the following examples of oral feedback. Place the numbers for each statement on the diagram on page 13.

1 Your long jump was poor. Put in more effort next go.

2 Your long jump has really come on. You may be in the team next term.

3 Your long jump was a disaster. You didn't touch the board, your legs were too straight and I can hardly make out your shoulders from your chin.

4 Your long jump was good but you should touch the board and keep your chin forward.

Task continues

5   Well done. Your long jump has really improved. To increase still further you need to push off from the board and keep your chin well forward. Try these two things next round and let's see if you can make five metres. You could soon get in the team.

The answers can be found on page 24.

Use a tape recorder or video camera to capture two or three episodes involving oral feedback in your classroom.

Use the diagram to analyse your responses. Is your feedback mainly positive and specific?

Identify any aspects of your feedback that you would like to improve and record your next steps.

Plan an opportunity to repeat the exercise in a few weeks to see if you have achieved your targets.

Oral feedback

Specific

L   J

–   +

K   J

Non-specific
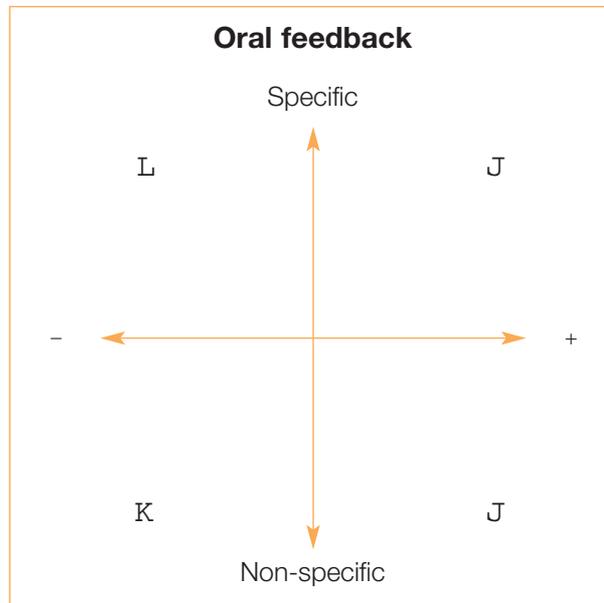
Oral feedback for different purposes

Teachers use different types of oral prompt for different purposes in lessons. The following chart shows ways of providing oral feedback that encourages pupils to develop and move on in their thinking and learning.

Feedback for different purposes	Examples of oral prompts	Examples of oral prompts observed in lessons
Correcting an error	Good try, but that's not correct. Actually it's …	If he's saying due to … is he describing … explaining?
Providing information	Yes, what you're talking about is called …	So these are all descriptions … this is telling you why, it's an explanation.
Appraising and praising	That would make sense, good thinking … Has anyone else tried something similar?	Let's just pull that … that's really important … thank you.
Challenging	Try that again. This time include/vary …	Do you agree with what he underlined?
Seeking clarification	What do you mean when you say it needs more detail?	So is using numbers not better than comparing two places?
Urging amplification, exploration or development	How might you take that argument even further? Which would be the best way to …?	What's different about this sentence from the one above?
Redirecting learning or activity	That's a detailed illustration. Move on to the explanation, as it is also important.	Now you've named places think about how you could compare them.
Focusing or orienting learning	All this is important but it's really your use of … that will really improve your work.	So she (Lucy) really focused you in on one thing you could use … actually using numbers.
Confirmation and moving learning on	Yes, that's right, now you can …	We're making quite a lot of headway here … does anyone have an even better sentence?
Crystallising steps	So spend a few minutes deciding on two changes you will make to your …	So her target would be to add numbers to her comparisons.
Distilling and summarising learning	Let's think about what we've learned so far. Firstly, we've found out …	So we've agreed that comparing is good. Using numbers to compare is even better.
Encouraging pupils to reflect	Let's just think about what we've discussed – is there anything else you might do?	I want you to read it carefully and say what you think is your best sentence.

Written feedback

Although most teachers mark pupils' work regularly and record marks, this information is not always used constructively to inform future teaching and learning. Teachers need to provide pupils with written feedback so that they recognise their next steps in learning and how to take them.

For written feedback to be constructive pupils need to be clear about what is expected of them. The learning objectives and learning outcomes need to be the reference point for a teacher's written feedback and need to be shared and made clear to pupils in advance of attempting a task. It is important to consider how prompt and regular feedback can be given that will encourage pupils to think about their work and the task.

Task 9

Providing effective written feedback — 20 minutes

Below are a number of teacher comments and some feedback criteria (A–D) to help you judge the helpfulness of the comments to the pupils. Decide whether the comments provide information to the pupil about:

A whether they are on the right track;

B their limitations (plus encouragement to correct the work);

C a way to improve their learning;

D a way to think through the answer for themselves.

1 You started off well. Unfortunately you have made the same error in the last three questions. Can you see what this is? You may find it helpful to go back to the grid method.

2 Your poem about copper sulphate was interesting. We need to discuss how you think copper crystals are made.

3 Attainment 3, effort 2. You have made good progress in your handwriting. Your spelling still needs work.

4 I think we need to talk about this work in more detail. Yet again you have not completed the work.

5 Well done – 1 merit.

6 A good 'best fit graph'. The conclusion clearly explains the relationship between the force and the extension of the spring.

7 There are a lot of inaccuracies in this work. Please check it through again.

8 This work shows you have clear understanding of finding the areas and perimeters. What strategies did you use to calculate the answers? What were the important steps for you?

9 You've plotted some interesting shapes. Well done!

10 You have included more adjectives, which help bring the character alive on the page, but your sentence structure is not as varied as John's. Experiment more by using complex sentences.

Task continues

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11 Cracking piece of work. I like the diagrams and the interesting way you presented the impact of man on the environment.

12 Keep it up!

13 I think you have copied all of this from the Internet.

14 Well done. Your presentation for Year 6 pupils was really exciting and engaging. Do you think the time transition would allow those who are not quick at reading enough time?

15 Comment inserted in a spreadsheet comment box on cell F5: 'I think you have used the wrong columns. To work out the ticket prices you would need to look at the costs of the production and how many seats are available.'

16 Wow! You have really put a lot of work into this – thank you. It is detailed and balanced and had me 'on the edge of my seat'. Did you learn a lot from it? The only thing I would change is the conclusion, which caught me by surprise because it did not seem to follow from what you had written in the main section of the account. Does the account need adjusting or the conclusion?

17 Although this is an interesting piece of writing, with an accurate storyline and creative use of adjectives, the paragraphing is very weak and that makes the whole account much less structured than it should be.

You will find the suggested answers on page 24.

Some of the comments are simply a teacher's judgement of a piece of work. Other comments ask further questions or invite dialogue. Some of the feedback gives specific advice for improvement and other comments indicate ways in which pupils could think a problem through for themselves. Which kind of feedback do you think pupils find most helpful? If good feedback usually requires further action from the pupil, what are the implications for classroom routines?

Task 10

Developing constructive written feedback   25 minutes

Select three exercise books that represent a range of achievement within a class that you teach. Read through the written feedback that you have given. Now read the following characteristics of constructive written feedback and traffic-light those statements in terms of how they reflect your own practice (red: rarely; amber: often; green: typically).

The written feedback:

- focuses on the learning objectives selectively;

- confirms that pupils are on the right track;

- stimulates the correction of errors or improvement of a piece of work;

- scaffolds or supports pupils' next steps;

- provides opportunities for pupils to think things through for themselves;

- comments on progress over a number of attempts;

- avoids comparisons with other pupils;

- provides pupils with the opportunity to respond.

Feedback needs to scaffold learning and engage pupils in a dialogue about their work rather than allow them to make comparisons with other pupils. Research suggests that there are a number of negative effects when a classroom culture focuses on rewards, grades or marks. Pupils will sometimes avoid difficult or more challenging tasks because they risk failure or low marks. Comparison with other pupils' marks often leads to lower self-esteem and lack of confidence about ability. Pupils sometimes waste time trying to interpret the meaning of marks and grades rather than thinking about how to improve their work.

You may feel that providing feedback in this form could be time-consuming. This need not be the case. If you are clear about the success criteria before setting a piece of work this can greatly speed up the marking process and can also provide you with the likely comments. In video sequence 12g, the science teacher used GCSE grade criteria to generate the criteria for a written explanation on photosynthesis. Pupils were provided with this in advance of their homework, then during the following lesson used the criteria in a peer-assessment session. The teacher also used this set of criteria with another class to mark their work. Doing this enabled her to give feedback quickly and to signal which criteria had been met. Some teachers prepare slips with comments on in advance and place these in books as appropriate. Whatever method you may use, it is very important to provide pupils with opportunities to respond. In some cases this may involve re-drafting or considering what to keep in mind for the next similar piece of work.

6 Reviewing and reflecting on assessment

Assessment of learning, or *summative* assessment, tends to be carried out periodically, e.g. at the end of a unit or term, year or key stage. The teacher undertakes this kind of assessment to judge how well a pupil is performing. Conclusions are generally reported in terms of grades, levels or marks. These may be set alongside national standards so that a pupil, school or teacher can evaluate their own performance against that of others. This also allows schools to track performance over time.

Assessment becomes *formative* when assessment evidence is used to adapt teaching to meet the learning needs of pupils. Assessments in themselves are not necessarily inherently formative or summative – it is the process and how the information is used that is important. Thus, an end-of-topic test, where a student is given a level, would be regarded as assessment of learning only if that were the end of the process. If, on the other hand, the results of that test are used diagnostically to inform the next steps for the pupil, and the teacher takes account of this information in planning the next lesson, then one could describe this as assessment *for* learning.

Evidence suggests that regular classroom assessments, and the use of this assessment information to adjust teaching and learning, will have a positive impact on standards, particularly when combined with approaches which give useful formative feedback and model examples of the next steps in learning. By sharing expectations and targets with pupils, assessment of learning can contribute to assessment for learning. For example, pupils can be given the opportunity to:

- mark, moderate and review test papers;

- review their performance against the test's criteria and set personal targets;

- devise future test questions and the accompanying mark schemes;

- discuss what level descriptions or GCSE grade criteria mean in practice.

Task 11

Case study: discussing the meaning of level descriptions in music   15 minutes

In video sequence 12j the music teacher discusses with the whole class what the meanings of the lesson descriptions are and what else they would need to include in a piece of work to demonstrate a particular level. This could equally be carried out using GCSE grade criteria.

Arrange an opportunity during a future lesson to do this with one of your classes. How well can they articulate what is needed to attain a particular level or grade?

Reflection

- Do you always place tests or summative assessments at the end of a unit?

- What happens if assessments show that half of your class has not understood a topic thoroughly? Do you still move on to the next unit of work? How will you address their misunderstandings?

- What would happen if you placed the assessment at the beginning or two-thirds of the way through a unit and then acted on the findings?

- Have you ever provided pupils with their own responses to tests and accompanying mark schemes and discussed why certain responses are allowable and others are not? End of Key Stage 3 tests could be used in this way.

- Summative tests should be, and should be seen to be, a positive part of the learning process.

- Pupils should be engaged in reflective review of the work they have done to enable them to plan their revision effectively.

- Pupils should be encouraged to set questions and mark answers to help them, both to understand the assessment process and to focus further efforts for improvement.

- Pupils should be encouraged through peer and self-assessment to apply criteria to help them understand how their work should be improved.

Summary of research

Assessment for learning

Highlights of research findings in this area include the following work:

Inside the black box: raising standards through classroom assessment

The publication *Inside the black box: raising standards through classroom assessment* is an influential pamphlet that summarises the main findings arising from 250 assessment articles (covering nine years of international research) which were studied by Paul Black and Dylan Wiliam. The document is well known and widely used, and acts as a touchstone for many professionals in the field of assessment.

Assessment for learning: beyond the black box

This publication by the Assessment Reform Group follows up the work of Black and Wiliam and identifies five key factors:

- providing effective feedback to pupils;

- actively involving pupils in their own learning;

- adjusting teaching to take account of the results of assessment;

- recognising the profound influence assessment has on the motivation and self-esteem of pupils, both of which are crucial to learning;

- considering the need for pupils to be able to assess themselves and to understand how to improve.

The research also identifies a number of risks with regard to assessment:

- valuing quantity and presentation rather than the quality of learning;

- lowering the self-esteem of pupils by over-concentrating on judgements rather than advice for improvement;

- demoralising pupils by comparing them negatively and repeatedly with more successful learners;

- giving feedback which serves social and managerial purposes rather than helping pupils to learn more effectively;

- working with an insufficient picture of pupils' learning needs.

Working inside the black box: assessment for learning in the classroom

Working inside the black box picks up where *Inside the black box* left off. It sets out its main findings under four headings:

Questioning

- More effort has to be spent in framing questions that are worth asking.

- Wait time has to be increased to several seconds to give pupils time to think, and everyone should be expected to contribute to the discussion.

- Follow-up activities have to provide opportunities to ensure that meaningful interventions that extend pupils' understanding take place.

- The only point of asking questions is to raise issues about which the teacher needs information, or about which the pupils need to think.

Feedback through marking

- Written tasks, alongside oral questioning, should encourage pupils to develop and show understanding of the key features of the subject they have studied.

- Comments should identify what has been done well and what still needs improvement, and give guidance on how to make that improvement.

- Opportunities for pupils to follow up comments should be planned as part of the overall learning process.

- To be effective, feedback should cause thinking to take place.

Peer and self-assessment

- The criteria for evaluating any learning achievements must be transparent to pupils to enable them to have a clear overview, both of the aims of their work and of what it means to complete it successfully.

- Pupils should be taught the habits and skills of collaboration in peer assessment.

- Pupils should be encouraged to keep in mind the aims of their work and to assess their own progress to meet these aims as they proceed.

- Peer and self-assessment make unique contributions to the development of pupils' learning – they secure aims that cannot be achieved in any other way.

The formative use of summative tests

- Pupils should be engaged in a reflective review of the work they have done to enable them to plan their revision effectively.

- Pupils should be encouraged to set questions and mark answers to help them, both to understand the assessment process and to focus further efforts for improvement.

- Pupils should be encouraged through peer and self-assessment to apply criteria to help them understand how their work might be improved.

- Summative tests should be, and should be seen to be, a positive part of the learning process.

The underlying issues identified are:

- **learning theory** (teachers need to know in advance what sort of feedback will be useful; they need to understand how their pupils learn);

- **subject differences** (teachers need to have an understanding of the fundamental principles of the subject, an understanding of the kinds of difficulty

that pupils might have, and the creativity to think up questions which can stimulate productive thinking – such pedagogical content knowledge is essential in interpreting response);

- **motivation and self-esteem** (learning is not just a cognitive exercise: it involves the whole person – learning for learning rather than for rewards or grades);

- **a learning environment** – principles and plans (teachers need to have forethought of how to teach in a way which establishes a supportive climate);

- **a learning environment** – roles and responsibilities (teachers need to help pupils become active learners who can take increasing responsibility for their progress).

References

- Assessment Reform Group (1999) *Assessment for learning: beyond the black box*. University of Cambridge, Faculty of Education. ISBN: 0856030422.

- Assessment Reform Group (2002) *Assessment for Learning: 10 Principles*, available from aaia.org.uk.

- Black, P. and Wiliam, D. (1998) *Inside the black box: raising standards through classroom assessment*. King's College, London. ISBN: 1871984688.

- Black, P., Harrison, C., Lee, C., Marshall, B. and Wiliam, D. (2002) *Working inside the black box: assessment for learning in the classroom*. King's College, London. ISBN: 1871984394.

Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Use the QCA website, www.ncaction.org.uk, to download pieces of work and allow pupils to 'mark' the work against level descriptions. Share QCA's critiques of the work with the pupils. Assess the impact of this approach on pupils' understanding of levels. Does this help?

- Build in opportunities within the GCSE course to use summative assessments in a formative way. For example, share the mark scheme for a past paper with the pupils and ask them to peer- or self-assess their work against the criteria, or allow pupils to generate 'test questions' and 'mark schemes' for one of the units of work. What impact does this have on pupils' understanding of the quality required?

- Following a session involving peer assessment, investigate what pupils think about the language they have been using to discuss each other's work. Which phrases are most helpful and why?

- For a future piece of written homework, in advance generate a set of criteria for the 'perfect answer'. Provide a copy to the pupils when they are set the task and use it to 'mark' the homework and provide feedback. Does this make marking quicker and more efficient? What might you do to improve further?

For further reading the following publications are recommended:

- *Assessment for learning: whole-school training materials*. Ref. DfES 0043-2004 G.

- Assessment Reform Group (1999) *Assessment for learning: beyond the black box*. University of Cambridge, Faculty of Education. ISBN: 0856030422.

- Black, P. and Wiliam, D. (1998) *Inside the black box: raising standards through classroom assessment*. King's College, London. ISBN: 1871984688.

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- Black, P., Harrison, C., Lee, C., Marshall, B. and Wiliam, D. (2003) *Assessment for learning: putting it into practice*. Open University Press. ISBN: 0335212972.

- Sadler, R. (1989) 'Formative assessment and the design of instructional systems'. *Instructional Science* 18, 119–144.

Websites

- The Association for Achievement and Improvement through Assessment: www.aaia.org.uk

- National Curriculum in Action: www.ncaction.org.uk

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   **40 minutes**

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

Answers

Task 3

1, 3, 4, 7, 9 and 10 are expressed as learning objectives.

2, 5, 6 and 8 are expressed as activities.

However, with some rewording, the learning could be made explicit. In 6, for example, 'to debate whether King William deserved to win the Battle of Hastings', it is necessary to consider what the teacher intends to focus on. Are the pupils learning the skills of formal debate or is the intention that they articulate a persuasive argument? Alternatively, is it the case that the teacher wants the pupils to demonstrate a comprehensive knowledge of the events that led up to the battle? Whatever the case, the objective should be worded so that the focus is on the learning that will take place during the lesson and the learning goals that will be achieved.

Task 8

Specific negative: 3

Specific positive: 4, 5

Non-specific negative: 1

Non-specific positive: 2

Suggested answers for task 9

A: 5, 6, 9, 11, 12

B: 3, 4, 7, 13, 17

C: 10

D: 1, 2, 8, 14, 15, 16

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Pedagogy and Practice: Teaching and Learning in Secondary Schools

Unit 20: Classroom management

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How to use this study guide

This study unit offers some practical strategies that teachers use to manage their classrooms. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide, you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to classroom management. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community. Record successes in your CPD portfolio.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 20, Classroom management, when working through this unit.

Classroom management

Contents

Introduction

Effective classroom management

Few, if any, classroom management issues arise when pupils are properly engaged in the following way: the lesson has been well planned; learning outcomes are shared and understood; different strategies are used to reinforce and secure learning; resources and environment are sufficient and conducive to effective learning and achievement is recognised.

When issues do arise, and are effectively managed by the teacher, the pupils:

- re-engage with tasks;

- exercise individual responsibility;

- respond positively to the teacher's intervention;

- retain respect for themselves and the teacher;

- accept the consequences of their behaviour.

Effective classroom management affirms the teacher's right to teach and the pupil's right to learn.

Common issues

Even the most experienced and skilled teacher has to manage pupils whose behaviour can disrupt not only their own learning but also that of others. In the early part of a teacher's career it can be particularly disheartening if pupils' behaviour presents significant challenges. Indeed, national surveys of newly qualified teachers have shown that one of their major concerns relates to the management of pupil behaviour. Teachers sometimes explain these difficulties as stemming from their own inadequacies or attribute them entirely to the pupils' background. Both explanations are unfair and unfounded.

Resolving the issues

The successful management of pupil behaviour in the classroom does not lie in simply applying a menu of strategies; it requires the application of the best pedagogy and practice and an appreciation of the values and beliefs which lie behind the school's ethos.

Pupils are more likely to engage in learning and not engage in off-task activity if the teacher:

- has high expectations and makes them clear (see unit 1 Structuring learning);

- applies rules, routines, sanctions and rewards consistently and fairly (see unit 18 Improving the climate for learning);

- uses the language of mutual respect (see unit 18 Improving the climate for learning);

- avoids over-reaction and confrontation;

- deploys a range of techniques and strategies (see unit 11 Active engagement techniques);

- adopts a positive approach to problem solving.

1 Considering the research

Starting point   15 minutes

Research by Croll and Moses (2000) and Miller (1996) argued that teachers feel that 80 per cent of the causes of challenging behaviour amongst pupils are due to 'within child' or 'home' factors. This view is counteracted by research by Beaman and Wheldall (2000) who found:

- on-task behaviour of the same pupils varies across subjects and between teachers;

- when the level of teachers' positive verbal interventions increases, there is an increase in the level of pupils' on-task behaviour.

In session 1 (page 5) of the *Behaviour and attendance training materials: core day 1* (Ref. DfES 0392-2003) there is a list of statements about common beliefs and attitudes held by teachers. Consider these two:

- the pupil who likes to be in trouble has yet to be born;

- good behaviour needs to be taught.

To what extent do you agree with the findings and statements above?

What is your starting point?

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2 Core values and beliefs

Before considering some techniques and strategies which can be deployed in the classroom, it is important to explore in more detail the values and beliefs which underpin successful pedagogy and practice.

Task 2	Establishing core values	20 minutes

The values listed below are based on the UN Convention on the Rights of the Child (1990), The Salamanca Statement (1994), human rights legislation (2000) and the Disability and Discrimination Act (2001). The Children Bill, published in March 2004, was heralded by the Green Paper entitled 'Every Child Matters'. These important documents underline values and rights for society's care for children.

For each value, score on a ten-point scale how well it is embedded in your classrooms. 1 = not present; 10 = fully embedded

Value or aim	Evidenced by	Scaling score
Valuing diversity	Celebrating diversity within gender, ethnicity, creed, sexual orientation and culture	
Equality	An acceptance of the equality of human beings, independent of individual differences	
Mutual respect	Respect for the dignity of others and respect for oneself	
Developing the potential and autonomy of all	Developing learning skills and personal qualities inside and outside the classroom	
Learning as life enhancing	Learning as an enjoyable activity, meeting the learning needs through the choice of teaching styles	
Collaboration	Creating a sense of belonging	
Emotional and physical well-being	Exercising a duty of care: nurturing and creating an environment which is safe and secure	
A clear moral purpose	A clear commitment to high standards and the equal worth and success of every learner	

Based on *Behaviour and attendance training materials: core day 1* Session 1, Reviewing a Behaviour and Attendance Policy.

3 The fundamentals – lesson design, learning styles and classroom climate

There is great temptation when looking at classroom management to focus on tips, techniques and strategies which relate to the management of pupil behaviour. A well-managed classroom, however, is one where other key features of pedagogy and practice are appropriately executed. The result is that the teacher and the pupils are engaged in learning, and the management of pupil behaviour becomes seamlessly integrated into the business of successful teaching and learning.

It is important, therefore, to consider other units in tandem with this one. Of particular relevance are the units which concentrate on:

- lesson design (units 1–5);

- improving the climate for learning (unit 18);

- learning styles (unit 19).

Task 3	Collect information on preferred learning styles		80 minutes
	Consider a class (or a group of pupils within a class) from whom you wish to achieve a greater level of learning and with whom you wish to spend less time managing their behaviour. This could be a paired activity with a departmental colleague or mentor, based on classroom observations. Use the prompts below to identify the areas where you must, should or could take positive action to improve the situation, and identify some targets for action. To illustrate the activity, a few boxes have been completed.		
Action area	**Must**	**Should**	**Could**
Review scheme of work			
Improve learning objectives	Write objectives on board each lesson and make them SMART		

Table continues

Sharpen learning outcomes			
Review teaching and learning strategies			Arrange to observe a more experienced practitioner working with this group
Review pupils' preferred learning styles		Do some background reading, e.g. Howard Gardner	
Review classroom routines	Model good practice by being on time myself		
Reconsider starters and plenaries			
Improve classroom environment			

4 Building mutual respect – the language teachers use

In the course of a working day, teachers experience a multitude of social interactions, both inside and outside the classroom. Pupils are extremely sensitive to the language teachers use. Selecting the appropriate tone and vocabulary is crucial to the teacher's success, not only in achieving behavioural and learning responses, but also in maintaining the quality of relationships. In an ideal world, teachers would always find the most appropriate language to manage a situation. However, at times, indiscretions occur and compound, rather than ameliorate or resolve, the problem.

Task 4

Pitfalls   15 minutes

Consider each of these phrases and identify into which of the following categories they fall:

1 Labelling   **2** Comparison   **3** Distancing   **4** Sarcasm

5 Exaggeration   **6** Using age as a taunt   **7** Amateur psychology

People like you …

What she's trying to say is …

What's that supposed to be?

How old are you?

Everything goes in one ear and out the other.

I bet X doesn't speak to his parents like that.

I give up …

Teenagers today …

These pitfalls are most easily avoided if the fundamental value of mutual respect is accorded every opportunity to flourish both inside and outside the classroom.

Skilful and experienced teachers use both verbal and non-verbal interventions to reinforce, redirect or refocus pupil behaviour. Effective interventions support and encourage positive behaviour for learning; ineffective interventions take up valuable teaching time and impact on the learning of the individual pupil and the rest of the class, and on the teacher's confidence. Most effective verbal interventions should take the form of positive actions that fall somewhere on a continuum from positive reinforcement through to positive correction. It is important to recognise that the teacher's intervention should never result in greater disruption than the behaviour which is being addressed and that the balance between the teacher's use of reinforcement and correction should be in the region of five to one respectively.

The distinction between positive reinforcement and positive correction

15 minutes

Examples of positive reinforcement:

Excellent, you have settled down really well and got your books out.

Yes, talk to your neighbour to get ideas. Well done.

Well thought out. Better to draft your question before you ask it.

Examples of positive correction:

I would like this piece of work finished before the bell goes.

Please remember to listen to everyone's contribution.

Make sure you write in complete sentences please.

Add examples to both lists from your own repertoire so that you have a clear sense of the difference.

The use of praise

It is commonly accepted that pupils welcome praise and that recognition of success motivates them to continue learning. Using praise appropriately is a skill in its own right. Pupils will not respond positively if the tone, context and content of the praise are mishandled. Teachers who seek to develop the culture of praise within their classrooms can sometimes focus on recognising only those pupils whose behaviour they have sought to modify through praise. It can be easy to neglect those pupils of whom they have expectations of positive behaviour in the first place.

Praise will be well received if it is:

- personal;
- genuine;
- appropriate;
- specific;
- consistent;
- used regularly.

Applying the six criteria of successful praise   **15 minutes**

How would you praise this pupil? Matthew is a quiet, rather withdrawn Year 9 pupil, who prefers to work on his own but who has, for the first time, joined a small group to discuss a newspaper article in a history lesson about the First World War.

How would you praise this group? A group of four pupils in Year 7 – three girls and one boy – has, for the third lesson in a row, been the first group in the class to complete a series of science experiments.

Suggestions

To make praise personal it is best to use the person's name and to offer the praise in close physical proximity.

Pupils want to know that the praise is genuine and not some generalised mantra or mannerism, therefore the praise must be accompanied by other non-verbal signals of warmth and respect.

Appropriate and measured praise means avoiding excessive publicity or exaggerated accolades, which will be perceived as false.

The praise should be sharply focused and not generalised about a pupil; it should be recognition of a definite and obvious achievement.

Pupils are particularly sensitive to inconsistent use of praise: if the teacher only uses praise occasionally, it may be seen as a one-off strategy; if the teacher seems to vary illogically those things which receive praise, the pupils will become uncertain of the values operating in the classroom.

Consider:

Are there particular cultural issues to be aware of?

Do the pupils find public praise embarrassing?

Are there any gender issues to be alert to?

Is praise socially acceptable within the peer groups of the classroom?

Avoiding confrontation

The use of inappropriate language can so easily lead to confrontation. In promoting positive behaviour for learning, it is essential to respond with carefully crafted words which will encourage the pupil to respond positively, maintain mutual respect, safeguard the pupil's sense of self and avoid creating a worsening relationship.

Read this account, paying particular attention to the teacher's verbal interventions.

A Year 10 pupil enters the science laboratory late. The teacher is halfway through taking the register. The pupil is rather ostentatiously wearing a baseball cap which has a very provocative slogan of an American football team in full view. Several pupils snigger as the pupil enters noisily.

Teacher: *Thanks for turning up. Quickly get to your seat and take that hat off.*

The pupil walks slowly to a seat but fails to remove the cap.

Teacher: *Hurry up! We haven't got all day!* **And take that cap off**. *I don't want to have to tell you again!*

The pupil sits down but ignores the shouted request.

Teacher: *I am now asking you for the third and last time to take that stupid cap off. Don't look at me like that. I expect you to follow the rules and I don't expect a Year 10 pupil to be so rude. For goodness' sake, act your age.*

There is a silence and the tension is palpable.

Teacher: *I will have to report you to the head of year.*

Pupil: *Go ahead! I don't give a stuff!*

Teacher: *How dare you speak to me like that. Get out!*

Pupil: *Why should I? I have only just sat down.*

Teacher: *Get outside or am I going to send for the headteacher?*

The impact of this confrontation between the teacher and the pupil will certainly be a negative one on the teaching and learning for all.

The exchange between the teacher and the pupil rapidly escalates. Can you identify and explain this upward spiral? Look at how responses trigger counter-responses. Next, consider how you would deal with this situation.

Practical tips

1 Be consistent, be calm, give clear instructions, ask questions, be positive, do not force pupils into corners.

2 Only confront the problem if all the following apply:

- it stops the problem immediately;

- it decreases the likelihood of recurrence;

- it happens in the right place;

- it happens at the right time;

- the audience is right – other pupils will learn from it.

Tips continue

Other things to try:

- put the situation 'on hold' and try to solve it later (perhaps with help);

- draw on your knowledge of the pupil;

- use your sense of humour;

- compromise a bit – give a way out;

- genuinely seek information from the pupil involved;

- use other pupils or a member of staff to help the situation (for example, a trusted pupil could be a messenger or act as a supportive friend to the pupil involved; another member of staff could be contacted to offer further guidance).

Discuss with a colleague how the teacher could have achieved the admission of the pupil to the lesson, the removal of the baseball cap and minimal disruption to the start of the lesson.

Non-verbal ways to give praise

Classrooms are busy places with many things happening simultaneously. An effective teacher uses non-verbal skills to maintain positive learning as a complement to the verbal interventions.

Task 7

Developing non-verbal skills   **15 minutes**

Reflect on your own techniques and those you have observed in other classrooms. What additions can you make to the list?

Facial expressions:

- smiling to encourage continuation of on-task behaviour;

- mouthing to show surprise, delight or pleasure;

- frowning to invite redirection of further progress;

- winking to indicate success.

Body language:

- nodding to affirm or approve;

- hand gestures to show acceptance and approval;

- using a 'thumbs-up' to recognise achievement;

- using soft applause to congratulate.

Rewards and consequences

All schools will have a behaviour policy often integrating guidelines on rewards and sanctions (consequences). Typically, it will contain systems and procedures, details of staff with specific responsibilities (e.g. lead behaviour professional, head of year), rules and routines, code of conduct etc.

Rewards and consequences are an important feature in schools and classrooms and can be very effective in maintaining positive approaches to learning and behaviour.

There has been some debate about whether pupils should receive rewards for behaviour which is at the expected level. Other criticisms relate to the fact that rewards are often directed at pupils whose previous behaviour has been a cause for concern, and who are rewarded when they make progress. This has been seen by some commentators as unfair and discriminatory. Some schools which introduced merit systems found that upper-school pupils (Years 10 and 11) were less likely to accept the system if it had any echoes of the primary school and was seen as 'beneath them'.

Generally, the classroom teacher should aim to recognise and reward, rather than manage via an array of sanctions. Certainly, unacceptable behaviour cannot be tolerated, and the pupil responsible will have to accept the consequences.

You are urged to look at unit 18 Improving the climate for learning which complements this section.

Task 8

Rewards and consequences   15 minutes

Do you and your pupils have a shared understanding of the rewards and sanctions which operate in your classroom?

Read this story and decide what action you would take if this boy were in your class.

Hamza did not do his geography homework because he had no time on Tuesday night. Apparently, when he got home from school he had to have a quick snack and then go to his mosque for tuition with the Imam. When he returned later that evening, his family were entertaining visitors and he was expected to remain with them as a matter of courtesy. By the time the visitors left it was time for him to go to bed. He did get up early on the Wednesday morning with the idea of trying to get his homework done. He did do a bit of it but it was really untidy and not up to his usual standard. The rest of the pupils have handed in their homework on time. You are really pleased with this response because you have been working hard to get them into routines and to value the importance of doing work at home.

Will you reward the pupils who have produced their homework on time? Will Hamza receive a sanction for his failure to produce his work on time?

Classroom rules and routines

For the language teachers use to be fully effective, the classroom has to be an environment in which pupils are clear as to the expectations placed upon them and in which there are clear protocols for behaviour.

Most classroom rules can be grouped under these five headings (Hargreaves, Hestor and Mellor 1976):

- talk;

- movement;

- time;

- teacher–pupil relationships;

- pupil–pupil relationships.

Extract from *Deviance in classrooms*, Hargreaves, Hestor and Mellor (1976) Routledge and Kegan Paul. © Taylor & Francis Group plc. Used with permission.

Task 9

Five golden rules   15 minutes

Are the classroom rules on display in your classroom? Consider the five rules listed below. Are they appropriate for your classroom? Look at the five bullet points above. Do these rules satisfy these suggested areas? Adapt the list so that it is improved and would operate in your classroom. You could ask pupils to help generate the rules (see unit 18.)

1   Try my best to learn.

2   Listen to other pupils and the teachers.

3   Bring to the lesson all I need to help me learn.

4   Raise my hand and wait to ask or answer a question.

5   Respect other people and their property.

Practical tips

Classroom rules are at their most effective when they are negotiated between the teacher and the pupils; they are not effective if they are simply rules imposed and maintained by the teacher. Nor is it a straightforward matter to establish the rules. Teachers and pupils will need to communicate thoroughly and see mutual benefits in the rules. There is no merit in a complex set of rules: they need to be simple and memorable. Pupils need the help of the teacher and other pupils to learn how to apply the rules. Lastly, it is important to review the classroom rules regularly to explore the possibility of amendment or reduction.

How do you see your classroom?

Bullough and Stokes (1984) explored the idea of metaphors as an approach to professional development. Watkins and Wagner (2000) discuss some interesting images of the classroom. They suggest that a good question to ask yourself and to ask your colleagues is: 'What situation that is not a classroom is most like a classroom in your view?'

In their research, they received some fascinating answers. Try answering this question before looking at some of the responses below. In creating an image of your classroom, you are focusing on purpose, audience, climate and your role.

• Primary school teachers tended to use images of a family, whereas secondary school teachers offered concepts like churches or theatres.

• Other images offered included: an office, a restaurant, an aeroplane.

5 Techniques and strategies

There is a considerable body of research into those pupil behaviours which teachers find most troublesome. Gray and Sime (1989) surveyed a large number of secondary and primary teachers as part of the research for the Elton Report. Their findings are supported by other research (Wheldall and Merrett 1988).

By far the most common finding was that pupils talking out of turn (TOOT) was a major concern. In fact, in Gray and Sime's research they recorded that 975 of all secondary teachers surveyed claimed TOOT occurred at least once during the week. It was also identified as the behaviour that teachers found most difficult to manage. Indeed, when these teachers reflected on some of their more demanding classes, it was TOOT that emerged as the most significant dynamic.

This section will look at a variety of pupil behaviours and explore how they can best be managed to improve the quality of learning and behaviour. As was stated in the introduction to this booklet, the successful teacher certainly deploys a range of techniques and strategies to manage the classroom effectively, but an extensive menu of tips, tricks and techniques will not sustain the quality of teaching and learning. The most effective element in reducing classroom disruption and off-task pupil behaviour is the teacher's fundamental skills of planning and pedagogy. Kounin (1977) found that what teachers did in anticipation and in their planning was far more effective than their reactions to events and incidents.

Thinking ahead: developing a classroom behaviour plan

In the previous section, some consideration was given to classroom rules. This can be developed further into a classroom behaviour plan. It is more than a set of rules which pupils have to follow:

- it supports the teaching of positive behaviour;

- it creates an appropriate climate for successful teaching and learning using solution-focused approaches;

- it allows teachers to recognise and reward positive behaviours and learning;

- it enables pupils to make informed choices about how to behave;

- it outlines consequences of off-task behaviour.

Task 10

Devising a classroom behaviour plan	**30 minutes**

This activity is based on session 3 of the *Behaviour and attendance training materials: core day 2*: *Developing effective practice across the school*, DfES Ref: 0055-2004, pages 113–115.

Complete the table below and then share this with a colleague and compare your work. This would be an excellent activity for an NQT to undertake with a mentor or for a department to do, first individually and then communally.

Use this page to consider and complete a behaviour plan for your classroom that encourages positive behaviour and regular attendance

Rule or routine	Covers	Example	Positive consequence	Negative consequence
Movement	Movement into, out of and around the room Tidying the room and preparing to leave			
Learning	The way we learn in order to be most effective ● Group work ● Whole-class work ● Individual work ● Meeting new challenges			
Communication	Noise levels Getting attention Working with a partner/group			
Mutual respect	The way we behave toward one another Manners and general courtesy Physical hurt			
Safety	Risk assessment Use of equipment General safe behaviour			
Problem solving / Conflict resolution	The way in which we solve difficulties Concentrating on solutions and answers			

Taking a positive approach

You will have noticed the reference to solution-focused approaches earlier in this section. In considering troublesome pupil behaviour it can be so easy to draw sweeping conclusions about a particular class or group of pupils. A solution-focused approach offers a positive way forward as it takes problems and turns them into achievable goals.

Task 11

Scaling	**20 minutes**

Problem: a Year 9 English group is regularly late to lesson on Wednesday afternoon after lunchtime registration. The teacher has stated, with considerable exasperation: '9FF are always late; lessons never get going properly!'

Scaling is a technique that can be used to address and analyse this problem.

Think of a scale of 1 to 10: 1 represents the worst-case scenario and 10 represents the best.

1 = no pupil ever arrives on time and the lateness is a conspiracy amongst all the pupils.

10 = every pupil arrives on time every Wednesday and the lessons always get off to a prompt start.

Where would you place 9FF on the scale of 1 to 10?

I suggest point 5 because some pupils arrive on time, the class is more punctual on Thursdays, and once or twice this term there has been no problem.

The next stage is to identify what point 6 on the scale might represent and then develop strategies to get 9FF to this point on the scale.

Task: choose a class or group of pupils with a particular behaviour that you find troublesome. Apply this technique to develop an action plan to move them from one point on the scale to the next.

Based on *Behaviour and attendance training materials core day 2* Session 1, Solution Focused Approaches.

To help in this task you might want to use some of the following, which are called 'exception-finding' questions. An exception is when the troublesome behaviour does not occur:

- Is there a time when the behaviour doesn't occur?

- Are there times when you feel less angry about it?

- What are you doing to stop things getting worse?

- Can you think of a time when the situation has been better, however slightly?

Through this kind of approach, the problem is carefully analysed and the solution is found – from within the problem – by realising its full extent and seeing opportunities to move beyond it. It encourages the teacher away from sweeping negative generalisation towards positive solutions.

Some techniques to try

The following techniques have been shown, for example through the work of Bill Rodgers (2002), to be part of the effective teacher's management of pupils' off-task behaviour.

Teacher techniques	Details
Choice	Gives pupils some control over a situation which is less likely to initiate point-blank refusal. Examples include: *'I want you to get on with your work or* (consequences)*, it's your choice.' 'Are you choosing not to follow our rules on_____?' or 'Sit over here or next to Peter* (implicit choice).'
Take-up time	Allows pupils not to lose face. Watching and waiting is, in a way, issuing a challenge. We need to be clear and confident about expressing expectations. Follows an instruction with a pause to allow pupils time to comply. Examples include: *'Could you open your book and start work now, Jane. I'm going to see Bill who needs some help but I'll come back in a minute if you need any.'*
Partial agreement	Deflects confrontation with pupils by acknowledging concerns, feelings and actions. Examples include: *'Yes, you may have been talking about your work but I would like you to …' 'Yes, it may not seem fair but … '*
When-then direction	Avoids the negative by expressing the situation positively. Examples include: It is better to say, *'When you have finished your work, then you can go out'* than *'No, you cannot go out because you have not finished your work.'*.
Privately understood signals	Draws the class together and builds in sharing times. Examples include: clapping your hands gently twice; or standing next to a 'learning zone' poster in the room. An individual pupil may recognise a gesture from the teacher as a reminder to concentrate on work.
Tactical ignoring	May be appropriate for attention-seeking behaviour. This could be an example of secondary behaviour, so try to focus on the primary behaviour by concentrating on the pupil and not the behaviour. Ignore the 'target' pupil but praise the nearby pupil. If target pupils change their behaviour, praise them. Examples include: The teacher may say to a nearby pupil: *'Well done. You have remembered to put your hand up to answer a question.'*
Redirect behaviour	Reminds the pupils what they should be doing and avoids getting involved in discussion about what the pupils are doing wrong. It may be possible to focus their attention on the required task. Examples include: *'Okay, Maria and Mark. We're looking at the extract from Tennyson on page 23 of your books.'*
Consequences and sanctions	Needs to be in line with school policy and be implemented clearly and consistently. Examples include: *'Remember the school rule, Phil. If you are late for lessons without a pink slip you make up the time at lunchtime. It's there on the poster to remind us all.'*
Deferred consequences	Deals later with a pupil who is misbehaving and therefore removes the 'audience', that is the rest of the class who are watching the drama unfold, and also avoids a possible confrontation. Dealing with a pupil in a one-to-one situation is more likely to have a positive outcome. Examples include: *'I'd like to sort this out, Amy, but we can't do it now. I will talk with you at 10.30.'*

Task 12

Observing an effective practitioner   30 minutes

Arrange a classroom observation of a colleague who you feel is an effective practitioner. Focus your attention on the techniques you have read about. You should pay particular attention to the language the teacher uses in maintaining a positive approach to learning and behaviour in the classroom.

Your observation should be supported with a recording system. One suggestion is to use a tally chart listing the techniques you have identified, making a tick against a technique every time you think that the teacher uses it. If you think there is a particularly skilful use of a technique, record this in note form.

Later, when you have the opportunity to talk to the teacher whose lesson you have had the privilege of observing, share your findings with them. Explore how consciously the teacher deployed the techniques, and also try to judge whether they have the same picture of the lesson as you do. Were they managing behaviour in itself, or promoting behaviour for learning?

Talking it through

You can certainly develop your classroom management skills through a combination of professional activities: reading, observation and dialogue. You might find it interesting to consider your effectiveness from a pupil's perspective. You will probably have clear impressions from your own schooldays of those teachers who were particularly effective and in whose classrooms there was successful management of behaviour for learning. As you reflect on your personal experiences you should also consider the list below, which characterises pupils' views of a 'good teacher'. This list is derived from research undertaken by Hay McBer for the DfEE in 2000 ('Research into Teacher Effectiveness').

A good teacher:

Is kind; is generous; listens to you; encourages you; likes teaching their subject; helps you when you're stuck; doesn't give up on you; cares for your opinion; treats people equally; makes allowances; allows you to have your say; tells you how you are doing; makes you feel clever. (See also unit 3, video sequence 3a. The unit explores ways in which you could investigate your own pupils' perceptions.)

Adapted from Hay McBer's report for the DfEE (2000) 'Research into Teacher Effectiveness'. © Crown Copyright 2000.

Task 13

Staff–pupil relationships   25 minutes

Consider what other characteristics of being a good teacher pupils might add to this list. Revisit task 2, and match these pupil statements with the core values and beliefs listed there. Share your reflections with a colleague or mentor.

Teachers generally do not have sufficient opportunity to reflect upon their practice. The vibrancy and pace of the working week militate against engaging in this really important professional activity. Neither is it uncommon for effective classroom managers to be unaware of the many skills they exercise as second nature.

A professional dialogue   50 minutes

In video sequence 20a teachers and pupils discuss some of the aspects of classroom management which have been explored in this unit. In particular, the discussion focuses on the use of praise, dealing with pupils who talk out of turn or arrive late, and those non-verbal techniques which effective teachers deploy to such great effect.

Juxtaposed with the dialogue are some brief scenes from the classroom where teachers demonstrate some of the skills and techniques they are discussing.

Watch the video in its entirety to get a sense of its content.

For your second viewing, there are two tasks you should undertake:

- Listen to the teachers' comments carefully and note any ideas, tips or techniques which you feel are worth adopting in your classroom. (You will be surprised by how many you discover. You might find it useful to pause after each section, review your notes and repeat your viewing to be sure that you have maximised your learning.)

- Listen carefully to the pupils' dialogue, note the characteristics they refer to and check with the Hay McBer list (page 19) to see how closely their commentary matches and if there are significant omissions or additions.

Record your reflections and findings and use them as part of your future targets (page 24).

Watching and analysing this video extract with a colleague or a mentor would be a very worthwhile activity and will generate further suggestions.

Summary of research

There is a wealth of literature on various aspects of classroom management. Some approaches have received considerable publicity, for example assertive discipline, and its proponents make significant claims for their effectiveness. Muijs and Reynolds (2001) offer an excellent review of studies into teacher effectiveness and conclude that the main factors influencing pupils' performance are:

- the opportunity to learn;

- time on-task.

Time on-task is strongly influenced by classroom management, which creates the conditions under which high-quality teaching and learning can occur. Unsurprisingly, the main research findings on classroom management refer to the following areas:

- starting the lesson;

- seating arrangements;

- establishing clear rules and procedures;

- maintaining momentum during the lesson;

- ending the lesson.

Unit 5 Starters and plenaries offers further advice on this important area. Creemers (1994) explores the management of key transitions when pupils move from play, for example at break and lunchtime, to the classroom. Achieving the appropriate classroom behaviour can be challenging, but his book suggests some useful techniques.

There is some interesting work on seating arrangements in Borich (2003), which discusses the appropriate pattern for different types of work. You could also revisit unit 18 Improving the climate for learning to look again at task 8, where a teacher deploys a double-horseshoe seating arrangement, and then consider the benefits of this approach.

The effective teacher teaches behaviour for learning and the establishment of clear rules and procedures is an important element. Rules are more formal statements that specify what pupils are allowed to do or expected not to do. Generally, rules should be expressed in positive language. Brophy (1996) gives a good account of these issues. Procedures apply to specific classrooms. Kounin (1970) offers some fascinating insights. He talks of the *ripple effect* where the management of one pupil's unacceptable behaviour impacts on other learners. His research illuminates the fact that pupils react within ten seconds to a teacher's intervention and, depending on the skill of the teacher and on the classroom context, the pupil response can range from open defiance to immediate conformity. He concludes that effective teachers rarely show anger but express firmness. Pupils like teachers who explain well and set positive tasks which are appropriate. Interestingly, he examines the consequences of sanctions on learners. He discovered that the presence of sanctions increased students' attention to task only in cases where there was in the particular student an innate high motivation to learn.

Effective teachers typically displayed other classroom management skills:

With-it-ness: a teacher who communicates well their understanding of the subject and the direction of the learning, and who can manage more than one event simultaneously. This is a demanding area as teachers have to make many decisions and manage a high level of unplanned activity.

Smoothness: off-task behaviour is greatly reduced if teachers maintain lesson pace and the transitions from one lesson episode to another are appropriately timed and progressive.

Group alertness: by this Kounin means teachers who remain aware of the whole class and do not overly focus on the needs of a single pupil.

To analyse what is happening in classrooms you might find it useful to explore some of the instruments outlined in Borich (1990) which enable a sharp focus to be placed on your observation and analysis. Deploying one of these observation strategies might be a very rewarding exercise to undertake with your mentor or a trusted colleague. Another source is Good and Brophy (2002) who, in chapters 4 and 5, consider preventing problems and coping strategies. Their book also has excellent references for further reading.

Although you have clear rules and procedures for your classroom, you will still have to decide which behaviour requires your intervention. It is important not to over-react, and to be anticipatory. This is sometimes called *overlapping* and refers to the teacher's ability to nip misbehaviour in the bud in an unobtrusive way. In some cases, it is effective to ignore certain minor behaviours (sometimes known as *tactical ignoring*) because this maintains lesson momentum. Above all else, it is important to be consistent as discussed in Muijs and Reynolds (2001).

A very thorough analysis of good practice and relevant research can be found in chapter 3 of *Improving school behaviour* by Watkins and Wagner (2000).

'The key to successful classroom management is prevention – teachers do not have to deal with misbehaviour that never occurs.' From *Looking in classrooms*, Good, T. L. and Brophy, J. E., Allyn & Bacon (1973) © Allyn & Bacon.

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- Muijs, D. and Reynolds, D. (2001) *Effective teaching: evidence and practice*. Sage (Paul Chapman). ISBN: 0761968814.

- Watkins, C. and Wagner, P. (2000) *Improving school behaviour*. Paul Chapman. ISBN: 0761963375.

- Wheldall, K. and Merrett, F. (1988) 'Which classroom behaviours do primary school teachers say they find most troublesome?' *Educational Review* 40 (1), 13–27.

Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Arrange to have some of your lessons (or parts of your lesson) videoed so that you can analyse your use of verbal and non-verbal praise.

- Research the contribution that teaching/classroom assistants make to effective classroom management; identify and share good practice.

- Review your school's rewards and sanctions policy. For example, if your school uses detention as part of its management of pupil behaviour, analyse its

effectiveness. Does the analysis of the data show a high percentage of repeat offenders? Are the reasons for the detentions related to pupil misconduct in the classroom? Do detentions modify pupil behaviour? What is the pupil experience of detentions?

For further reading the following publications are recommended:

- Blum, P. (2003) *A teacher's guide to anger management*. Routledge Falmer. ISBN: 0415231981.

- *Discipline in schools* (the Elton Report) (1989). HMSO. ISBN: 0112706657.

- Macgrath, M. (1998) *The art of teaching peacefully.* David Fulton. ISBN: 1853465607.

- Newell, S. and Jeffrey, D. (2002) *Behaviour management in the classroom – a transactional analysis approach*. David Fulton. ISBN: 1853468266.

- Rodgers, W. (2002) *Classroom behaviour*. Paul Chapman Publishing. ISBN: 0761940189.

- Watkins, C. and Wagner, P. (2000) *Improving school behaviour*. Paul Chapman. ISBN: 0761963375.

Visit these websites:

www.standards.dfes.gov.uk/keystage3, where you will find the *Behaviour and attendance* materials;

www.teachernet.gov.uk/professionaldevelopment, which has a resource bank on behaviour management.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   40 minutes

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

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Pedagogy and Practice: Teaching and Learning in Secondary Schools

Unit 17: Developing effective learners

Creating effective learners

How to use this study guide

This study unit offers some practical strategies that teachers use to develop effective learners. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on your approach to developing effective learners. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 17, Developing effective learners, when working through this unit.

Developing effective learners

Contents

Introduction

Effective learners

Pupils who are effective learners have the skills to learn on their own. They can be relied on to work independently, even for long periods. They can:

- organise and sequence their work;
- solve complex problems;
- appreciate when they need to seek help or ask questions;
- read and gather information and take notes;
- share ideas or work in a group;
- appreciate the purpose of what they are doing and make connections with other work;
- evaluate their work and plan what to do next.

Common issues

Some pupils, or even whole classes, lack the necessary skills to work independently of their teachers. Consequently, in most lessons these pupils:

- are disorganised;
- give up when they meet a challenge;
- rely on others to do their work for them;
- make poor use of resources provided;
- opt out of discussion and group work;
- constantly question the purpose and value of their work;
- go off-task, waste time or misbehave.

Resolving the issues

Research (a summary of which can be found on pages 21–23) has shown that pupils can be taught to become more independent in their work and thus become more effective learners. As pupils mature, they can be increasingly encouraged to develop these skills. In most circumstances, good progress can be made if you start small, with a very specific focus. To begin with, you could:

- concentrate on a particular learning skill, for example organising information;

- model for pupils how a particular skill is carried out;

- select exercises carefully:
    - to match your objectives;
    - to ensure that pupils experience success;

- give good examples and clear success criteria;

- monitor individuals and the whole class and deal with difficulties;

- provide positive feedback, not just marks.

As you begin to foster new habits in your pupils, you can gradually increase expectations. You could:

- set challenging tasks for the whole class, building in the necessary support;

- as a whole class, work collaboratively through the stages of solving a problem, gradually reducing the support you provide;

- focus particularly on understanding problems and planning the solutions;

- include short spells of carefully structured paired or small-group work;

- expect pupils to share, comment on and evaluate each other's work;

- develop thinking skills by raising questions about ways of working and encouraging reflection on strategies for learning.

1 Effective learners

Task 1	**What makes an effective learner?**	**10 minutes**

Before reading the section below, spend a little time thinking about the skills that are needed to be an effective learner at Key Stage 3 and Key Stage 4. One skill, from the introduction, is the ability to plan and organise.

You might find it useful to bring to mind a pupil you know. Write a list describing his or her learning skills.

In recent years there has been renewed interest in considering how best to develop pupils' learning skills. Joyce, Calhoun and Hopkins (2002) argue that some ways of teaching provide models for learning that help pupils acquire these skills.

Southampton LEA had identified the need to improve pupils' learning skills. A small steering group comprising LEA staff and headteachers met over a two-year period to develop strategies that would help schools and colleges improve the learning skills of their pupils and students. The steering group was keen to involve both pupils and teachers in helping to identify what skills effective learners need and then to suggest what to do to help them develop those skills.

Two areas were investigated in schools and colleges.

1   First, many teachers were asked to complete a questionnaire, about what good learners look like at different ages. When the results were collated, there was remarkable agreement. From these results, 'end-of-key-stage statements' were developed to describe effective learners at ages five, seven, eleven, fourteen and sixteen. The statements set out milestones that indicated to teachers what to develop in each key stage. Together, the statements set an agenda for which learning skills to teach and when.

2   A detailed questionnaire was given out in one secondary school to investigate the pupils' perceptions of how they learned best. The responses gave the school some valuable insights. This led to discussions between staff about learning skills and the physical environment as well as to the senior management team investigating what could be done to improve classrooms.

The findings were shared between schools via conferences and the LEA website.

The end-of-key-stage statements for Key Stages 2, 3 and 4 are set out in grids on the next two pages.

By age 11 effective learners:

Statement	Reflection
are well organised, able to plan systematically	
break tasks down into manageable bits and have a range of strategies to solve problems	
are prepared to ask for help using appropriate well-formulated questions	
when searching for information, are clear about what they are looking for and how to use the conventions of information storage systems	
work with others, participating well as a team member, and may take a lead role	
see the 'bigger picture' and can see where the learning is going	
are able to evaluate their work and discuss how they might improve	

By age 14 effective learners:

Statement	Reflection
are well organised, they plan their work independently so that it is completed on time	
show confidence in the range of strategies they have to solve problems but are quick to realise when they need help and choose the most efficient means of gaining an answer	
when gathering information, understand the advantages and constraints of a range of resources and media including electronic and can use these independently and discerningly	
take appropriate notes in a form that is suitable and can adapt information with a clear sense of audience	
work well in a team, recognising the advantages of a collaborative approach; they take a lead role confidently when they see the need	
look for reasons for learning, recognising when it is purposeful and when it is not; they are capable of linking ideas together so that the 'bigger picture' becomes clear	
can set their own targets and evaluate their progress towards them	

By age 16 effective learners:

Statement	Reflection
are well organised and plan their work confidently, balancing priorities	
show independence in solving problems, selecting the most effective strategy with confidence, and will seek help when needed	
when gathering information, do so efficiently and will take notes in a variety of ways, selecting the method to suit the purpose	
can reorganise their work and re-present it with a clear sense of audience	
are effective team members and can recognise the different roles needed to complete a task and will often take on that role to ensure completion	
search for purpose for learning and will challenge and question to ensure that what they are learning is appropriate	
will explore how this fits with existing knowledge and will accommodate any changes to their overall 'map'	
assess their own work and can identify areas for improvement and seek help to clarify how they can improve	

Note: This section, based on the work of Southampton LEA (2001), is exemplified in *Bridging Plans: from Key Stage 3 to Key Stage 4*: *English* (DfES 0080-2004), *Mathematics* (DfES 0081-2004) and *Science* (DfES 0082-2004).

2 Planning to teach learning skills

Focusing on a particular skill

To help pupils become more effective and independent learners, it is best to start with one or two basic learning skills and concentrate on those. Taking into account the list of characteristics of effective learners on page 1, you might start by:

- focusing on how pupils organise and sequence their work;

- encouraging pupils to appreciate when they need to seek help or ask questions.

To make it even simpler, the skill of knowing when to seek help can be put into the context of organising and sequencing work.

Task 2

Choose a class to work with   30 minutes

Choose one class in which you would like to enhance pupils' learning skills. In this unit, you will teach three appropriately phased key lessons with that class. The approach is one of 'starting small' – focusing on simple changes that will make a difference to your teaching. Think carefully about which class or group to choose.

- It should be one where you judge that a significant number of pupils lack the necessary learning skills.

- Do not be too ambitious, however. Choose a class with whom you are willing to take some risks and try out new ideas.

- Before making your final decision, talk to colleagues who teach the same pupils (or a majority of them). Ascertain their views of the pupils' learning skills and check that one of them is willing to be observed for one of their lessons with the class.

Having identified a suitable class to work with, reflect on their effectiveness as learners. Refer to the grids of age-related descriptions on pages 4–5 to complete the task.

- Reflect on the list of learning skills nearest to the age of your chosen class, e.g. if it is a Year 7 group refer to the age 11 competencies.

- Use the right-hand column to record the skills that you think they already exhibit.

- Record in the right-hand column the learning skills that they most need to develop.

Observe the class with another teacher 90 minutes

It can be invaluable to have the opportunity to observe your pupils being taught by another teacher in another subject. This can help you to identify:

- pupils' strengths and weaknesses as learners (as these are common to different subjects and teachers);

- the positive and negative effects of the different approaches you and your colleague adopt in teaching and relating to the class;

- differences in the opportunities provided in different subjects.

Arrange to observe one of your colleague's lessons, first agreeing the purpose of the exercise and sharing the checklist of learning skills you have developed. During the lesson:

- use the checklist to focus your observations of the pupils;

- note features of the teaching which foster pupils' learning skills.

After the observation, arrange to have a discussion with your colleague – you will need up to 30 minutes. Use your notes as a basis for the discussion, remembering the points you want to tease out about similarities and differences between the lesson you observed and your own lessons (from the three bullet points above).

Modelling

To be successful in any task, pupils need to understand the task and possess the learning skills. Through modelling you can help with both (see unit 6).

Like most teachers, you are probably familiar with the experience of having explained a task very carefully to a class, only to find that many of them cannot get on with it! Modelling can be more effective than verbal explanations, especially for pupils who prefer a visual learning style. With modelling, the teacher:

- demonstrates the task by doing it in front of the class;

- links the task to skills or processes that learners can already perform;

- goes through the task in a clear, structured and sequential way, thinking aloud and explaining what they are doing;

- invites pupils to memorise the steps involved in the task and then imitate what they have seen (perhaps supported by reminders written on the board).

An advantage of modelling is that you can make hidden processes – such as the thinking behind alterations and revisions – explicit. This helps give pupils the confidence to use the processes themselves. It is particularly beneficial to pupils learning English as an additional language because you can model the subject-specific language for them in the context of the work being done.

It is also possible to model a learning skill directly. For example, to model the skill of asking useful questions you could set up a role-play where two people question each other in a conversation. In this way you could, for example, look at what sorts of question are useful and what sorts are useless if you are a GP or a detective.

Examples of processes or skills that can be modelled are:

- writing an account;

- constructing a concept map;

- considering options when receiving the ball in an invasion game such as football or netball;

- evaluating a finished product in design and technology;

- drawing a field sketch in geography.

A geography teacher wanted his class to practise drawing field sketches. Before asking them to do so, he modelled the task himself. He sketched the landscape on an OHT, giving the following commentary.

'OK, now where do I start? If I want to make an accurate sketch then I need to make sure I draw a frame that is the same shape as the "view".

Now I'm ready to draw the field sketch itself. It's important to draw in the main landscape lines first so that I divide up the different areas of land use.

Now I have an outline of the main areas, I can put in the detail … a few outlines of buildings … oops … it doesn't really matter that they don't look like buildings … this isn't a piece of art … the most important thing is that the labels we add in next are detailed and accurate.

Now to start annotating the sketch. Because this sketch is about Chester as a tourist destination, it's important that I pick out the main attractions … hmmmm … first the cathedral … I'll pick out some important details from this guidebook to Chester.'

Reflection

This geography example should give you an idea of how the modelling process works. How could you exploit this strategy to its full potential?

Think of a topic you are currently teaching and identify an aspect that would be suitable for modelling to the class. Talk through a short 'script' to yourself, imagining that you are starting the process with your pupils. Does it feel different from what you would normally do? In what ways? List any additional equipment that you would find useful to have in the classroom.

For more on modelling, see unit 6.

Giving good examples and feedback

Having had the skill modelled for them, pupils need to engage with it for themselves. During this time, it is essential that you monitor the work and give good feedback. As well as giving practical help, this encourages pupils to perceive their work as valued and to learn how to improve it. Where possible, aim to observe the following guidelines for monitoring and feedback.

- Monitor individuals, groups and the whole class in a balanced way.

- Engage proactively, not just waiting for pupils to seek help. Use questions or requests which encourage pupils to explain or think more deeply, such as 'Take me through what you have done so far', 'What are you doing at the moment?', 'Why have you done this?'

- Encourage pupils to check each other's work and to use other pupils as a first source of help. (You could model this for the class with a role-play exercise.)

- When appropriate, draw the class together to deal with common issues or difficulties, getting members of the class to help where possible.

- Give constructive comments on samples of written work. (Research evidence clearly indicates that this is far more likely than marks or grades to help pupils improve their work.)

Building the skills in lessons and increasing expectations

Although you may be looking for immediate signs of effect in one lesson, bear in mind that the lasting benefits will only be apparent over time. Gradually, pupils will start to use the learning skills you have fostered without needing to be prompted continually. The following strategies will help.

- Make your expectations explicit, enlisting the help of pupils and teaching assistants to ensure that everyone follows the rules.

- Gradually increase your expectations of pupils. Reduce the support you provide, for example by modelling the task in less detail, and increase the demand, for example by introducing longer or more complex tasks.

- Only move on to developing new or higher-order learning skills when you feel that most of the class are developing good learning habits. Even then, you will need to continue providing opportunities for practice.

- Be consistent. Changing pupils' habits involves changing your own first, so be vigilant and do not slip back into old ways.

Classroom assignment: teaching learning skills 90 minutes

Choose a learning skill to develop

Using the checklist you prepared in task 2, decide what learning skill or skills you will focus on with your chosen class. At the beginning of this section (page 6) it was suggested that the basic learning skills to develop in pupils are:

- organising and sequencing their work;

- appreciating when they need to seek help or ask questions.

Alternatively you might decide to focus on a learning skill you saw successfully taught by the teacher you observed in task 3, for example:

- working effectively in small groups: pupils are given a clear brief, strict time limits and specific feedback points to prepare;

- working on a skill not previously given much attention in your subject (e.g. drafting and re-drafting, much practised in English lessons, could be used in science to help pupils to develop written explanations).

Whatever you choose, keep it specific and fairly simple. That way you are more likely to see a clear positive response from the class.

Plan and teach the lesson

Plan your lesson, giving specific attention to how you will:

- model the task and the learning skills for the class;

- monitor and give feedback, involving pupils as much as possible.

Teach the lesson, then do an evaluation. Consider whether the class, or at least some of the pupils:

- began to show more independence in the area you were trying to develop;

- showed fewer signs of disorganisation or over-reliance on others.

Continue to develop the same learning skills with your chosen class, modelling a variety of tasks in subsequent lessons. It will take time for the new skill to be embedded into everyday learning.

3 Supporting pupils in developing independence

The following strategies are useful in helping pupils to develop as independent learners.

Modelling the learning process and learning habits: Modelling is a powerful teaching strategy for making explicit your expectations:

- What should the class do, and in what order?

- How should they do it and deal with issues and difficulties?

(See page 7.)

Planning teaching sequences that lead towards independence:

- Provide 'scaffolding' which you remove when pupils are ready.

- Encourage learning skills to become learning habits.

- Gradually increase expectations, for example modelling more difficult problem solving or introducing collaborative group work.

(See case study 2.)

Setting clear objectives and sharing with pupils the criteria for success: This involves more than simply announcing the objectives at the start of the lesson. Pupils need to know why they are doing something, how it links with other work and what a good answer will look like.

Using key words and 'quality boards' to explain and clarify:

- Have key words on display (or taped to the desk for pupils with special educational needs) and make it clear to pupils when they are to be used.

- Illustrate expectations by displaying annotated written work: 'Note that there are three clear sections …', 'It is good that the report addresses …'.

(See also case study 3 where the teacher draws pupils' attention to how they should work by saying 'In a good group I will see …'.)

Helping pupils develop self-assessment skills: Getting pupils to evaluate their own work helps them to make links, gain a sense of purpose and develop independent judgement. For example, in the plenary you could try the following:

- invite pupils to tell the class what they have done and evaluate it together;

- identify errors, difficulties and misconceptions and begin to deal with them;

- pose a fresh problem to test whether pupils can apply their learning.

(See case study 5.)

Video sequence 17a shows a mathematics teacher with a Year 8 class, teaching a lesson on the interpretation of data, presented in the form of bar charts and pie charts.

Interpretation of data is recognised as a weak area for many pupils. In this case there was an additional challenge because, at the beginning of the school year, it was agreed that this particular class needed to develop their speaking and listening skills. By the time this lesson was recorded, they had made significant progress in this area as a result of the teacher focusing on these skills over a period of several months, using very specific teaching strategies.

Whole-class discussion in this lesson was based on comparing two data charts, using a 'hide and reveal' strategy. The teacher covered the labels and scales and then asked pupils to conjecture what the charts might be about, gradually revealing more information. This is a particularly effective strategy for provoking exploratory talk: pupils feel free to come up with ideas and to comment on each other's suggestions.

If you would like to see an extended extract from this lesson, look at the video in the pack *Interacting with mathematics in Key Stage 3: Year 8 materials*, which your mathematics department will have (it was given to departments on courses in summer 2002).

Reflection	**Developing independence**

From pupils' responses in the video sequence, what evidence do you see that the mathematics teacher's strategies are improving their learning habits?

Consider:

- the use of key words, expecting pupils to say them aloud;

- working with a partner on a problem;

- sharing different views; explaining other views 'in your own words';

- the use of positive teacher language;

- giving teacher summaries of pupils' views, showing how they agree with each other;

- encouraging extended thinking by asking: 'What else?', 'Who can add to that?'

Developing exploratory talk

Exploratory talk is a way of communicating which enables pupils to think together effectively. But it does not happen by chance: you have to establish ground rules. Everyone should:

- be encouraged to contribute opinions and ideas and to give reasons;

- share all relevant information and ask other people for information and reasons;

- feel free to disagree if they have a good reason, but be willing to change their minds if they are persuaded by someone else's good reasoning;

- treat other people's ideas with respect and try to come to an agreement.

Case study 4

A Key Stage 3 history teacher identifies opportunities for talk and explains his strategies for encouraging group discussion:

'The class are asked to choose the people they want to work with, forming groups of up to five. These friendship groups help motivation. The less able are supported by their friends and teaching assistants are advised which group to work with. If someone doesn't want to join a group, I let them work alone for one session and this helps them to see the disadvantage of having no one to discuss things with. Sometimes I work with a child who has elected to work alone – I think it's important to bring them in by experience and example. This way I respect their wishes and avoid conflict. At the start of the year many of them are rather quiet, but by the end of the year they are all buzzing – the activities and groups give them confidence to speak out. The less able do especially well; they learn, for example, that they can read aloud without anxiety.

The Year 7 topic is the Black Death in 1348. Each group is provided with a separate set of information about the plague. All the pupils have a clipboard and a structured worksheet. The groups talk about their information and create a bulleted list of key points. Then members of the group go off to collect other information from other groups. They must keep one person at their table, or 'learning station', to teach the 'visitors' who arrive from other groups what they know. Finally, each group makes up a song, using any tune they like, about the topic. One group, for example, used "Wild Thing". I record the songs with the digital video camera – always in my desk drawer – and we all watch the results on the TV, here in the room. As well as being very motivating, the approach involves multiple intelligences.'

Reflection

From the case study above, identify one or two strategies you could employ in your teaching to improve the value of talk in groups.

Reflection

Reflection is important if pupils are to understand more fully what and how they have learned. It is one way in which pupils can develop a language about learning. With this awareness they are more likely to become independent learners, better equipped for lifelong learning.

The experience of teachers suggests that, where pupils have had no chance to reflect on their learning and thought processes, their accounts of learning outcomes are dominated by describing lesson content. Where teachers have made learning more explicit, for example by using collaborative groups and conducting whole-class plenaries which focus on processes, the pupils' accounts of learning outcomes are broader and include greater awareness of how learning has been achieved.

Case study 5

A Year 8 geography class had been studying tensions and problems in inner-city areas. In one lesson they were given a 'mystery' – an activity where they had to answer an open question (in this case, *Who smashed a car windscreen?*) by using information on 15 to 30 small slips of paper, some of which may have been irrelevant or misleading. In the plenary they were asked to identify the assumptions they had made in trying to reach a decision on the basis of incomplete evidence.

Teacher	What do you think you learned during that lesson?
Male pupil 1	We learned about assumptions, like you shouldn't just rush into deciding something without thinking carefully.
Male pupil 2	Yeah, you thought you were right and then you had to think about it and you weren't so sure, especially when you listened to other groups.
Interviewer	How did the teacher help you?
Female pupil	The teacher kept saying, 'Do you really know that? Is it a fact?' Usually we were wrong, well, sort of.
Male pupil 2	You had to have evidence to back it up, like in a court … like a trial.
Female pupil	At the end you could see how lots of fights start. People think they are right, but they don't think, not really. It was funny when the teacher talked about fights he used to have with his brother, just like me and my sister.

Reflection

What benefits would you say that these pupils got from the awareness they are expressing?

In what ways do you provide your pupils with opportunities to develop awareness of strategies and learning?

Reading skills

The focus of this unit is not that pupils have to work purposefully for long periods on their own. However, if they are to achieve a degree of independence in their learning, they need reading skills developed to a certain level in order to be able to retrieve and handle information effectively.

The Key Stage 3 National Strategy *Literacy progress units* are provided to contribute to and complement the teaching of English in Year 7, specifically for teachers of pupils who need help to progress from level 3 to level 4. The unit on information retrieval identifies the skills that pupils need to acquire in their non-fiction reading. They need to be able to:

- scan text to pick out specific information;

- skim text for an overall impression and the main points;

- recognise the impact of page layout and organisation;

- select relevant information;

- summarise accurately;

- make notes effectively.

These reading skills are vital to accessing other subjects of the curriculum.

Task 5	**Developing reading skills**	**20 minutes**

Consider each of the information retrieval skills in turn and think about the needs of pupils learning the subject (or subjects) that you teach. To what extent do they need to use that particular reading skill: often, sometimes or rarely?

Next, decide which of the skills is needed most often and think about how you can help pupils develop and practise this skill.

For ideas on how to develop pupils' reading without encroaching on your subject teaching time, see unit 13 Developing reading. You might also find it helpful to talk to a colleague from the English department to help develop your understanding of the issues surrounding the acquisition of literacy skills and to discuss further strategies.

Reflection

Think of the best class you have ever known. (You may have been a member of it!) How would you describe the characteristics of their learning?

What you are aiming for with your current class is to begin to develop just some of those characteristics. It is important to hold on to the fact that small changes in your teaching can make a significant difference over time.

Classroom assignment: developing independence   90 minutes

Developing more learning skills

Plan a lesson to further develop pupils as independent learners.

Reread and reflect again on the key strategies for developing learning skills summarised on page 11 and case studies 3 and 4 which give examples from different subjects.

Select one or more strategies from these pages to incorporate into your planning for a lesson for your class. Think creatively about how to adapt the idea to your subject.

Do not introduce too many strategies at once. Your expectations of the class need to be made explicit and they will not cope with too much. However, do reinforce any learning skills that you developed in the first classroom assignment (task 4) and subsequent lessons.

If at all possible, invite another teacher to observe this lesson. Make sure you brief beforehand on the teaching strategies you intend to employ and the pupil outcomes you are seeking.

Reviewing the lesson

Reflect on the lesson, using the following questions.

- Did you carry out the lesson plan as intended? If not, what modifications did you make and why?

- Was the response of the class what you had hoped for? If not, then why not?

- What can you learn to carry forward in future lessons?

If your lesson was successful, you will probably feel confident about continuing. If you are a little dissatisfied, then try to decide on the reasons for this, talking it through with someone else if you can. It may simply be that you expected too much from one lesson and need to persist with the strategies over a series of lessons.

4 Supporting thinking

Principles for teaching thinking are based on the premise that human intelligence is not fixed, the brain continues to develop and learning opportunities with suitable challenge can be offered to all. The main ideas behind supporting thinking are outlined below.

Cognitive conflict: Tasks need to provide appropriate challenge. 'Conflict' refers to the struggle to think through challenging problems and issues. Through experience of cognitive conflict, pupils develop the ability to hold information in their heads and to process it.

Specific thinking ability – patterns and 'the big picture': Each subject has its main ideas and key patterns of reasoning. Once pupils have learned these they can relate new information and detail to these key patterns and ideas. Moving between detail and overview is essential to completing many tasks. In science, for example, if pupils understand the two key scientific ideas of particles and energy, they will be able to use this to explain the process of dissolving.

Sharing thinking: Exploratory talk facilitates interpreting, questioning, connecting, summarising, speculating and predicting. This shared activity develops the individual's thinking because the group generates and refines a range of ideas and knowledge that are gradually internalised. (See case study 4.)

Metacognition: This involves monitoring and regulating thinking. Pupils can be encouraged to step back and review what they are doing, to question whether or not they are using the most appropriate strategies to deal with a particular problem and are taking account of all the relevant information (see unit 2).

Disposition to think: Pupils have views about themselves as learners. Many have negative views and will say 'I am no good at …'. Teaching needs to be planned to encourage such pupils to think that they can become better learners.

Teaching thinking involves managed discussion and focused intervention, as well as effective instruction. Pupils who lack learning skills will certainly not develop them if these challenges are sidestepped.

The specific teaching of thinking skills can be studied using unit 16 Leading in learning.

Supporting thinking

Subjects such as art or design and technology rely heavily on visual literacy, and thinking-skills activities can play an important part in their development. 'Maps from memory', reading photographs and pictures, and 5Ws (who, what, when, where and why) all contribute to pupils' ability to process visual information, to question the validity of images, to detect bias or to evaluate the work of an artist or photographer.

A teacher of food technology used a version of maps from memory as an introduction to packaging. The task was for each group to draw collectively their own version of a collapsed and flattened cereal packet. Working in groups of three or four, pupils took turns to visit the teacher's desk to observe the flattened packet for 20 seconds, with no pencil and paper for recording. They then returned to the group to draw and write what they could remember, adding to what previous group members had seen. The class greatly enjoyed the challenge as well as the competitive aspect.

The activity provided a superb opportunity for pupils to develop insight into part–whole relationships (information processing). Planning, checking and group cooperation were also developed as the pupils decided on the best strategies. These skills are at the heart of the enquiry methods (posing and defining problems, planning what to do, predicting outcomes and anticipating consequences, and improving ideas). The intense study of the information and layout of the packet led to wide-ranging work about requirements of food labelling, design and construction of packets, and artwork. The task was also used as revision at the end of the unit of work.

Reflection

In educational debate there is sometimes a tendency to emphasise the verbal and to neglect the visual dimension of human capabilities. This has several unfortunate consequences. Firstly, success in many subjects may require a greater emphasis on spatial thinking than is perhaps recognised. Secondly, pupils who are better thinkers spatially than they are linguistically may be disadvantaged.

Reflect on the following questions.

- Is there a visual dimension to your subject to which you could give more attention?

- Do you have pupils who might respond better to lessons if concepts were presented in a more visual way?

Using the environment to support thinking

It is possible to have a beneficial impact on learning and pupils' learning skills by paying careful attention to the detail of the classroom environment. Here a deputy head teacher describes a whole-school approach which has created significant changes in classroom interactions and pupil's effectiveness as learners.

The relationship between the learning environment and pupils' learning and thinking is one we are only just beginning to understand. Everyone knows that a really stimulating environment can help to motivate pupils, especially those who are visual learners; it can even probably help raise expectations. We wondered whether we could take things a step further. Could we make a difference to the actual talk, the thinking and learning in the school, if we looked carefully at the detail of classroom environments?

We were prepared to do the usual things, such as repairing damaged walls and equipping rooms with OHTs and, when we could afford it, interactive whiteboards. The real challenge, however, was whether we could influence interactions and actions that take place in the learning environment, considering that rooms vary a great deal. Some of that variation was seen as constructive because it helped give pupils a flavour of different subjects. Other aspects were much less helpful. Some rooms had bright and interesting displays to help stretch pupils' thinking and imagination. Other rooms looked tired and the displays were dated and possibly irrelevant to pupils' work. It had become wallpaper – seen only on the first occasion that pupils entered the room. Could we change that and provide teachers and pupils with visual material which propelled them into different kinds of talk and deeper learning?

As a first step, we pushed for greater consistency of displays by providing all teachers with a way to subdivide their available space. We provided common titles, for example 'News and notices' and 'Important words', and also some back-up help to mount materials. We then encouraged teachers to think about the kinds of useful talk they were trying to promote and to display more high-level work generated by previous groups. We thought that would help teachers move forward with conversations about success criteria and how to improve. We also encouraged them to develop their 'word walls' by adding a range of thinking and learning words, which would progressively help pupils talk about, and even analyse, their learning. Words such as 'reflection', 'evaluation' and 'classification' were added, and teams began to talk increasingly about how they wanted pupils to use the words. A lot of implicit things began to be made much more explicit to pupils.

We also decided that if we were to influence pupils' thinking we should give them a better idea of the 'thinking tools' that are available to them. As a supplement to the disparate work going on in departments (designed to encourage subject-based thinking skills development) we drew up an array of what might loosely be called generic 'thinking tools' – devices which any pupil could use to help focus their thinking whenever they were faced with challenging work in any subject. Initially, we just thought about tools such as concept maps, but then we decided to add other structures, such as 'diamond ranking' and 'force field analysis'. At first we considered display versions, one for each room, but then we decided to put a laminated sheet on every table or workspace where it might be needed. That A3 sheet, laminated to the table, provides scaffolding for any individual or group and, perhaps equally importantly, enables teachers to push pupils into both discussion and problem solving for themselves.

Thinking tools
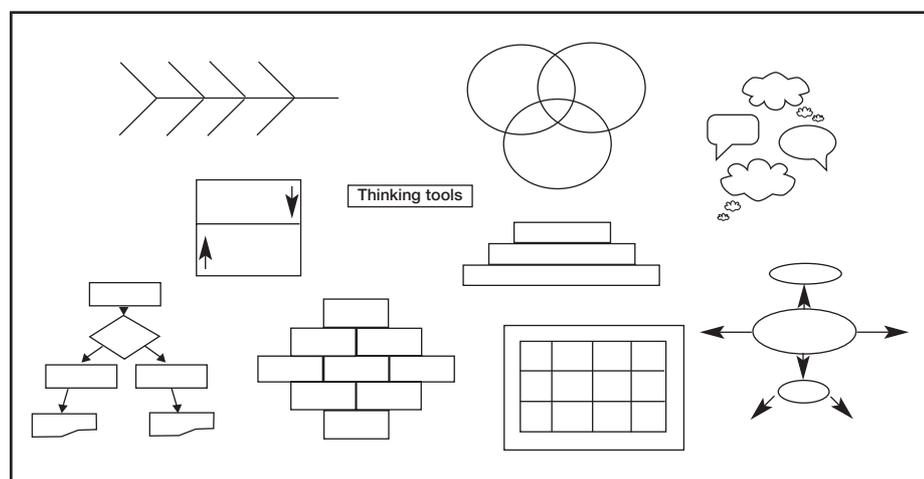
It has made a difference. Pupils do refer to the tools when they face dilemmas and challenges. They talk to each other much more about how to do things. When asked, they say they feel more in control of their own learning. If they don't have access to one of the sheets, they will be quite assertive in asking for one. Some even feel that working like this helps them to remember.

These changes were about influencing the nature and quality of talk in classrooms. At the same time as making these changes, we made one of our best decisions, which went on to influence the talk between teachers. We arranged for all staff to hold departmental meetings in other subjects' departmental bases. It was that simple – a 'low cost' or even 'no cost' change. Some people complained a little but the benefits soon became clear and have continued ever since. It was capacity building, virtually by accident. Whenever any teacher went to a departmental meeting, they spent time looking at the resources around them. Almost inadvertently, they learned about the approaches and thinking that other departments were trying to promote. It created common ground, discussion and collaboration across the subject boundaries. Inch by inch it moved discussion away from 'the worst possible child' to talk about aspects of teaching and learning. Partly by chance, but also partly by design, we – pupils as well as teachers – all began to feel we were moving in the right direction.

Task 7

30 minutes

Reflect on the implications that this case study might have for how you organise your own classroom.

- What features of your classroom and your practice help pupils to talk about and understand their learning?

- What might you add to encourage further development?

- Share your ideas with colleagues and generate a set of strategies you might all apply so that your efforts are reinforced by those of other teachers.

Task 8

Reflecting on outcomes

15 minutes

Reflect briefly on the pointers to pupils' progress towards becoming more independent learners, set out on page 1. Make brief notes on signs of progress with your chosen class.

Next, turn to the summary of research on pages 21–23 and identify the teaching strategies that you have employed to help pupils achieve these outcomes.

Spend a minute or two repeating task 1 on page 2 (reflecting on your teaching with this class), comparing results this time with your previous response.

Summary of research

Motivation

One of the most important areas of research that helps illuminate effective learning is the work of Carol Dweck (1999) on 'self-theories'. One of her research findings is that the majority of pupils have one of two contrasting theories in relation to intelligence. She labels the two theories 'Entity theory', in which you believe that you are born with a fixed amount of intelligence, and 'Incremental theory', in which intelligence can be developed through effort and engagement.

> *A belief in fixed intelligence raises students' concerns about how smart they are, it creates anxiety about challenges, and it makes failures into a measure of their fixed intelligence. It can therefore create disorganised, defensive, and helpless behaviour.*

> *A belief in malleable intelligence creates a desire for challenge and learning. Setbacks in this framework become an expected part of long-term learning and mastery and are therefore not really failures. Instead they are cues for renewed effort and new strategies.*

© Copyright 2000 from *Self-theories: their role in motivation, personality and development* by Carol Dweck. Reproduced by permission of Routledge/Taylor & Francis Books, Inc.

In order for pupils to be effective learners they need to have a belief that they can become better learners. To encourage this, teachers need to reinforce effort and risk-taking in learning rather than neatness. The 'self system' is fundamental because it underpins motivation.

Emotional intelligence

Emotional intelligence has attracted a lot of attention as an appealing explanation of success (or lack of it) in life. Because it is a new area of work, research evidence is thin on the ground. However, there is a fairly recent claim that EQ (Emotional Quotient, the equivalent of IQ) is the most important determinant of success and happiness in life ('All in the Mind', BBC Radio 4, 9 March 2004). The significance of EQ is that it may govern much of our ability to work well with others and our ability to manage our own feelings and emotions in the pursuit of learning.

Helping pupils become more independent

A compelling piece of research was carried out by Boaler (1997) who compared the teaching in two mathematics departments. At 'Amber Hill' pupils were subject to a class-taught, traditional model with the demonstration of set routines and many practice exercises from books and worksheets. At 'Phoenix Park' pupils were taught through a problem-solving approach and were taught methods and procedures when they were needed. The pupils achieved broadly similar results at GCSE, although the Amber Hill pupils did better on the 'procedural' or routine questions and the Phoenix Park pupils did better on the 'conceptual' questions.

However, the interviews and observations undertaken by Boaler indicated that the Phoenix Park pupils did not see any boundary between mathematics in the real world and school classrooms. The Amber Hill pupils, however, saw little use for the mathematics that they had learned in school in out-of-school situations and tended to forget what they had learned rather quickly. Encouragingly, Phoenix Park pupils

reported that they had developed self-motivation and self-discipline and that the openness of work encouraged them to think for themselves.

The metacognitive approach

An important element in problem solving is metacognition. This term basically encompasses knowledge about one's own thought processes, self-regulation and monitoring of what one is doing, why one is doing it and how what one is doing helps to solve the problem. It is particularly useful when faced by new and difficult problems. This allows one to ascertain whether the strategies one is using are effective, and thus to change strategies if necessary (Schoenfield 1992). It is clear that these kinds of thinking skill are of great importance to children, not only to develop their problem solving, but also to develop thinking skills more generally. Developing metacognition will also lead pupils to be more aware of their own strengths and weaknesses (Schoenfield 1987).

A range of studies provides compelling evidence that teaching approaches which include metacognitive aspects are very effective. For example, Wang, Haertel and Walberg (1993), in a review of research on instruction, found that metacognitive approaches to learning a process had some of the biggest impacts.

Schoenfield (1987) suggests activities such as showing a video of other pupils engaged in cooperative problem solving, so that pupils can see others using effective problem-solving strategies. This can impress upon them the importance of awareness of what they are doing.

Subject-based approaches: cognitive acceleration in science and maths

Some research has shown that it is more effective to teach thinking skills in a subject-based rather than a decontextualised way. The Cognitive Acceleration in Science Education Project (CASE) (Adey and Shayer 1994) and Mathematics Education Project (CAME) follow from this research.

The CASE project, containing 32 lessons, has five main elements.

- Concrete preparation is needed to introduce the necessary vocabulary and clarify the terms in which the problem is to be set. This means that the teacher needs to set the problem in context, and explain the meaning of the vocabulary that the pupil will need.

- The teacher needs to introduce 'cognitive conflict'. This occurs when pupils are introduced to an experience which they find puzzling or which contradicts their prior knowledge or understanding.

- Pupils then need to move on to a construction zone activity. This is an activity which ensures that pupils go beyond their current levels of understanding and competencies. Teachers can help pupils do this by helping them to build up, step by step, the higher-level reasoning patterns they need to access.

- Pupils need to reflect consciously on their problem solving (metacognition) in ways similar to those described above.

- Pupils then need to 'bridge' their new skills or knowledge, in other words to be able to apply it in different contexts.

Learning to learn

The Campaign for Learning is also conducting research into developing learning skills. Early findings by Jill Rodd (2002) in the Learning to learn in schools project support the idea that pupils become more motivated to learn and so standards improve when teachers:

- spend time creating a safe, comfortable yet stimulating classroom environment;

- are aware of pupils' different learning styles and adapt their teaching accordingly;

- help pupils to develop an understanding of how they learn most effectively and teach them strategies to enhance their learning skills;

- motivate pupils by relating learning to pupils' personal experience in relevant ways;

- encourage pupils to see learning in its widest context in and outside the classroom.

Summary of research findings from Rodd. J. (2002) *Learning to learn in schools: phase 1 project research report*. Campaign for learning. Used with permission.

References

- Adey, P. and Shayer, M. (1994) *Really raising standards: cognitive intervention and academic achievement.* Routledge. ISBN: 041510145X.

- Boaler, J. (1997) *Experiencing school mathematics.* Open University Press. ISBN: 0335199623.

- Dweck, C. (1999) *Self-theories – their role in motivation, personality, and development.* Psychology Press. ISBN: 1841690244.

- Joyce, B., Calhoun, E. and Hopkins, D. (2002) *Models of learning: tools for teaching.* Open University Press. ISBN: 0335210155.

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- Wang, M. C., Haertel, G. D. and Walberg, H. J. (1993) 'Toward a knowledge base for school learning'. *Review of Educational Research* 63, 249–294.

Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Work collaboratively with other teachers, preferably teaching the same group in different subjects. For example, you could identify common teaching strategies for developing independent learners. This will ensure that pupils see a similar approach across lessons, enabling you and your colleagues to support each other and evaluate the effectiveness of your strategies.

- Consider a class whose learning skills you wish to develop and, working with a colleague who also teaches that class, reconsider case study 1 and the results of tasks 2 and 3. In the case study agree three or four areas where you feel most pupils fall short and jointly plan how to develop these skills over time. How might you assess the impact of your efforts?

- Select one of the key learning points you have listed above and decide how, through a suitable line of enquiry, you can pursue this further and what method of working would suit you best.

For further reading, the following publications are recommended:

- Fisher, R. (1998) *Teaching thinking.* Cassell. ISBN: 0304700665.

- Hughes, M. (1999) *Closing the learning gap.* Network Educational Press. ISBN: 1855390515.

- Lucas, B., Greany, T., Rodd, J. and Wicks, R. (2002) *Teaching pupils how to learn.* Network Educational Press. ISBN: 1855390981.

- Muijs, D. and Reynolds, D. (2001) *Effective teaching: evidence and practice*. Sage (Paul Chapman). ISBN: 0761968814.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   **40 minutes**

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

• What are your objectives for the next year?

• What are the expected outcomes in terms of pupils' achievements?

• What strategies will you employ to achieve these outcomes?

• How will you track progress over the year?

• How will you know whether you have been successful or not?

Pedagogy and Practice: Teaching and Learning in Secondary Schools

Unit 13: Developing reading

Creating effective learners

department for
education and skills
creating opportunity, releasing potential, achieving excellence

How to use this study guide

This study unit offers some practical strategies that teachers use to develop reading. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide, you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on your approach to developing reading. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community. Record successes in your CPD portfolio.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 13, Developing reading, when working through this unit.

Developing reading

Contents

Introduction

Successful reading

In order to read well, pupils need to orchestrate a range of skills from basic decoding through to inference, deduction and being aware of the writer's purpose and how that affects the choices they made.

Successful readers:

- are confident in what they are doing and know how they should approach and read a text;

- recognise that texts are about much more than the words on the page;

- predict what will happen next;

- ask questions of the text;

- make links with other texts they have read both within and across various media;

- are able to relate what they read to their experience;

- pass judgements;

- evaluate text for veracity and usefulness.

Common issues

Reading is a complex active process in which readers use past experience and present skills to construct meaning. One of the most common reasons for lack of engagement in the classroom is the difficulty experienced by many pupils in working with texts. This is clearly most pronounced in classrooms where a high proportion of the pupils need support with literacy. However, strategies for focusing on the structure and meaning of different texts are applicable to all pupils. Those learning English as an additional language and/or those from ethnic minorities or socially challenging backgrounds may need particular support in accessing formal, more academic texts or those which depend on metaphor or cultural knowledge for their meaning.

In many classrooms texts are made increasingly easy for pupils in the mistaken belief that this supports pupils who might struggle. Oversimplification results in texts that lack any challenge, interest or exemplars of good writing. It is better to prepare pupils for a text and teach them how to read it until they can make those choices for themselves. By Key Stage 4 pupils should be able to read effectively without support. However, you may need to have guided groups for the less confident as texts become more complex.

Resolving the issues

Pupils are more likely to complete a reading task successfully if they have:

- a good working knowledge of subject-specific vocabulary and how this may vary from meanings in everyday life;

- support from the teacher about which approach to reading they might need through modelled and/or shared reading;

- a chance to access their prior knowledge before beginning – this cues them in to the subject as well as permits you to deal with misconceptions;

- support for how to make notes or record the information;

- ways of monitoring their meaning as they read;

- a chance to work together, with you supporting groups according to need.

1 Engaging with the research

The research on pages 18–21 is taken from the background briefing paper: *Reading and the Key Stage 3 Strategy.*

Task 1	**Research**	**20 minutes**

Read the summary of research, pages 18–21 upon which reading in the Strategy is based.

- Note particularly the teaching strategies which improve comprehension.
- Reflect on how they match the way you were taught comprehension at school.
- How far does your current practice as a teacher match the way you were taught at school and/or the methods advocated in the research?

2 Subject-specific vocabulary

Your department may already have word walls to which pupils can refer. However, it is vital that these words are explicitly taught for meaning. Vocabulary needs to be contextualised, so the words on the wall should only relate to the work in hand. The more explicit the teaching of vocabulary that is done in Key Stage 3, the better pupils will manage in Key Stage 4.

Task 2	**Words and their meanings**	**10 minutes**

Consider the following words and how their meaning varies depending on the context in which they appear.

Word	Meaning 1	Meaning 2
pitch	field of play (PE)	acuteness/graveness of tone (music)
volume	degree of loudness (general/music)	large book (general/English)
bias	subjective point of view (general/English)	cut diagonally across the warp (textile technology)

How many other meanings can you think of for volume and pitch?

Exemplification of subject-specific vocabulary in reading   **30 minutes**

Watch video sequence 13a. It is from *Extending literacy across the curriculum 2*, and shows a teacher teaching RE to a mixed-ability Year 8 group. As you watch the video, focus on the following.

- What does the teacher see as the issues for vocabulary in the lesson?
- How does she stage the learning to ensure pupils have grasped the meanings of the relevant vocabulary?
- How are the pupils learning English as an additional language supported in their understanding of key words?
- How does the vocabulary work contribute to the overall success of the lesson?
- What are the implications of the extract for your teaching?

Classroom assignment: subject-specific vocabulary   **10 minutes**

Think about a topic you will be teaching shortly. List the vocabulary pupils might need and decide how you will familiarise pupils with it, if necessary.

Practical tips

- Pupils are more likely to remember vocabulary if they investigate it or work out meanings for themselves in pairs or groups.

- It can be helpful to make links to affixes if that is relevant, e.g. *photo* meaning light in photography and photosynthesis; *bio* meaning life in biography and biology.

- It helps if pupils record the vocabulary and its relevant meanings on posters as an *aide-mémoire* and/or develop their own glossaries.

- You might find it helpful to talk to a colleague about their subject-specific vocabulary and whether there are explicit links like the above which you can both make to demonstrate the *portable* nature of some affixes.

3 Approaches to reading

Pupils need to be told how they should read until they can select the appropriate approach for themselves. You may need to model the approach you think is most helpful so that pupils can see how it is done.

- **Scanning**: searching for a particular piece of information, e.g. a phone number.

- **Skimming**: glancing quickly through to get the gist, e.g. the sub-headings in a textbook to see whether there is anything pertinent.

- **Continuous reading**: uninterrupted reading of extended text, often for pleasure, e.g. a novel or travel guide.

- **Close reading**: careful study of a text, which includes pausing to look back or to think in order to examine the text in detail, e.g. studying a text to provide a summary for colleagues or selecting key reasons for events and evaluating their veracity.

Task 5	**Reflecting on reading approaches**	**10 minutes**

Reflect on your subject and which approaches are needed and when. List some reading activities and the approaches pupils would need to fulfil the task. Think about when pupils need more than one approach, e.g. skimming to find an extract to close-read, or scanning the index prior to skimming and close reading.

Reading activities	Approaches pupils will need

Classroom assignment: approaches to reading   **10 minutes**

When planning your next reading activity, plan how you will tell pupils which strategy to use.

Plan to check whether pupils know what to do and model the process if they are unsure. Modelling will make explicit the process you are going through as a reader. It might be the first time you have thought about what you actually do. Making what you do explicit to pupils will quicken the process for them.

Reflect afterwards on the successes and challenges of what you did.

4 The research process – reading for information

Task 7

The research process   **20 minutes**

Listen to the audio extract on the DVD, in which Maureen Lewis and David Wray talk about the EXIT model (Extending Interactions with Texts) which is useful when approaching a research task or reading for information. They discuss some preconceptions about reading and how to support pupils in the process.

Use the sheet below to record the purposes of the various aspects as discussed by Wray and Lewis.

Process stage	Purpose
Activating prior knowledge	
Establishing purposes	
Locating information	

Task continues

Adopting an appropriate strategy	
Interacting with the text	
Monitoring understanding	
Making a record	
Evaluating information	
Assisting memory	
Communicating information	

Now read the text adapted from the EXIT model in the table on the next page, which suggests teaching strategies for the various stages. Begin to plan these strategies into your teaching.

The four stages of research skills

Stage	Activities	Strategies for support	Pupil questions
Stage 1 – Establishing purposes	• Generate and follow an enquiry • Define audience and form of outcome (poster, oral presentation, leaflet, PowerPoint, report) • Generate ideas – activate prior knowledge in relation to a topic • Ask questions which narrow down the field of research and make it manageable	• Tree diagrams, spider diagrams • KWL (What I *Know*, what I *Want* to know, what I have *Learned*), QUADS (Question, Answer, Details, Sources) grids, model their use if necessary • Teacher to model deductive questioning	• What do I already know about this subject? • What do I need to find out and where will I go for the information? • Who is this for? What will it look like? • Who would it be good to talk to about this?
Stage 2 – Locating information	• Locate and list useful sources: texts/websites/experts • Recognise and use page layout and organisational patterns of information texts • Use search engines such as contents/index/glossary/keywords/hotlinks • Active reading strategies: skim a text for overall impression and main points; scan a text to pick out specific information using key words • Select relevant information, reject irrelevant (however interesting) – highlight, textmarking	• Lead a session on evaluating texts – which is useful? • Teacher models through shared reading of different texts and verbalising selection decisions • Teacher models scanning, skimming and noting pages to return to • Essential/Useful/Optional grid	• Where and how will I get this information? • How should I use this source of information to get what I need? • What does the reader need to know?
Stage 3 – Interacting with the text	• Cluster information under headings and sub-headings (create categories/classifications)	• Teacher models note-taking, introduces abbreviations and symbols	• What should I make a note of? • Which items should I believe and which should I keep an open mind about?

	• Make notes: collect evidence under specific headings • Identify bias, discriminating between fact and opinion • Select visuals and draw diagrams	• Teacher prepares pupils for technical and specialist vocabulary • Teacher demonstrates identifying bias, makes explicit ways to interrogate a text • Teacher models checking, cross-referencing and how to deal with difficult or confusing material	• What can I do to help myself understand this better? • What can I do if there are parts I do not understand?
Stage 4 – Shaping and communicating information	• Organise and re-present notes and references as a coherent text (oral or written): shaping/clustering/creating categories of information • Consider needs of the audience – create introduction, links between sections, conclusion • Evaluate own and peer results	• Teacher shares effective examples • Ensure time allowed for discussion; rehearsal before writing • Shared writing of an introduction/conclusion	• How can I best communicate this? Does it need to be on paper? (taped radio programme, a wall display) • Which is the best section? • What might I have done differently? • What have I learned about research?

Adaptation of text from Wray, D. and Lewis, M. (1996) *Extending literacy. Children reading and writing non-fiction*. Routledge. © Maureen Lewis. Used with permission.

Practical tip

When accessing prior knowledge, try a snowball activity which is discussed in unit 10 Group work, section 3. This helps pupils increase their own knowledge as they share what they know. Conclude with a class discussion, concept map or list of what is known. This will also help you fill any gaps or correct any misconceptions before the pupils read on.

Classroom assignment: planning for reading   **10 minutes**

Next time pupils are reading for information or embarking on a research task, plan to access their prior knowledge and use it to plan the questions their research will answer. Questions could be divided amongst the class to speed up the research process and then responses brought together at the end.

Practical tips

- Use blank OHTs or PowerPoint slides for pupils to record their findings. They can then easily feed back to the whole class; such activities ensure they have a tidy record and permit you to assess what they have done.

- It can help to prepare and share the work with a colleague so the respective classes can feed back to each other.

- GCSE groups could prepare information leaflets or fact sheets for Key Stage 3 pupils.

5 Directed activities related to text (DARTs)

Active reading strategies are the key to the EXIT model as they encourage pupils to engage and process text so that they understand it. These strategies come under the general term of DARTs.

Directed activities related to text (DARTs) are strategies for processing texts developed by Lunzer and Gardner in the 1970s and 1980s. DARTs encourage pupils to read a text carefully, to go beyond literal comprehension and to think about what they read. ('Text' can be interpreted broadly and includes, for example, visual texts such as pictures, diagrams and graphs.)

Advantages of DARTs

- The use of DARTs is popular with pupils because they seem a bit like games or puzzles.

- They do not require definitive answers, thus enabling pupils to be tentative and exploratory.

- They offer a good focus for group work.

- Some initiative is handed over to the pupils.

- They are engaging and encourage teachers and pupils to tackle difficult texts.

Categories of DARTs

DARTs can be grouped into two main categories.

Reconstruction activities

These activities use modified text. The original text is broken down and given to pupils either in segments or as blocks of text with gaps. Pupils use prediction and then fill in gaps or sequence segments to reconstruct the text. This type of activity can help pupils develop an understanding of the structure of different text types. The following are examples of reconstruction activities.

- **Text completion (cloze)**: Pupils predict deleted words, sentences or phrases.

- **Diagram completion**: Pupils predict deleted labels on diagrams using text and other diagrams as sources.

- **Table completion**: Pupils predict deleted items using table categories and text as sources of reference.

- **Completion activities with disordered text**: Pupils predict the logical order for sequence or classify segments according to categories given by the teacher.

- **Prediction**: Pupils predict the next part(s) of a text.

Practical tip

Cloze exercises need careful planning. Pupils can often choose the word from its grammar rather than any engagement with meaning. It can be better to allow pupils to choose the words for themselves rather than from a teacher-given list. It is also better if there is a range of possibilities and pupils have to explain their choices: refer back to the video sequence in the RE lesson in task 3 where the teacher insists on explanations for choices.

Analysis activities

These activities use unmodified text. Pupils select specific information from the text and then represent it in a different form. This type of activity helps pupils develop their analytical skills. The following are examples of analysis activities.

- **Underlining or highlighting**: Pupils search for target words or phrases that relate to one aspect of content, for example words or phrases that support a particular view.

- **Labelling**: Pupils label segments of text, for example they might label a scientific account using a set of labels provided (e.g. prediction, evidence and conclusion).

- **Segmenting**: Pupils segment paragraphs or text into information units or label segments of text.

- **Diagrammatic representation**: Pupils construct diagrams from text, for example flow diagrams, concept maps or labelled models.

- **Tabular representation**: Pupils extract information from a written text, then construct and represent it in tabular form.

Pointers for planning DARTs

- Time is required to train pupils to talk constructively in pairs and groups, if it is new to them. There is more on developing the necessary social skills in unit 10 Group work, section 5.

- If you laminate resources such as sequencing strips or texts for highlighting, they can be used again.

- Learning may be implicit. Plan to draw out the learning and how it was learned, and relate it to subject-specific objectives. This develops the metacognitive aspects discussed in the research.

Text restructuring

Text restructuring involves reading a text and then recasting the information in another format – for example flow charts, diagrams, Venn diagrams, grids, lists, maps, charts and concept maps – or rewriting in another genre. The strategies involved in recasting information are also useful for making notes. Depending on the format of the original text and the recast text, skills used will include:

- identifying what is important and relevant in a text;

- applying what is known to a new context;

- remodelling the content and format of the text;

- classifying (being aware of the characteristics of) different genres;

- reading critically;
- summarising and prioritising;
- writing and designing.

At the end of a unit on the slave trade taught to a Year 9 class a history teacher wanted to use the Durban Conference on Racism, which took place in 2001, as a context for a text-restructuring activity. The end-product was to be a debate on the question: 'Should the British government pay reparations to Africa for the ongoing effects of the exploitation of its natural resources that began with the slave trade?'

He planned the activity as follows.

Step 1: Share the learning objective of the lesson by using the key question: Should the British government pay reparations to Africa for the ongoing effects of the exploitation of its natural resources that began with the slave trade? At this point, explain the key phrases and the expected learning outcomes.

Step 2: Explain the concept of reparations using the Durban conference as the context from which examples and illustrations can be drawn.

Step 3: Provide the text-restructuring grid [below] for pupils to use when analysing the historical sources provided. Pupils will have seen some of these sources before in a different context. Give them 15 minutes to consider as many sources as possible from the selection provided and make a judgement about Britain's culpability in relation to each source used.

Step 4: After they have looked at the sources, give pupils a fixed time to prepare their contribution to the debate. Explain the format for the debate, including guidelines for participation.

Step 5: The whole class, including those who presented arguments, take a vote. In the plenary ask pupils to explain why they voted as they did, selecting the pieces of evidence that carried the most weight for them.

Instructions for pupils: Look at the sources provided and complete the grid.

For the purposes of the debate, choose three pieces of evidence that most show Britain's responsibility or lack of responsibility depending on the overall conclusion you have reached.

Source	Conclusion drawn from the source (proves Britain was responsible or not)	Explanation of how the source supports the conclusion drawn
1		
2		
3		
Overall conclusion		

Classroom assignment: text restructuring   15 minutes

Create your own text-restructuring grid. It can be designed as a general-purpose tool that will support many different learning objectives. You could choose one of the following.

- A compare-and-contrast grid that requires pupils to look for similarities and differences. The text selected for use with the grid can be visual (e.g. two painted portraits with subjects in a similar pose but in different artistic styles) or written (e.g. two news reports dealing with the same event but from two different newspapers, one broadsheet and one tabloid).

- A cause-and-effect grid that requires pupils to highlight or underline key events which are then sorted under the headings *cause* and *effect*. Allow for ambiguity: some events might be categorised as both! Narrative texts or recount texts are best for this kind of activity.

Plan the use of your grid into a lesson where the activity is appropriate to the learning objectives. Make a note of how pupils responded to the task.

Practical tip

Always be prepared to ask pupils:

- What makes you think that?

- What tells you that in the text?

- Find me a word/phrase/sentence which proves your view.

- How does it prove your view?

- How does that compare with …?

There is a more extended account of the use of DARTs in module 5 of the Key Stage 3 *Literacy across the curriculum* training materials. You will also find support in the *Literacy for learning* materials where there are examples of reading activities for your subject.

6 Making notes

Many of the DARTs activities guide pupils into recording what they have learned rather than just asking them to take notes. However, there are times when notes are required, perhaps as an *aide-mémoire* for later reference or as part of preparation for a presentation.

Wray and Lewis remark that pupils are rarely taught to take notes, yet we expect them to be able to do it easily by Key Stage 4. They comment that pupils will often just copy chunks of text as they cannot prioritise or decide what is relevant, and this may match some of your experience.

Note-taking involves complex skills:

- close reading, listening, watching;

- making sense of an original text;

- determining what is relevant;

- identifying relationships between ideas;

- understanding how the writer has arrived at the key ideas;

- critically reflecting on the validity of the ideas in the text;

- selecting ideas appropriate to the task;

- transforming the language of the original into a form which is meaningful to the reader, even when they are producing an *aide-mémoire* for themselves;

- abbreviating language to produce a summary.

Case study

The notes reprinted below came from a Year 8 pupil who was asked to *make notes on pollution from your own reading* as a homework assignment.

Read through the response and decide:

- how far the way the task was set contributed to the pupil's difficulties;

- what other difficulties the pupil had – use the above list to support you;

- what you could do to make the task more focused for the pupil.

Pollution Notes.

Global hazards.

Some pollution problems are truly global. The release of chlorofluorocarbons from aerosol conisters and halons from domestic refrigerators have caused a breakdown in the stratospheric ozone. This forms a simple layer above the Earth and normally blocks out harmful wavelengths of radiation.

All over the world people are suffering from cancer (skin) because of the damage to the ozone layer.

Increased levels of gases like carbon dioxide in the atmosphere are changing the climate with potentially catastrophic effects on crop production, sea levels, and climatic stability.

Changes are consistant with Global warming, including damaging levels of bleaching in coral reefs, extreme weather finomina and melting glaciars.

We are learning about methods of controlling pollutant One important development is the concept of critical load- the amount of a particular pollutant that can be absorbed by an ecosystem without causing any damage.

Task 11

Why take notes?

10 minutes

Reflect on:

- why you ask pupils to take notes;

- when you ask pupils to take notes;

- how you ask them to do it;

- how you prepare them to do it;

- how you could improve the process based on what you have read so far.

Task 12

Classroom assignment: planning note-taking

10 minutes

When planning the next note-taking exercise, plan to explain:

- why pupils need to do it;

- how they should do it;

- how you will use what they do, e.g. as an assessment or to check their understanding.

Then use your experience in aspects of the EXIT model to stage the process.

Practical tips

- It might help to work with a colleague teaching the same class as you but in another subject so pupils begin to transfer their skills across the curriculum.

- There are examples of note-taking formats in module 10 of the *Literacy across the curriculum* folder (DfEE 0235/2001).

Summary of research

Recent research into reading comprehension (or making meaning from texts)

Over the last few years there has been a renewed research interest (Pressley 2000, Kintsch 1998) into what is called, in the USA, 'reading comprehension'. This renewed research interest is not, however, a return to the concept of comprehension current in the period from 1945 to 1980. At that time the research was characterised by attempts to identify the sub-skills of comprehension, then to establish some sort of hierarchy and then to teach these identified skills to pupils in progressive order. (Such an approach is still to be found in some reading comprehension exercises.) Rather, the renewed research focus is based on seeing the child as actively engaging with the text to create meaning. It emphasises the acquisition of strategies whilst engaged in authentic reading, rather than being taught as a separate suite of skills; it has broadened the range of strategies to include both cognitive and interpretive strategies and it uses a problem-solving approach. It also recognises the impact of reader differences and the wider socio-cultural context within which any act of reading takes place.

Pressley (2000) has undertaken a major research review in this field and he offers a list of approaches to reading development, and particularly comprehension development, which represent an up-to-date synthesis of all the major strands of research-derived strategies for improving reading. Some of it is particular to Key Stages 1 and 2, but much of it is directly relevant to Key Stage 3.

Pressley's list of strategies places considerable emphasis on various forms of vocabulary work. The importance of vocabulary development is also stressed in the US government's National Reading Panel Report (NRP 2000), which has undertaken a review of the research evidence regarding effective teaching of reading. In looking at reading comprehension it examined 230 research studies and noted three main themes in the research on the development of reading comprehension skills.

> *First, reading comprehension is a complex cognitive process that cannot be understood without a clear description of the role that vocabulary development and vocabulary instruction play in the understanding of what has been read.*
>
> *Second, comprehension is an active process that requires an intentional and thoughtful interaction between the reader and the text.*
>
> *Third, the preparation of teachers to better equip students to develop and apply reading comprehension strategies to enhance understanding is intimately linked to students' achievement in this area.*

Extract from the US government's National Reading Panel Report 2000, National Reading Panel. Used with permission.

The second element (intentional and thoughtful engagement between the reader and the text) is also stressed in Pressley's list which puts emphasis on a number of ways in which the student's comprehension might be enhanced through making connections and considering responses. Such activities are characterised as being cognitive and social, and are also active (for example rehearsing prior knowledge, generating mental images, activating knowledge about text structure) and

interactive (for example asking 'why' questions, engaging in reciprocal teaching, working with the teacher and peers).

This emphasis on collaborative and/or interactive approaches to reading comprehension has been a characteristic of research in the field over the past 10 years and draws on theoretical perspectives from the cognitive sciences (for example from schema theory and story grammar) and socio-cultural perspectives (for example the 'teaching models' of Vygotsky and Bruner). The model of teaching advocated by Pressley and the NRPR is therefore a balance of direct instruction along with teacher modelling and guided practice, leading to independent practice and autonomy. This model is one which is reflected in KS3 training.

Both Pressley and the NRPR research overview on comprehension emphasise the crucial role of the teacher in explicitly encouraging the use of comprehension strategies. The NRPR cites evidence to show that the pupils of teachers who consciously included reading comprehension strategies within their reading programmes made better progress in their reading. It seems that comprehension improves when teachers provide explicit instruction in comprehension strategies and when teachers design and implement activities that support understanding (Tharp 1992). Explicitly planning to include such strategies within shared and guided reading would therefore seem to be an essential part of a successful reading programme.

The importance of having a range of learning strategies

It seems from the research quoted above that there is a growing consensus about the kinds of experiences pupils need in order to develop their reading comprehension, in the teaching model and in the range of strategies that might be helpful. The NRPR drew attention to the importance of pupils having a *range* of reading comprehension strategies. Work in cognitive psychology has shown that pupils need to have access to a *range* of strategies to enable development to take place. Siegler (2000) in a recent overview into learning and development makes the point that learners need a range of 'production strategies' (ways of doing things) and that having a wide range of production strategies is important for development to take place. Learners, he claims, add to their repertoire of strategies by:

- observation (watching someone do it);

- discovery/invention (finding out for themselves);

- direct instruction (explain, show, tell, practise, feed back);

- analogy (if this works for X it might also work for Y).

They then go on to refine these strategies by:

- automation (practising it until it becomes habitual);

- reflection (doing something and then thinking about it);

- examination (i.e. social examination, comparing and contrasting with others).

Access to a range of strategies is important for development but also to accommodate pupils' different learning styles. Research into brain function has shown that different areas of the brain are used when different kinds of thinking and learning are required. Some pupils show a marked preference for strategies that

require a particular type of learning to be used. Using a range of strategies ensures that pupils can use not only those strategies that they prefer but also those that require other types of learning to be stimulated. Howard Gardner (1993) has identified seven different aspects of learning. These are:

- linguistic or verbal;

- visual/spatial;

- logical/mathematical;

- physical/kinaesthetic;

- musical;

- interpersonal;

- metacognitive.

Robert Fisher gives a useful summary of strategies to enhance these different types of learning in his book *Teaching children to learn* (1995).

The importance of metacognitive awareness in reading comprehension

Siegler (2000) sees the pupil as moving from acquiring strategies to being able to reflect on their usefulness and compare them with others. This implies a level of conscious decision-making by the pupil. This 'self-awareness' and ability to reflect is important in learning. Gardner (1993) lists metacognitive intelligence as one of the types of learning, but it is one that, until recently, was rarely actively encouraged in many classrooms. Vygotsky (1962) suggested that there are two stages in the development of knowledge: firstly there is automatic unconscious acquisition (we learn things or do things but do not know that we know these things), and secondly there is a gradual increase in active conscious control over that knowledge (we begin to know that we know and that there is more we do not know). The second of these is a metacognitive level of understanding. Over the last decade we have become increasingly aware of the importance of metacognition in learning to read (Baker and Brown 1984). One of the characteristics distinguishing younger readers from older readers, and poorer readers from fluent readers, is that younger and poorer readers often do not recognise when they have not understood a text (Garner and Reis 1981); that is, there is evidence that they are not actively aware of their own level of understanding and are therefore not able to make an autonomous decision to use a strategy to enhance their understanding. Other readers show a greater awareness of their own level of understanding for they will stop when a text does not make sense to them. Some will then go on to select from their range of strategies that which might help overcome their problem.

In shared and guided reading sessions we can model for pupils how fluent readers monitor their understanding and use strategies to clarify their own understanding. These may range from semantic strategies to work out a troublesome word to sophisticated reflections on whether the meaning is deliberately obscure (as in a mystery) or perhaps challenging the author/text because the reader thinks they are incorrect. Such teacher modelling is an important part of the learning opportunities within reading sessions. The work of Gerry Duffy and Laura Roehler (Duffy et al. 1987; Duffy and Roehler 1989) concerning teacher demonstration and modelling is the one most often referred to.

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Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Review the printed materials you have been using, both textbooks and any information or worksheets. How far have they been simplified so that there is little challenge or opportunity to develop pupils' reading skills? Plan to develop or find new materials that will stimulate you and the pupils and then plan supportive approaches. Evaluate the impact on understanding in your subject after a term: what has improved and what has not?

- Talk to the school librarian and see if you can develop a focused research project which you both support. *Literacy across the curriculum*, DfEE 0235/2001, module 10 looks at using the library / learning centre. Does working together have an improved impact on learning? What else might you do?

- Invite your pupils to evaluate the approaches used and give you feedback about the successes and challenges. Identify any approaches that prove particularly productive and discuss these with your department. Are there any that the whole department could focus on?

- Look at the questions in your subject's GCSE papers: what skills do pupils need to approach them and respond to the best of their ability? Does the textbook you use enable pupils to develop these skills? If not, what could you do to meet their needs?

- If you have a class with low literacy skills, plan to model, share and guide the key approaches to reading. Review progress after a few weeks. Evaluate the impact of each approach on learning.

For further reading the following publication is recommended:

- *Literacy across the curriculum*. Ref. DfEE 0235/2001.

- Wray, D. and Lewis, M. (1996) *Extending literacy, children reading and writing non-fiction*. Routledge. ISBN: 0415128293.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   **40 minutes**

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

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INVESTOR IN PEOPLE

*Pedagogy and Practice:
Teaching and Learning in
Secondary Schools*

Unit 14: Developing writing

Creating effective learners

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How to use this study guide

This study unit offers some practical strategies that teachers use to develop writing. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide, you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on your approach to developing writing. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community. Record successes in your CPD portfolio.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 14, Developing writing when working through this unit.

Developing writing

Contents

Introduction

Writing is probably the most complex task we undertake. In order to be successful, we need to know who we are writing for, what we should write and how we should write it. We also need to know how to spell and how to punctuate so that our meaning is clear to the reader.

It would be helpful if you worked through this unit with a colleague who teaches in the same year as you.

Successful writers:

- know where they are going and how the writing will end;

- can hear the writing inside their heads and make judgements about it so they can edit it;

- use reading to inform writing;

- have a range of styles and text types to choose from;

- are aware of the needs of the reader;

- rehearse and re-read;

- concentrate;

- attend to their known weaknesses.

Common issues

- Pupils may do very little writing in some subjects at Key Stage 3 and then may be expected to start writing at Key Stage 4 with little to build on.

- Writing is often set for homework where there may be little support.

- Pupils may not be confident about having something to write.

- Pupils may not transfer their learning about writing from one subject to another, perhaps because of a lack of agreed common approaches.

- Teachers may be insecure about teaching the structures for text and sentences.

- Additional language learners, those from ethnic minorities and those from socially challenging backgrounds may have a limited range of formal styles.

Resolving the issues

You can create purposeful contexts for pupils' writing by:

- establishing both the purpose and audience for the writing;

- providing a model of the text type;

- ensuring that the writers have something to say;

- giving writers opportunities to develop, sharpen and revise ideas;

- encouraging collaboration during planning, drafting and proofreading;

- giving pupils access to reference materials to support writing, for example word banks, dictionaries and thesauri;

- providing feedback on strengths and ways to improve, both during and after the writing.

Task 1

Research   **20 minutes**

Read the summary of research on pages 16–18 and think about:

- why environmental approaches seem to be the most effective;

- how you currently set writing tasks for your pupils;

- to what extent reading plays a part in the successful completion of writing tasks;

- how explicit you are about sentence structures when you set the tasks.

Task 2

Pre-unit task   **30 minutes**

This task, together with task 13, will allow you to evaluate improvements made in pupils' writing and the effectiveness of the strategies you will develop. Work with a colleague who teaches in the same year as you and identify six pupils each, as far as possible from across the range of ability, each from a different class. This could be done at the beginning of a term.

Bring the written work for these six pupils to a joint meeting and identify as far as you can the strengths and weaknesses of the writing.

You can then bring the same pupils' writing to another joint meeting after you have implemented some of the strategies and consider any improvements in preparation for task 13.

1 Establishing a purpose for writing

Pupils need to know what they are writing and who they are writing for. It helps if you can define this with them. Purposes for writing are about the text type(s) involved, and the text type(s) go some way towards defining the overall structure and the kinds of sentence required.

Major text types are:

- instruction;
- recount;
- explanation/description;
- information;
- persuasion;
- discussion;
- analysis;
- evaluation.

Task 3

Text types in your subject   **10 minutes**

With your colleague, decide what text types are required in your subject.

Reflect on how explicit you are about those types when asking pupils to complete a writing task.

As pupils move through Key Stages 3 and 4, the text types tend to become blurred. Pupils will need to explain/inform to persuade; they will need to use information to support discussion and explain points of view, but explicit knowledge about the various types helps them combine them effectively.

You may need to refer to *Literacy across the curriculum* (DfEE 0235/2001) to remind yourself of the detailed structures of the text types. You may also find it helpful to look at unit 13 Developing reading, where there are tasks on subject-specific vocabulary.

Creating a context for writing

Description of the writing task	Helpful	Partly helpful	Unhelpful
1 Write a recipe for a party milk-shake for publication in a Christmas edition of a teenage magazine.			
2 Was King John a good or bad king?			
3 Write a letter to your MP protesting against the building of new houses on local greenbelt land.			
4 Write up your castle project.			
5 Produce two pages of writing on the title 'How I survived the rainforest'.			
6 Write a report of your investigation into the magnetic effect of conducting wire.			
7 Rewrite in your own words the story of Prometheus.			
8 Write up your mathematics investigation.			
9 Produce a script for a three-minute national TV news story describing the causes and effects of the Bangladesh floods.			
10 Write an obituary for the artist Matisse.			
11 Write a booklet for Year 5 pupils explaining the origins of the English language.			
12 Write an evaluation of your Design and technology project.			

Creating a context for writing   10 minutes

Read the *Creating a context for writing* grid above and identify whether each task is helpful, partly helpful or unhelpful to the pupils. The more explicit the task, the more helpful it is to the pupils.

Match your thinking to some recent tasks you have set. Are there some you could have clarified?

Classroom assignment: text types   10 minutes

Think about the next writing task you are going to set. Plan to ensure that it is helpful to your pupils.

Plan to be explicit about the text type required and its key features at text, sentence and word level.

Evaluate the effect of what you did. Ask the pupils for feedback about whether it made writing easier for them.

2 Providing models for writing

The Key Stage 3 Strategy advocates a sequence for teaching writing, which will support pupils' learning. There is no suggestion that you need to work through it every time you set a writing task, but some aspects will prove useful each time, if only as a reminder to pupils. If the sequence is taught and applied at Key Stage 3, then pupils should be able to write largely independently by Key Stage 4.

Sequence for teaching writing

1 Establish clear aims.

2 Provide example(s).

3 Explore the conventions of the text.

4 Define the conventions.

5 Demonstrate how it is written.

6 Compose together.

7 Scaffold the first attempts.

8 Independent writing.

9 Draw out key learning.

Classroom assignment: text types   **10 minutes**

Select a text type that is essential in your subject. Use the structure below to help you decide on what the conventions might be at text, sentence and word level. You will find exemplification in the *Literacy across the curriculum* folder (DfEE 0235/2001).

Conventions

Purpose

- What is its purpose?
- Who is it for?
- How will it be used?
- What kind of writing is therefore appropriate?

Text level

- Layout
- Structure/organisation
- Sequence

Sentence level

- Viewpoint (first person, third person, etc.)
- Prevailing tense
- Active/passive voice
- Typical sentence structure and length
- Typical cohesion devices

Word level

- Stock words and phrases
- Specialised or typical vocabulary
- Elaborate/plain vocabulary choices

Practical tips

- The conventions you draw up from the example(s) can be placed on the wall for reference and make a good writing frame.

- Such models will also support pupils who need help with having something to say.

- Using models permits you to teach how the writer takes account of the needs of the reader.

- Modelling how to write, even if that is only a sentence, makes explicit the *writerly* decisions and choices you are making.

- Composing together is shared work: a whiteboard is useful for pupils to draft on before they share their thoughts.

- A writing frame can be a good scaffold (but see below).

- Drawing out key learning is important to metacognitive development.

Writing frames

When a pupil using a writing frame was asked if he could write more in that paragraph he said 'No, because the box is too small for any more.'

Writing frames can be restrictive and result in little more than a sentence in each box. It is better to use a text to draw up the conventions and then work on sentence starters, so the frame is on the wall and in the mind rather than on paper in front of each pupil. In any case, writing frames should be withdrawn rapidly as the pupils become familiar with the text type.

Task 7

Exemplifying the sequence for teaching writing   20 minutes

Video sequence 14a comes from *Extending literacy across the curriculum* and shows a teacher using the sequence for teaching writing in a Year 7 history class.

As you watch, consider:

- how she is using the sequence for teaching writing;

- the impact of the teaching on the pupils' work.

3 Developing pupils' skills as writers

Our examination system demands that pupils demonstrate what they know, understand and can do under timed conditions, often in very brief responses. However, pupils need time to develop the skills to express that knowledge and understanding clearly and precisely. Pupils need to start developing their skills in Key Stage 3, so that they can maximise attainment at Key Stage 4.

Writing collaboratively is a good way to develop skills and confidence. Giving pupils thinking and talking time prior to writing gives time to share and refine ideas. Providing them with mini whiteboards to try out what they want to write, without committing themselves, provides further support. Teaching pupils how to plan, draft and edit is crucial to their development.

Planning and drafting is about content and structure, whereas editing is more about surface features like spelling and punctuation.

Pupils need a variety of planning formats so they can choose the one best suited to them and the task. Many of the note-taking formats in *Literacy across the curriculum*, module 9 may be useful.

Task 8	**Classroom assignment: developing the sequence in your classroom**	**15 minutes**

Now your tasks are helpful to pupils and you are clear about text types, plan to use some of the sequence for writing as part of your next task.

You could:

- join a colleague to gather some examples of the kind of text you want the pupils to write and prepare an analysis ready to use with your pupils;

- work with a colleague to prepare and model an opening or concluding paragraph to a text and then ask pupils to write the rest in pairs;

- share the writing of a paragraph or sentence with pupils and ask them to be clear about the decisions and choices they have made;

- reflect with your colleague on the successes and challenges of the activity;

- decide on what you would change or tackle next time.

Organising writing

A good way to encourage pupils to organise writing is to set them the task of sorting information under headings. To do this you could use the information below, which is taken from a leaflet designed to promote a school. You could photocopy the table of information and issue this to pupils. (They could cut up the table to help in sorting, if you wish.) The pupils should:

- decide on the five key points that could form paragraphs in the text. Jot those down on a sheet of A4 paper, leaving space under each heading;

- place each of the other points under one or other of the headings.

You then have both paragraph headings and the content of the paragraph to build into a complete text.

Leaflet to promote our school

aims of the school	curriculum at Key Stages 3 and 4	extra-curricular, out-of-school activities
facilities	school day – example of a pupil timetable	school profile
details about homework	data about school End of Key Stage 3 tests and GCSE results and targets	quotes from recent Ofsted report
details of pupil involvement and responsibilities	school rules	links with other schools and organisations
recent and proposed projects and events, school trips	options and choices, work experience and careers	sixth-form
provision for all abilities; pupils with exceptional and special needs – challenge and support	home/school links	uniform
school values, expectations and shared understandings	parents' evenings/meetings	opportunities for parental involvement – friends of the school, parent–staff association, contractual agreements

Practical tips

- Material for sort activities can be laminated and stored for future use.

- If a pupil struggles with many aspects of the writing process, prioritise sentence structure above features such as spelling and punctuation.

- Encourage pupils to draft and edit using ICT; try not to use ICT for copying up.

- Writing is best improved during the process, rather than at the end through your marking.

- If you have a small group of pupils who need further support or who need to move on rapidly because they are already good writers, consider guided work where you work with them for between 5 and 20 minutes to model, share and scaffold their work. For some pupils, this might be guided speaking and listening where you share ideas and formulate oral text as a rehearsal for writing.

- If you have no need for extended text in your subject at Key Stage 3, plan how you will prepare pupils for the writing demands at Key Stage 4 in Years 7, 8 and 9. It may be that focusing on a few well-written sentences will do much to prepare pupils for what lies ahead.

- Consider using response partners, where pupils are paired to respond to each other's work as they write. You can use the defined conventions as a checklist for them to work to.

- Use a plenary to ask the class to evaluate one pupil's writing for its quality.

- Use a starter to place a piece of good writing on an OHT and ask the class to identify its qualities and then refine their own in the light of their thinking.

- Give ongoing oral and written feedback as pupils work; ensure you comment on what has been done well and why it is good as well as suggesting improvements.

- Encourage the use of dictionaries, subject-specific vocabulary and thesauri to increase variety, but make sure pupils know how to use them quickly and effectively.

Further support is available from *Assessment for learning, whole-school training materials* (DfES 0043-2004 G-3) especially module 4, Oral and written feedback and unit 12, Assessment for learning.

Improving writing

The examples of pupils' writing on the next two pages are taken from *Literacy in design and technology* (DfES 0050/2002).

Sample A

Evaluation

1. The good things about my solution are :–

   • It is bright and colourful
   • It hangs so I don't need to cut the hands shoter
   • I have only 2 pieces of plastic on top of each other so I didn't need to drill a wider hole half way through

2. Other people think my clock is good because of the do colours and the shapes as the colors go well together

3. I don't think I would change anything as I am happy with it as it is.

4. Yes my clock does work as I wanted it to, as it will tell the time – perfect

5. No, I really really like my design as it is just what I wanted.

6. I didn't have any difficulties so I couldn't overcome anything.

7. The only thing I changed the colour of the circle is red instead of blue, as there wasn't a piece of blue acrylic

Sample B

27th March 2001

Evaluation

The design brief was to create and make a decortive mirror involving abstract art. especially the painter Mondrian.

The specification demanded that the mirror be. freestanding; adjustable; made from a combination of materials; sophisticated and moden in appearance. I wanted to use mine for make-up.

When I had completed my design, I checked to see how far it complied with the specification. Orthographic projection helped me to visualise it in 3D. I felt that, although it met the specifications in terms of being freestanding and addjustable, it seemed to simple and basic in its realisation. However, I decided to go ahead and see how it looked as I made it.

The design proved useful to guide me through the process, but I changed it as I made my product. In order to meet the specification to involve designs based on Mondrian, and to make it appear more complicated, I added clear stars. This improved the appearance and, because it would stand infront of a window, light could shine through it.

I changed my design to incorporate my improvments, including the colour of the main star. I changed it from a pale orange to a bright orange because I felt it was too dull for my bedroom and wouldn't fit in with the other colours, on the mirror.

Overall I felt that I had improved on my original design. I had succeeded in making it free standing, adjustable, and from a combination of materials.

I felt it was moden in design, but when I asked my friends they thought the colours didn't go to well together: orange and blue didn't contrast well enough.

Next time, I need to be more careful with the adhesive as my clear stars slid down, baking the paint off as they slid.

The product needs to be flat, rather than standing up as the glue dries.

I think the product could be marketable. However it would need to be in a range of colors to suit varying tastes.

Improving writing   **10 minutes**

Look at the two evaluations above from a design and technology lesson. The first was done as a result of the teacher's usual method of asking questions to form a writing frame for the response. Because he was dissatisfied with the response, the teacher decided to model how to write an evaluation and ensure the pupils were familiar with the text type.

The second piece was the result.

- Compare the two pieces and consider the strengths and weaknesses of each.

- Could the approach help you and your pupils feel more satisfied with their results?

Classroom assignment: putting it all together   **10 minutes**

Work with your colleague.

Plan:

- how you will introduce a writing task;

- how you will support pupils in planning and organising their work;

- how you will build in time for reflection and improvement.

After the task, take some samples of work from each class, discuss the standards of writing and how what you did contributed to any improvement over previous pieces.

Discuss any challenges and how you might overcome them together.

4   Refining sentences

A well-written sentence is key to expressing ideas with clarity. A complex sentence will express links and relationships between ideas.

'Glaciers may be melting because of global warming.'

'If the rates of warming increase, then we may not have such long skiing seasons in some parts of the world.'

'Although I liked the look of my clock, it did not work very well.'

Below is a list of connectives and the signposts they give.

Connectives as signposts

Adding	Cause and effect
and	because
also	so
as well as	therefore
moreover	thus
too	consequently

Sequencing	Qualifying
next	however
then	although
first, second, third, …	unless
finally	except
meanwhile	if
before	as long as
after	apart from
	yet

Emphasising	Illustrating
above all	for example
in particular	such as
especially	for instance
significantly	as revealed by
indeed	in the case of
notably	

Comparing	Contrasting
equally	whereas
in the same way	instead of
similarly	alternatively
likewise	otherwise
as with	unlike
like	on the other hand

As you read through the grid, reflect on which connectives link across sentences, like *however* and *moreover*, and which ones link within sentences, like *although* and *because*.

Varying sentences

Fluent writers vary the ways in which they construct their sentences. They will swap around, sometimes beginning with a subordinate clause, sometimes a main clause, sometimes other ways.

Practical tips for variety	
• Start with a verb ending in –ing:	Reaching 60 today is not a sign to sit back.
• Start with a verb ending in –ed:	Revolted by the slaughter, the aid worker …
• Start with an adverb:	Well-done chicken means that salmonella …
• Start with a preposition:	Within city limits, you will find …

Task 12

Looking at sentences   10 minutes

Get together with your colleague and look at some samples of writing from your chosen pupils. Look closely at the sentence structure and plan together to improve the fluency by teaching pupils to vary the sentence structure.

Task 13

Unit task   30 minutes

After a term, assemble with your colleague the written work from the pupils you chose (see task 2).

- Identify improvements.

- Discuss what brought about these improvements.

- Discuss any challenges that remain and plan how to solve them together.

- Present your work to the department if that is appropriate.

Summary of research

This survey of current research is taken from *Improving writing: key messages from research* from the English department training (2003) document. The key messages leaflets are all in school in the English department. Some of these would be a useful resource for you, especially those on punctuation and improving boys' writing.

Choice of teaching strategies can make a difference

In a meta-analysis of research looking at a range of studies on teaching strategies in secondary classrooms, three broad approaches to the teaching of writing were identified (Hillocks 1986):

- **presentational**: where the role of the teacher is that of setting tasks and marking outcomes;

- **process**: where the pupil controls the writing choice and writing is developed through drafts and peer-conferencing (Graves 1983; Calkins 1988);

- **environmental**: a more guided, negotiated approach where active teaching of complex strategies supports pupils towards independent use (Australian genre theorists).

The study suggests that the latter approach is two or three times more effective than the 'process' approach and four times more effective than the 'presentational' approach because:

- new forms and criteria for writing are modelled;

- enquiry and problem-solving processes are involved;

- distinct features are identified and pupils are helped to apply these in their own independent writing.

Effective teaching of writing will depend on the degree to which teachers understand the complexity of the task (Schulman 1987).

Clear, focused writing objectives support pupils

Tightly structured lessons, which establish a clear sense of purpose and direction through clearly defined achievable targets, benefit all pupils but especially boys (Frater 1998).

Writing needs to be purposeful and offer pupils a stake in the negotiation of meaningful opportunities for expressing their interests (Britton et al. 1975). This is crucial for maintaining the interest of boys. Teachers have been slow to use boys' particular knowledge of media and information technology and to link preferred writing to their preferred reading of factual 'real world' texts (Daly 1999). There is clear agreement in research on the need to integrate activities in writing around purposeful, authentic learning tasks.

The use of shared reading as a bridge to writing

Teachers need to provide good examples of texts so that pupils are able jointly to investigate and analyse the features as readers or as writers. Callaghan and Rothery (1998) suggest that there are three stages in this approach:

- **modelling**: teacher shares information about the uses and features of the text type (genre);

- **joint construction**: teacher and pupils work together to construct a new text sharing the same generic features;

- **independent construction**: pupils construct a new text in the same genre, drafting and editing in consultation with peers and the teacher.

American researchers Nystrand, Gamoran and Carbonaro (1998) found that writing achievement was positively related to the degree of coherence between reading, writing and discussion (peer response) in secondary classrooms. Research with older primary pupils suggests that teaching writing in combination with reading prompts better critical thinking about texts than when the activities are isolated.

Writing at Key Stage 3 involves learning to read from multiple sources and writing critically in response. Writers need to be able to organise more complex information and to orchestrate, control and reflect upon their writing of a wide range of fiction and non-fiction texts (Hillocks 1995).

Explicit teaching and modelling language choices

Anticipating the needs of their audience and understanding the reader/writer relationship require clarity of objectives, purpose and task. Teachers need to be clear with pupils how the audience and purpose for their piece of writing will determine the structural and linguistic choices they make as writers (Cope and Kalantzis 1993).

Australian genre theorists have shown how reading–writing links can be productive, particularly in teaching non-fiction writing. They advocate explicit teaching of how texts work in order that pupil writers can construct texts and organise their own ideas for particular purposes and audiences effectively (Halliday 1985).

Exploration of texts can help writers access a range of 'discourses of power', that is ways of writing used by people to organise and influence the world around them (Martin 1989). Many aspects of written information texts can be explored directly with pupils to create awareness of the different language resources that serve different purposes (Christie 1998, Derewianka 1990, Hasan and Martin 1989, Kress 1982).

Evidence shows that teachers can support pupils in managing complexity by modelling the power of sentence-combining activities (Shaughnessy 1979). Modelling is more than 'demonstrating' writing because it involves talking pupils through the thinking and decision-making processes used when writers write. The teacher takes the role as 'expert' (Vygotsky 1980). The use of metacognition and meta-language are important factors. Pupils need a supportive writing environment but benefit from seeing and experiencing the 'struggles' that are part of developing the writing skills (Bereiter and Scardamalia 1982, 1987).

Guided writing

Guided writing offers small-group teaching opportunities to support writers in making valuable connections between the text-, sentence- and word-level decisions required to shape texts with particular criteria in mind. Teachers can clarify the cognitive processes used when pupils are planning and revising, before, during or after writing parts of a text. The aim is to develop better-focused and more fluent writing with the support and feedback of teacher and peers (Scardamalia et al. 1981).

Scaffolding

Scaffolding is an effective process by which the teacher organises learning that is challenging to pupils in such a way as to assist them to carry out the new task successfully (Wood et al. 1976). It is a complex process and involves:

- activating and maintaining the learner's interest;

- reducing the number of choices available;

- keeping the pupils on-task;

- highlighting critical aspects;

- controlling frustration;

- demonstrating the process to pupils.

Scaffolding has a role in moving pupils to independent use of new strategies by supporting them as co-constructors of knowledge and co-users of more expert strategies than those they can control independently (Palincsar 1986). Writing frames are just one example of scaffolds, but their misuse has underlined the complexities in the process of pupils becoming sufficiently independent to manage without the 'expert facilitator' (Lewis and Wray 2000).

Feedback and revision

Since writing involves the integration of several processes, re-reading to revise is important (Norwood, Hayes and Flower 1980). Chanquoy (2001) shows the positive effect of returning to writing after the event. The time delay seems to help, but the techniques for revising need to be explicitly taught, that is modelled by the teacher. Glynn et al. (1989), behavioural psychologists researching in New Zealand classrooms, found considerable evidence that positive oral feedback has an impact on both motivation and the amount written. This was found to be more significant when errors were selectively targeted and when pupils were involved in error correction and praised for this. The research suggests that teachers' comments should be organisational, encouraging, constructive, challenging and push pupils' thinking. The work of Black and Wiliam (1998) and Black et al. (2002) looks at formative assessment and its relationship to raising standards in pupils' learning. They comment that effective feedback needs to make explicit to pupils what is involved in producing high-quality writing and what steps are needed for improvement. They suggest that pupils should be actively engaged in the thinking and discussion involved.

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Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Invite your pupils to evaluate the approaches used and give you feedback about the successes and challenges. Identify any approaches that prove particularly productive and discuss these with your department. Are there any that the whole department could focus on?

- Discuss writing with other teachers outside your department and find others who need the same text types in their subjects. Plan some common approaches and see if you can teach the text types at the same time so pupils learn to deploy their skills across the curriculum. Evaluate the impact of this joint approach after a few weeks. What has worked well?

- Look at the writing demands of GCSE in your subject. Which are the particularly difficult aspects where many stumble? How could you plan to prepare your pupils for them through Key Stage 3?

- Investigate how you might use peer assessment to improve pupils' writing. You will need to generate a set of criteria for each text type. Try adapting the materials in this unit. Unit 12 Assessment for learning may help. There are some examples of peer assessment in video sequences 12f, g, h and i. What extra dimension does this add to supporting writing?

For further reading the following publication is recommended:

- Wray, D. and Lewis, M. (1996) *Extending literacy, children reading and writing non-fiction*. Routledge. ISBN: 0415128293.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets

40 minutes

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

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INVESTOR IN PEOPLE

Pedagogy and Practice: Teaching and Learning in Secondary Schools

Unit 11: Active engagement techniques

Teaching repertoire

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How to use this study guide

This study unit offers some practical strategies that teachers use to engage pupils in learning. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to active engagement techniques. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 11, Active engagement techniques, when working through this unit.

Active engagement techniques

Contents

Introduction

Active engagement

People learn best when they are interested, involved and appropriately challenged by their work – when they are engaged with their learning.

Engagement is about promoting those approaches to teaching and learning that help pupils understand subject knowledge and its application and that demand their active participation.

Where pupils are actively engaged in their learning, they:

- have a longer concentration span;
- complete work on time;
- stay on-task and have few behaviour problems;
- maintain a good attendance record.

Consequently, they:

- develop higher self-esteem;
- make faster progress;
- develop a belief in their ability to improve and learn;
- encourage and work well with other pupils.

Common issues

The engagement of pupils in Key Stage 3 is a critical issue in progression. Where engagement declines, often in Year 7, there are short-term and long-term implications.

The short-term implications are:

• lower attainment in Key Stage 3;

• limited or wrong choices for Key Stage 4 subjects and GCSE;

• limited attainment at GCSE (and Key Stage 5).

Longer-term implications are:

• limited job choices;

• lack of flexibility in the workplace;

• increased likelihood of criminal conviction and prison sentences.

Resolving the issues

What can you do to ensure that pupils are engaged in their learning?

Pupils are more likely to engage in their learning when the teacher provides opportunities for them to:

• be clear about the purpose and relevance of their work;

• relate new knowledge and experiences provided during lessons to something they already understand;

• experience some variety in the way information is presented during lessons;

• experience activities that generate curiosity and interest;

• ask questions and try out ideas;

• see what they have achieved and how they have made progress;

• understand how they are thinking and learning;

• get a feeling of satisfaction and enjoyment from their work;

• build positive images of themselves as learners.

1 Aspects of engagement

When we speak of pupils being engaged, we usually mean that they appear interested, work hard and behave well. These are the surface signs of very important mental processes. However, there is a danger that pupils will be encouraged simply to work hard and behave well, but miss out on important processes that generate understanding. It is vital to realise that physical activity, such as performing a science experiment or drawing a poster, is not the same as mental effort or engagement. Conversely, good teacher explanations, with appropriate examples and structuring, will produce mental engagement and understanding.

Understanding is a primary goal of education. Understanding is best thought of as having a representation or model in the mind that corresponds to the situation or phenomenon being encountered. Engagement is about helping pupils to develop these mental models; it is through such structures that they *construct* understanding.

Pupil engagement depends on two complementary conditions, both of which rely on the skills of the teacher:

• the provision of an appropriate climate which enables pupils to take full advantage of the knowledge and experiences being presented to them;

• the use of a variety of strategies and approaches that allow pupils to construct their own learning.

Pupils are more likely to be engaged in their learning when the teacher provides opportunities for them to construct solutions, learning or answers that they can back up with plausible reasons. The notion of constructing solutions is an important one and it may be helpful to expand it a little.

Many activities do not require pupils to construct answers, for example comprehension exercises in which they read a passage and have to answer questions but do not need to process the text. In a simple example, pupils might read some text and then be asked the question: 'Where did Harold position his troops at the Battle of Hastings?' Pupils will answer 'He positioned his troops at the top of a hill' because that is exactly what is written in the text. However, unless there are supplementary questions, the pupils will gain no understanding of why the troops were placed there. You can test your ability to process text without understanding by looking at the following sentence:

> The Glombots, who looked durly and lurkish, were fond of wooning, which they usually did in the grebble.

You, and pupils, could answer questions such as 'What did the Glombots look like?', 'What were they fond of doing?' and 'Where did they like to do it?' without any need to engage actively with the text.

Task 1	**Engaging with the research**	**15 minutes**

Constructing learning has a sound basis in accepted theory. Read the overview of constructivist theory in the summary of research on pages 20–21.

Think about some recent lessons you have taught. To what extent did these lessons give the pupils an active role in constructing their learning? Having considered the research and the information in this unit so far, can you think of other activities you could usefully have included?

To effect engagement, teachers not only have to provide pupils with the opportunity to construct their learning, they also have to draw on other aspects of their skills, in particular:

- the effective use of modelling, questioning and explaining (these issues are addressed in units 6, 7 and 8 respectively);

- providing opportunities for collaborative learning and thinking together (these issues are addressed in unit 10);

- structuring learning carefully to maintain the focus on the learning objectives and to help pupils process new ideas, identify patterns, apply knowledge independently and reflect on their learning (structuring learning is addressed in unit 1 and unit 2).

This unit focuses on the way the teacher:

- designs, organises and sets tasks;

- deploys strategies for active learning;

- provides support and intervention to ensure pupils make good progress.

2 Creating engagement

Principles for creating engagement

Activating prior knowledge

Learning is an active process of constructing knowledge and developing understanding. To aid this process, pupils make meaning by connecting new knowledge and concepts to ideas and knowledge they already possess. It is important, therefore, that teachers help pupils use what they already know to make sense of new knowledge. This can be done through looking at or handling objects, telling stories, drawing concept maps, referring to pupils' experiences or getting pupils to imagine particular scenes. An advantage of this approach is that pupils' misunderstandings are often revealed and so corrected.

Challenge

Challenge is about setting high expectations and then teaching to them so pupils surpass previous levels of achievement. Where learning is insufficiently challenging, pupils can lack stimulation and interest so their level of involvement quickly declines. This is true for all levels of ability. One way teachers create the appropriate level of challenge is by providing learning opportunities which are pitched to avoid, on the one hand, boring repetitive work and, on the other, tasks that are totally beyond pupils' capability. Pupils with special educational needs, in particular, are sometimes provided with very low-level tasks that lack the appropriate stimulation and challenge. Being given the chance to strive to solve challenging problems and think through issues leads to cognitive development and higher achievement for all pupils.

Cooperative group work

When pupils work together on a common task they interpret given information, ask questions for clarification, speculate and give reasons. They share their knowledge, ideas and perspectives and arrive at a fuller understanding than they might have done working alone. When pupils work in this way, it exemplifies Vygotsky's 'zone of proximal development', where the assistance of peers helps the development of thought in the individual. The process of cooperative work has been described as 'talking oneself into understanding'. (Further information about group work can be found in unit 10.)

Metacognition

Metacognition is thinking about thinking. The ability to stand back from a difficult task to consider how it should be done, to monitor one's progress and priorities and to reflect on successes and weaknesses is critical in becoming a successful learner. Teachers need to give pupils opportunities to plan, monitor and reflect on their work so that they can engage with learning as a process. This is typically done by asking pupils to consider how they will tackle a task or problem or by getting them to reflect on how they have done a task (see unit 2).

Modes of representing information

The brain is forced to work hard when it has to convert information from one mode to another. This could be, for example, from text to diagrammatic form or from visual representation, such as film, to music (as in writing a score to accompany some silent film footage). Such work is demanding because the individual is being forced to think about and make sense of the original information. The same degree of mental work can also be required when transforming information within the same medium, for example by summarising a text (see also unit 19).

Scaffolds

Scaffolds are structures that guide and support thinking. Complex tasks such as problem solving and extended writing make great demands on the novice. There are too many things to do at once. Scaffolds help by focusing attention on one thing at a time and providing a prompt, thus reducing the demands on the pupil's working memory. The pupil can then move on to the next part of the complex task. The intention is always that the support is temporary and that the pupil will progress to working independently over time (see also unit 14).

Deep and surface learning

Some pupils become good, motivated learners; others don't – and many pupils behave differently in different subjects and with different teachers. These differences arise partly from what the learner brings *to* the classroom (in intelligence, background, prior knowledge, attitudes, skills and interests). They are also the result of what the learner experiences *in* the classroom. 'Deep' and 'surface' approaches to learning describe the extremes of learning experience. Deep learning is the consequence of teachers using strategies which accord with the principles of engagement described above (see unit 1).

Pupils are engaged in deep learning when:

- they are trying to understand and make sense of material;

- they are relating ideas and information to previous knowledge and experience;

- they are not accepting new information uncritically;

- they are using organising principles to integrate ideas;

- they are relating evidence to conclusions;

- they are examining the logic of arguments.

When pupils are merely reproducing or memorising given facts and information; accepting ideas and information passively; not being required to look for principles or patterns or to reflect on goals and progress – then they are only engaged in surface learning. The role of the teacher is crucial in engaging pupils in constructive, deep learning.

| Task 2 | Working with the video 1 | 30 minutes |

The grid below contains an analysis of the lesson shown in video sequence 11a. It identifies the key elements of the lesson:

- the techniques consciously planned into the lesson by the history teacher;

- the teaching skills he employs to ensure that the strategies lead to learning gains for his pupils.

Read through the analysis in the grid below and then watch the video clip. Tick off the strategies in the left-hand column as you recognise them.

Technique	Teaching skill	Learning gains
Visual starter Pupils are asked to generate questions about the mystery object shown and to offer ideas about what it might be.	Setting a challenge Creating a two-part task for those who go beyond generating questions Creating a positive climate, accepting all ideas, linking ideas to learning focus	Involves all pupils individually Activates prior learning Encourages speculation Creates an investment in the learning Motivates pupils to make links and connections
Sharing learning objectives Key questions are used as a means of sharing objectives. Key words are displayed for reference throughout the lesson.	Clarifying the area of learning in language that pupils understand Linking the objectives to key words Using questioning to ensure shared understanding before moving on	Actively engages pupils in pursuit of the answers Provides a measure of success Defines learning outcomes, i.e. pupils should be able to answer the questions at the end of the lesson Focuses learning

Task continues

Simulation The trade triangle is simulated by asking pupils to move around the room to designated points as if they were products.	Creating an assessment opportunity; the teacher can see who has understood, but pupils are supported because they can confer with those who have not been given cards	Challenges selected pupils to demonstrate their understanding Creates new links and connections through physical re-creation of an abstract concept (trade triangle)
Sequencing Pupils are asked to sequence a series of pictures related to the slave trade – with or without using captions as directed by the teacher.	Careful planning of the task; the teacher knows both the benefits and limitations of the task (it is 'basic'); he plans for differentiation and challenge Intervention using questioning to extend thinking	Begins to link one sequence of causation with another (the trade triangle with the capturing of slaves)
Focused video sequence Pupils are asked to look for new pieces of information and note them on blank caption cards.	Using the video to build on the sequencing task; taking pupils beyond the 'basic' to the more complex	Develops a more complex model (the sequence of causation related to capturing and trading of slaves) Develops a personal relationship to the area of learning; increases interest and motivation
Final plenary* Pupils are asked to present an aspect of their learning to the whole class using the OHP. Learning is summarised and linked back to the key questions.	Creating an assessment opportunity biased consciously towards those who are orally confident Sharing learning gains	Consolidates learning Pupils share understanding Pupils gain confidence in expressing ideas Pupils see what they have learned

Note: This teacher uses mini-plenaries throughout the lesson for a number of purposes. The pace and length of these vary according to purpose. However, each contributes to making overall links and connections and to consolidation and extension, leading to the next stage in the learning.

Task 3

Working with the video 2   30 minutes

Now watch video sequence 11a again. This time focus on the third column and the learning gains being made by the pupils as an outcome of the techniques and the teaching skills being employed.

Underline the learning gains as you identify them in the video. It is a good idea to pause the tape as you watch, to give yourself thinking time.

3 Developing engagement

The teacher in video sequence 11a has a clear understanding of the key principles that underlie the practice of developing active participation. He understands that teaching which has high expectations of pupils and which promotes their active participation is likely to engage them with their learning. He also demonstrates the paramount importance of creating the right climate and environment for active learning.

The following principles and ideas can help you to continue developing this active participation in your own lessons:

Develop good teacher–pupil relationships: This is the most important factor in the classroom climate. A good relationship is created when:

- the teacher creates a warm, supportive environment;

- pupil opinions are solicited, valued and respected;

- wrong answers are greeted with positive probing of the thinking processes that led to the response;

- the teacher shows enthusiasm for the subject and the strategies being used;

- the teacher has high expectations and lets pupils know this, avoiding stereotypical reactions (e.g. 'What do you expect with our kids?').

Attend to the physical environment: Pleasant classrooms and colourful displays of pupils' work show that the teacher cares and that pupils' work is valued.

Establish clear routines and ground rules: These enable pupils to become engaged in their learning.

In the video, pupils used a number of different learning strategies. Providing such a range means that individuals have the opportunity to work in a variety of learning styles and to engage in different ways of processing information and of constructing and deepening knowledge. Not every lesson has to be structured in this way, but over time – say across a unit of work – you can offer this kind of variety. Sections 4 to 7 offer some specific strategies for developing engagement.

4 Directed activities related to text (DARTs)

Reading is a complex, active process in which readers use past experience and present skills to construct meaning. One of the most common reasons for lack of engagement in the classroom is the difficulty experienced by many pupils in working with texts. This is clearly most pronounced in classrooms where a high proportion of the pupils needs support with literacy. However, strategies for focusing on the structure and meaning of different texts are applicable to all pupils.

Directed activities related to text (DARTs) are a range of strategies for processing texts developed by Lunzer and Gardner in the 1970s and 1980s. DARTs encourage pupils to read a text carefully, to go beyond literal comprehension and to think about what they read. ('Text' can be interpreted broadly and includes, for example, visual texts such as pictures, diagrams and graphs.)

Advantages of DARTs

- They are engaging and encourage teachers and pupils to tackle difficult texts.

- DARTs are popular with pupils because they seem a bit like games or puzzles.

- They do not require definitive answers, thus enabling pupils to be tentative and exploratory.

- They offer a good focus for group work.

- Some initiative is handed over to the pupils.

Categories of DARTs

DARTs can be grouped into two main categories.

Directed Activities Related to Text (DARTs): a summary	
Reconstruction activities use modified text	**Analysis activities** use straight text
Pupil tasks: completion-type activities with deleted or segmented text	Pupil tasks: text marking and labelling or recording
1 Text completion Pupils predict deleted words (cloze), sentences or phrases	**1 Underlining or highlighting** Pupils search for specific target words or phrases that relate to one aspect of content, e.g. words that support a particular view
2 Diagram completion Pupils predict deleted labels on diagrams using text and other diagrams as sources	**2 Labelling** Pupils label segments of text, which deal with different aspects, e.g. labelling a scientific account with labels provided by the teacher, such as prediction, evidence, conclusion
3 Table completion Pupils complete deleted parts using table categories and text as sources of reference	**3 Segmenting** Pupils segment paragraphs or text into information units or label segments of text
4 Completion activities with disordered text **a** Predicting logical order for sequence **b** Classifying segments according to categories given by the teacher	**4 Diagrammatic representation** Pupils construct diagrams from text, e.g. flow diagrams, concept maps, labelled drawings or models
5 Prediction Pupils predict the next part(s) of text with segments presented in sequence	**5 Tabular representation** Pupils extract information from a written text, then construct and represent it in tabular form

Adaptation from *Reading for learning in the sciences*. Davies, Florence, Green and Terry, (1984). Oliver and Boyd. ISBN: 0050037684.

Pointers for planning DARTs

- Time is required to train pupils to talk constructively in pairs and groups, if it is new to them. There is more on developing the necessary social skills in unit 10, section 5.

- If you laminate resources such as sequencing strips, they can be used again.

- Learning may be implicit. Teachers need to plan to draw out the learning and relate it to subject-specific objectives.

Practical tips

DARTs are most effective when:

- worked on in pairs or small groups;

- speaking and listening is the main activity, because the discussion of possibilities leads to closer examination of the text and develops engagement and understanding.

Care must be taken:

- not to overuse DARTs – they can then become counterproductive;

- to make sure that texts, although challenging, are also accessible.

Case study 1

This case study shows how a number of different DARTs can be planned to support pupils' understanding of the text. The one you use will be determined by the learning objectives, the pupils and the context. All refer to the text in appendix 1.

Example 1: text marking (analysis)

If your learning objective was to develop pupils' understanding of the processes affecting ripening, you might ask pupils to work in pairs and provide each pair with a copy of the text. You could ask them first to skim-read the article, then to highlight in pink those things that happen as the apple ripens, and highlight in yellow ways of preventing ripening. Following this you might ask them to complete a table under the following headings.

How to slow ripening	What process does it stop?

Example 2: table completion (analysis)

If your objective was to develop an understanding of cells and storage of fruit, you might ask pupils to work in small groups, to skim-read the text and then to find reasons for the statements in the left-hand column.

Statement		Explanation
Apples are imported from other countries, such as New Zealand	because	
When you bite into a ripe apple it is sweet and juicy	because	
The apple store is cooled	because	
Levels of oxygen are decreased	because	
You cannot use freezing as a method to store apples	because	

Example 3: sequencing activity (restructuring)

If your learning objective was to consider what affects cell respiration and how to construct a logical argument, you might ask pupils to work in pairs, provide each pair with a fragmented paragraph on cards and ask them to reformulate the paragraph.

Once picked the apple will continue to ripen, so this process needs slowing down.	An apple is living, and each of its cells continues to respire.
This means that they continue to absorb oxygen from the air and emit carbon dioxide.	As each cell respires, some of the stored food is converted to energy.
The apple also emits a gas called ethylene that helps ripen the fruit.	Controlling the atmosphere in the store can slow the respiration rate down in the apple cells.
A slowly turning fan can keep the air circulating and blow away the ethylene as it is formed.	If you decrease the level of oxygen and increase the level of carbon dioxide, then the cell respiration slows.
Some varieties of apple will tolerate high levels of carbon dioxide in the atmosphere.	The Cox, for instance, will tolerate 9% of carbon dioxide.

Table continues

These varieties can be stored for longer.	Apples such as the Worcester will tolerate less so cannot be stored for long periods.
The apple store is also cooled.	This makes sure that any chemical reactions such as respiration will take place at a slower rate than normal.

Task 4

Classroom assignment: text restructuring — 1 hour

Create your own text-restructuring grid. It can be designed as a general-purpose tool that will support many different learning objectives. You could choose one of the following:

- a compare-and-contrast grid that requires pupils to look for similarities and differences. The text selected for use with the grid can be visual (e.g. two painted portraits with subjects in a similar pose but in different artistic styles) or written (e.g. two news reports dealing with the same event but from two different newspapers, one broadsheet and one tabloid);

- a cause-and-effect grid that requires pupils to highlight or underline key events which are then sorted under the headings *cause* and *effect*. Allow for ambiguity: some events might be categorised as both! Narrative texts or recount texts are best for this kind of activity.

Plan the use of your grid into a lesson where the activity is appropriate to the learning objectives. Make a note of how pupils responded to the task.

Which principles of engagement (see pages 4–6) underpin this approach to increasing engagement?

There is a more extended account of the use of DARTs in module 5 of the Key Stage 3 *Literacy across the curriculum* training materials.

5 Thinking skills

Raising standards requires that attention is directed not only to *what* pupils learn but also to *how* they learn – and what teachers do to influence this. Thinking-skills activities are concerned with the process of learning – in other words, pupils learn how to learn. The National Curriculum defines five categories of thinking skills: information processing, reasoning, enquiry, creative thinking and evaluation. Teaching thinking means addressing how pupils think and learn, and consciously sharing that understanding with them. Teachers can encourage pupils' development as learners by giving them tasks that really make them think.

Lessons that are effective in developing thinking skills have the following characteristics.

- Pupils are given open and challenging tasks that make them think hard.

- Pupils are encouraged to use what they already know so that new learning is built on existing knowledge structures.

- Opportunities are offered to work in collaborative groups where high-quality talk helps pupils to explore and solve problems.

- Pupils are encouraged to talk about how tasks have been done. This gives them the opportunity to gain insights into how they have learned and helps them to plan their future learning.

- There are learning outcomes at different levels. Some relate to the subject content but others relate to how learning can be used in other contexts. The aim is for pupils to be able to apply these strategies independently.

Using thinking-skills strategies

There are a number of thinking-skills strategies that you can use in the course of your subject teaching.

Classification

Sorting cards with words, short pieces of text, photographs or diagrams uses the basic skill of classification. Pupils have to sort the pieces of information into groups with similar characteristics. They have to justify their groupings and explain them to others and thus the groupings are collectively refined and improved. The categories are likely to be remembered because they are meaningful to the pupils who developed them. Classification is a stage in the inductive teaching model (see unit 2).

Case study 2

A modern foreign languages teacher gave her pupils a text that described a family's pets. The pupils worked in groups to identify and underline all the adjectives. They then classified those adjectives in any way they chose, writing them in lists and giving each list a heading that described what the items had in common.

There were several ways of doing this, for example by the position of the adjective in relation to the noun, by agreement with the noun, or by meaning. Pupils had to explain to the class the reasons for their groupings and work out rules about French adjectives.

Reflection

Another type of classification activity would be to sort a collection of pictures – for example, sorting postcards in geography could lead into notions of physical, human and environmental geography. The key is to present words or pictures which could be classified in a number of different ways so that pupils are faced with making decisions and justifying their classification. This requires inductive reasoning.

Think of an area in your subject where you could use a classification activity.

Odd-one-out

This is a popular and useful activity as it can be used as a lesson starter or as the basis of a full lesson, depending on the objectives being pursued. It is a technique relevant to almost every subject. Important words in a topic are put into groups of four and pupils have to select the 'odd-one-out', justifying their choice. Ambiguous sets of words are useful to show that there may be more than one answer and may lead to pupils using higher-order thinking skills as they reason and argue. Subject objectives are achieved as pupils develop their familiarity with and understanding of the important words and concepts in a topic. This technique is developed further in the concept attainment teaching model (unit 2).

Maps from memory

Subjects such as art and design and technology rely heavily on visual literacy, and thinking-skills activities can help with this. In this activity, pupils work in groups of three or four. Group members take turns to visit the teacher's desk to observe a map, picture or diagram for 10 seconds, with no pencil or paper for recording. They return to their group and draw or write what they can remember, adding to what previous group members have seen. Give groups time to plan their strategies before starting and give them further time to review their strategies as the activity progresses. As they plan, check and cooperate in developing the best strategies, groups become involved and really enjoy the challenge. Maps from memory also helps pupils develop insights into part–whole relationships.

A head of PE had a bottom-set Year 10 GCSE group in a school with a low-ability intake. He knew from experience that as soon as theory work started, the pupils would not be engaged. He decided to begin teaching the bones of the body by doing a maps-from-memory activity, using a poster of a skeleton with the bones labelled. He reported that the pupils became very motivated and asked to do it again. They also used the difficult vocabulary successfully. In the debriefing session, the pupils were able to discuss the strategies they had used and were willing to think about how they might improve, both personally and as a group, next time they had to deal with a diagram.

Practical tips

Ensure that pupils think about how they are going to collect information before they see the map or diagram. They may then have to change the strategy as they progress.

It is important that they talk explicitly about where they did well and how they could improve. You should ask them to explain their strategies for completing the task and to consider how they could improve another time. (Pupils can find debriefing difficult, and it may help if you model it the first time round.) It is also a good idea to ask them in which other subjects they could use this strategy so that their improved visual literacy transfers to all their learning.

Task 5

Identify maps-from-memory stimuli   20 minutes

For each year group in Key Stage 3 and Key Stage 4, identify a map, diagram or plan in your subject which would benefit from being taught in this way.

Mysteries

Pupils are posed one big, open question. Information or data are provided on small pieces of card which pupils can move round on the table as they develop, shape and evaluate ideas to answer the big question.

A design and technology teacher introduced a unit of work on structures for Year 9 with a mystery and the big question: 'Why did the Tay Bridge collapse?' Groups of pupils were given 36 pieces of information about the train crash and how the bridge had been built. They were asked to do a first sort, then reject about 10 cards that they thought were not relevant. With the big question firmly in mind, they then sorted the information again to arrive at an answer. Using pictures of the bridge and words from the cards, each group constructed a poster that explained their answer to the big question. Each group used their poster to inform the rest of the class of their reasoning.

You can find more detailed information in unit 16 Leading in learning.

Classroom assignment: using thinking-skills strategies   **30 minutes**

Plan (and then teach) a lesson in which you try one of the thinking-skills strategies outlined above.

6 Drama activities

Drama is a specific discipline and a powerful tool for thinking together and learning across the curriculum. Through drama, pupils can explore a wide range of issues, situations, information and texts, developing insights and understanding in an active and interactive way. Drama is particularly helpful in engaging the interest of boys.

The following techniques can all be used to support, draw out and deepen learning.

A supportive and creative environment using a variety of stimuli relevant to the unit of work: Stimuli can include drawings, props, costumes, photographs, text extracts from novels, plays, poems, letters, newspaper articles, travel writing, diaries, autobiographies, television or radio.

Effective use of questions: What is happening? Who is involved? Where and when is it happening? Why is it happening? What has happened to bring this about? What do you think is going to happen next? How might the character be feeling? Why might he/she be feeling this way?

Speculative language: What would you do if …? What other alternatives are there? What could he/she be thinking/feeling? Is it possible that …? Where might this be / lead to? What other options or possibilities are there?

Each of the following activities needs to be modelled by the teacher before being tried out by pupils working collaboratively. Pupils need to be given frequent opportunities to reflect on, evaluate and explain their work. Ensure that appropriate conventions and guidelines are established to prevent improvisations from becoming unfocused.

Improvisation using written or non-written stimuli: Pupils are given a stimulus or a set of stimuli. They improvise the situation suggested by the stimulus and also show how it would develop. This is the easiest type of activity to lose control of, so tasks need to be sharply defined, with a clear outcome and structured within tight time frames.

Freeze-frame/tableau: Pupils select a key moment, theme or idea and create a group sculpture to represent it. This can be used for reflection by other groups or can lead into a thought-tapping activity.

Thought tapping: While in role, pupils speak aloud private thoughts, feelings and reactions. The teacher freezes an improvisation or scripted piece and activates an individual's thoughts by tapping them lightly on the shoulder.

Mime: Pupils show or interpret a key moment, theme or idea using exaggerated gesture and facial expression but no speech.

Hot-seating: One pupil takes on the role of a particular person or character (usually, but not necessarily, from a text, e.g. a historical figure). Other pupils plan and ask questions while the pupil responds in role.

Alter ego: Groups act as 'thoughts in the head' and offer advice to a character at a critical moment.

Forum theatre: One group acts out a scene or situation in front of the others, who surround them in a circle. Those watching in the circle are able to stop the action and make suggestions for improvement, possibly by demonstration, before the action proceeds.

Pupil in role / teacher in role: A pupil or the teacher takes on a role in a given context to explore the tensions within a particular dilemma.

Make use of the drama department if your school has one. Drama teachers are familiar with the strategies outlined above and can provide valuable INSET sessions for staff.

Task 7	**Classroom assignment: teacher in role**	**1 hour**

'Teacher in role' is a versatile cross-curricular strategy. For example, you could take on the persona of a member of the council chairing a meeting with residents opposing the construction of a new airport. You could be a figure from history. You could be a character from literature (any genre). You could be a scientist defending the use of animals for experimentation.

Design a teacher-in-role activity. If this is your first attempt, keep it simple. You should split the task over two lessons, giving time for planning and preparation in one lesson and running the role-play in another. It is a good idea to practise responses to the questions you know you will be asked.

The most challenging aspect of this approach is moving in and out of role to intervene and guide. You must establish guidelines for this before you begin. You could even practise it like a game at first, so pupils learn when to stop in order to listen to you as teacher. Putting your hand up can work well.

7 Writing tasks

When pupils are well prepared for writing tasks, even the most reluctant writer can produce a focused and well-structured piece that is engaging and stimulating to read.

For this to happen they need to be supported throughout the writing process; the following strategies can help.

Purposeful context: You can create purposeful contexts for pupils' writing by:

* establishing both the purpose and audience for the writing;

* ensuring that the writers have something to say;

* providing a model of the text type;

* giving writers opportunities to develop, sharpen and revise ideas;

* encouraging collaboration during planning, drafting and proofreading;

* giving pupils access to reference materials to support writing, for example word banks, dictionaries and thesauri;

* providing feedback on strengths and ways to improve, both during and after the writing.

Visual support: In the early stages of writing, provide visual support. This can be in the form of visual stimuli (such as film, video, photos and computer images) to present information. Then use visual strategies (such as spider diagrams, flow charts, tables, lists, grids, Venn diagrams and for-and-against columns) for generating, sorting and sequencing ideas. Writers can also be encouraged to visualise their writing as a mental image or as a sequence of still pictures. After visualising they can be asked to tell a partner what they saw, which helps put the images into words.

You could also ask pupils to draw their ideas before they start writing. Drawing helps pupils to explore concepts, patterns and structures (including narrative). Typically, writers are asked to illustrate their writing after they have finished, but there is often more value in using it to enable the writer to explore what they are going to write.

Collaborative writing: This is a powerful strategy because the act of speaking facilitates composition. Often we are not clear about what to think and write until we hear ourselves say it. Discussing writing in pairs and small groups prompts oral drafting as pupils suggest, modify, confirm, justify, improve and refine their ideas together. Interacting with others stimulates our own powers of expression. The kind of thinking that we would want to be going on in an individual writer's head is what can go on in a discussion as pupils compose together.

Writing frames: When tackling complex extended writing tasks, pupils can be provided with writing frames that scaffold the process. Writing frames were originally disseminated by the Exeter Extending Literacy Project (EXEL) and are a means of supporting pupils in undertaking a wide variety of non-narrative and non-fiction writing tasks. In essence, teachers are encouraged explicitly to teach the writing genres they require pupils to use. The objective is to assist pupils in developing independence when organising their writing across a range of tasks and genres. Once independence has been achieved, writing frames can be discarded.

The frames take a variety of forms, but commonly comprise a set of sentence stems which pupils complete, and around which they may shape a piece of discursive or informative writing, or develop a line of argument.

An example of a writing frame is given in the case study below. Before you ask pupils to use a writing frame, it is important to explain it properly and model its use.

At the end of a unit on the slave trade taught to a Year 9 class, a history teacher wanted to use the Durban Conference on Racism, which took place in 2001, as a context for a text-restructuring activity. The end product was to be a debate on the question: Should the British government pay reparations to Africa for the ongoing effects of the exploitation of its natural resources that began with the slave trade?

He planned the activity as follows.

Step 1: Share the learning objective of the lesson using the key question: Should the British government pay reparations to Africa for the ongoing effects of the exploitation of its natural resources that began with the slave trade? At this point, explain the key phrases and the homework task.

Step 2: Explain the concept of reparations using the Durban conference as the context from which examples and illustrations can be drawn.

Step 3: Provide the text-restructuring grid (below) for pupils to use when analysing the historical sources provided.

Step 4: After they have looked at the sources, give pupils a fixed time to prepare their contribution to the debate. Explain the format for the debate, including guidelines for participation.

Step 5: The whole class, including those who present arguments, take a vote. In the plenary ask pupils to explain why they voted as they did, selecting the pieces of evidence that carried the most weight for them.

Source	Conclusion drawn from the source (proves Britain was responsible or not)	Explanation of how the source supports the conclusion drawn
1		
2		
3		
Overall conclusion		

Classroom assignment: using a writing frame 　　1 hour

With another teacher, devise a writing frame for a particular lesson that you can both use with your classes, if possible. You could adapt examples from the Internet or from commercial sources. Try and arrange to observe each other using the frame with a class, and evaluate its success. Make a record of the outcome, considering both negative and positive aspects.

Summary of research

Constructivist theory

Constructivist theory emphasises the active role of the learner in constructing his/her learning. Learning in this view does not result from transmission of information by the teacher to be 'soaked up' by the learner but consists of the learner reconfiguring her/his reality based on her/his actions on the environment. This means that learning needs to be active and that teaching can have unpredictable effects on learning.

The two main theorists to influence this view are Piaget (Inhelder and Piaget 1958) and Vygotsky (1973). The Swiss psychologist Jean Piaget argued that, in order to understand how children think, one must look at the qualitative development of their ability to solve problems. Cognitive development, in his view, is much more than the addition of new facts and ideas to an existing fund of information. Rather, children's thinking changes qualitatively; the tools which children use to think change, leading children and adults, and indeed children at different stages of development, to possess different views of the world. A child's reality is not the same as that of an adult.

According to Piaget, one of the main influences on children's cognitive development is what he termed 'maturation', the unfolding of biological changes that are genetically programmed from birth. A second factor is 'activity'. Increasing maturation leads to an increase in children's ability to act on their environment, and to learn from their actions. This learning leads in turn to an alteration of children's thought processes. A third factor in development is 'social transmission', learning from others. As children act on their environment, they also interact with others and can therefore learn from them to differing degrees depending on their developmental stage.

The Soviet psychologist Lev Vygotsky (a contemporary of Piaget) was primarily interested in the study of language development, which he believed initially develops separately from thought but starts to overlap with thought more and more as the child grows up. According to Vygotsky, a non-overlapping part remains later in life, some non-verbal thought with some non-conceptual speech remaining even in adults.

A major disagreement between Piaget and Vygotsky was that Vygotsky did not think that maturation in itself could make children achieve advanced thinking skills. Vygotsky, while seeing a role for maturation, believed that it was children's interaction with others through language that most strongly influenced the level of conceptual understanding they could reach.

Vygotsky thus believed that we can learn from others, both of the same age and of higher ages and developmental levels. This can be put into operation through scaffolding in the zone of proximal development. This concept, one of Vygotsky's main contributions to learning theory, refers to the gap between what a person is able to do alone and what they can do with the help of someone more knowledgeable or skilled than themselves. It is here that the role of teachers, adults and peers comes to the fore in children's learning, in that they can help bring the child's knowledge to a higher level by intervening in the zone of proximal development by providing children's thoughts with so-called 'scaffolds', which the child can discard once the learning process is complete. Not all children are as educable in this respect, some being able to learn more in the zone of proximal development than others.

Thus, for Vygotsky, it is *cooperation* that lies at the basis of learning. It is – formal and informal – *instruction* performed by more knowledgeable others, such as parents, peers, grandparents or teachers, that is the main means of transmitting knowledge of a particular culture. Knowledge for Vygotsky, as for Piaget, is embodied in actions and interactions with the environment (or culture); but unlike Piaget, Vygotsky stresses the importance of *interaction* with a living representative of the culture. For Vygotsky thinking can be viewed as a set of cultural tools passed down from one generation to another.

References

- DfEE (2001) *Literacy across the curriculum*: module 5, Active reading strategies; module 6, Reading for information. Ref. DfEE 0235/2001.

- Lunzer, E. and Gardner, K. (1984) *Learning from the written word*. Oliver and Boyd. ISBN: 0050037676.

Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Reflect on the suggested techniques for active engagement. Which seem to work more effectively with which groups? Can you identify techniques that relate to age and maturity and those which relate to ability? How might you take account of this in future planning?

- Further information on DARTs can be found in unit 13 Developing reading. Work with colleagues in the same subject and review the schemes of work for a year group. Which aspects would benefit from introducing DARTs? Over the course of the year plan to build a resource between you and evaluate the impact on the pupils in that year group.

- Metacognition can help many pupils to engage with their learning. You can find out more in unit 16 Leading in learning. First explore ways in which you can encourage this and try out some of the techniques with one class over a period of time, so that this becomes a routine part of the lesson. Evaluate its impact on the group compared with other groups. Is there more engagement? What else has changed?

- When using writing frames it is important not to rely on them as a permanent prop. Pupils need to be encouraged to move beyond them. Explore a unit of work that you are about to teach. Identify the opportunities to introduce writing frames and then plan a strategy for encouraging pupils to become independent. (Reference to unit 14 Developing writing will help.)

For further reading, the following publications are recommended:

General

- Newton, D. P. (2000) *Teaching for understanding*. Routledge/Falmer. ISBN: 0415227917.

- Wood, D. (1998) *How children think and learn*. Blackwell. ISBN: 063120007X.

DARTs

- Davies, Florence, Green and Terry, (1984). *Reading for learning in the sciences*. Oliver and Boyd. ISBN: 0050037684.

- Fisher, P. (2002) *Thinking through history.* Chris Kington. ISBN: 1899857443.

- Leat, D. et al. (2002) *Thinking through geography* (2nd edn). Chris Kington. ISBN: 1899857990.

- Lunzer, E. and Gardner, K. (1984) *Learning from the written word*. Oliver and Boyd. ISBN: 0050037676.

- Nichols, A. and Kinninment, D. (2001) *More thinking through geography.* Chris Kington. ISBN: 1899857435.

Active listening

- Mercer, N. (2000) *Words and minds: how we use language to think together*. Routledge. ISBN: 0415224764.

Writing

- Lewis, M. and Wray, D. (1996) *Writing frames: scaffolding children's non-fiction writing in a range of genres*. Reading and Language Information Centre. ISBN: 0704910640.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   40 minutes

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

Appendix 1

How fresh is fresh?

You may have noticed that the supermarkets sell apples and other fruits all the year round. Apples ripen in England in the autumn. Once ripe they last up to a week or two. Apples are imported from other countries such as New Zealand to extend the season but this alone will not make sure that you can have an apple at any time of the year. Many apples are picked just before they are ripe and then stored in a controlled environment. Carefully stored, some varieties of apple can last up to 12 months. So the apple you buy could be a year old.

How can you store an apple so that it will stay fresh? As apples ripen the minerals and other chemicals in the cells that make up the apple tissue change. Starches in the cells change to sugars and the cell walls begin to break down, so when you bite into the apple it is sweet and juicy. If you want to keep an apple for longer you need to make sure it does not ripen too soon. You do this by picking the apple at the right time and then by storing it so that it ages slowly.

You can check how close apples in an orchard are to being ripe by testing one or two to see how much of each mineral such as phosphorus, magnesium and potassium they contain. Cell walls need some of these minerals to maintain their rigidity. As the apple ripens so the amount of each mineral in the fleshy part changes. By tracking the changes you can tell how ripe an apple is. Picking the apple at just the right time makes sure it will last longer.

Once picked the apple will continue to ripen, so this process needs slowing down. An apple is living and each of its cells continues to respire. This means that they continue to absorb oxygen from the air and emit carbon dioxide. As each cell respires some of the stored food is converted to energy. The apple also emits a gas called ethylene that helps ripen the fruit. Controlling the atmosphere in the store can slow the respiration rate down in the apple cells. A slowly turning fan can keep the air circulating and blow away the ethylene as it is formed. If you decrease the level of oxygen and increase the level of carbon dioxide, then the cell respiration slows. Some varieties of apple will tolerate high levels of carbon dioxide in the atmosphere. The Cox, for instance, will tolerate 9% of carbon dioxide. These varieties can be stored for longer. Apples such as the Worcester will tolerate less so cannot be stored for long periods.

The apple store is also cooled. This makes sure that any chemical reactions such as respiration will take place at a slower rate than normal. Fruit such as apples cannot be frozen without becoming softer and mushy. As water freezes to form ice it also expands. So, as the water in the cytoplasm freezes, sharp crystals of ice form and these burst the membrane and cell walls.

Growing and selling apples and other fruits is big business, so it is in the interests of producers to extend the shelf life of these products as long as possible. But do they taste the same as freshly picked apples? The industry claims they do. If you are lucky enough to live in an apple-growing area you could try your own experiment, but you may have to wait until next autumn.

*Pedagogy and Practice:
Teaching and Learning in
Secondary Schools*

Unit 8: Explaining

Teaching repertoire

**department for
education and skills**
creating opportunity, releasing potential, achieving excellence

How to use this study guide

This study unit offers some practical strategies that teachers use to structure their own explanations and to help pupils provide clear explanations themselves. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide, you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to explaining. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community. Record successes in your CPD portfolio.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 8, Explaining, when working through this unit.

Explaining

Contents

Introduction

There are many things that are difficult or impossible to understand without explanation: for example, abstract concepts, events in the past or those outside pupils' direct experience. Principles, rules and important ideas are all unlikely to be discovered by pupils without assistance.

With successful explanations pupils:

- have a good visualisation and understanding of the new idea and know how it fits with their existing knowledge and understanding;

- have understood and internalised the key features of the idea so they are able to restate it in their own words;

- are able to use appropriate models and analogies in restating their ideas and explaining them to others;

- know how to proceed with their learning and what to do next.

Common issues

Explanations are often not clear because they do not include all the key features, have no clear structure, use inappropriate connectives, and may not make use of appropriate teaching aids. The explanations provided may not connect with pupils, and may not be pitched at the right level, thus leaving pupils with only a partial understanding, at best. They may not seem able to connect their learning with previous understanding, so they forget things and falter. As a result they may not be able to convey their understanding to others. If the subject-matter is not familiar then the best method of explanation may not be chosen, and in particular concepts may not be communicated appropriately because explanations only use words connected to abstract ideas and not illustrated by examples, models or analogies.

Resolving the issues

These issues can be resolved by planning explanations as part of the lesson-planning process.

You need to be clear about:

• the type of explanation you intend to provide and so which words (connectives) will help structure the explanation;

• which are the best methods of providing that explanation given the nature and maturity of the pupils;

• which characteristics of explanations help pupils connect with ideas, and which examples, models and analogies can best help them understand concepts in particular;

• how to read pupils' misunderstandings and how to respond by altering the nature of the explanation and choosing another method, perhaps relating to a different learning style;

• helping pupils visualise ideas, building pictures of concepts;

• the common pitfalls of explanation and how to avoid them;

• how you can develop pupils' own skills of explaining, why this is important and how this can help you check their understanding.

1 Purposes of explanation

Explanations vary according to their purpose. Categorising the main purposes can help you plan effective explanations. We can categorise the purposes of explanations in the following ways to help pupils understand:

• purposes and objectives of the lessons;

• processes, procedures and skills (explaining how);

• cause and effect (explaining why);

• relationships (how one factor affects another over time);

• concepts (often abstract);

• attitudes and values (involving some personal judgement).

Purposes and objectives of the lessons

It is often important to explain why things are done and what pupils are expected to achieve. These are lesson objectives and learning outcomes, and it is important to separate the two.

For example, at the beginning of a lesson it might be appropriate to say:

Music

> 'Today we are looking at different musical styles. The reason for this is that later you will use one in your own composition to reflect a particular emotion.

What I am looking for in your composition is a clear style being used to reflect melancholy and a clear explanation of why you have chosen that style.'

Mathematics

'We are learning to interpret the shape of graphs. The reason for this is that later you will be asked to predict the shape of a graph that you expect to get when water cools to form ice.

For top marks you will produce a sketch graph with clearly labelled axes, and be able to explain in the form of a hypothesis why you think the shape should be as it is.'

For further information see unit 1 Structuring learning.

Processes, procedures and skills (explaining how)

Performing a skill requires following a set procedure. The purpose of explaining a process or procedure is to help pupils understand how things happen or work. The emphasis is on sequence and connectives such as *first*, *next*, *then* and *finally* are important. Examples could include how to play a forehand stroke in tennis, how to play an Indian rhythm in music or how to carry out an investigation using the Internet. For complex procedures, where decisions are involved at various stages, this type of explanation could be linked with modelling. Here the teacher not only demonstrates and explains what to do but also talks out loud about the decisions that have to be made (see also unit 6 Modelling).

In geography you might explain the components and links in the water cycle with the aid of a diagram and structure your explanation in the following way:

'First water from the sea is evaporated by heat from the Sun, then the vapour condenses to form clouds, next …', and so on.

Cause and effect (explaining why)

These types of explanation are characterised by one thing leading to another in a causal sequence. The connective *because* is important here. It often starts with something that is observable and then seeks to explain this in terms of a number of possible causes, carefully considering evidence to support one possible cause or another. It is more difficult to explain events that are the result of a combination of factors, such as the outbreak of a war, the origins of an artistic movement or the causes of global warming. Diagrams such as consequence maps or concept maps can help these explanations, as can models and analogies. Interspersing the explanation with questions can also be beneficial.

Relationships (how one factor affects another over time)

When explaining relationships between factors we need to consider how one factor affects another, and also how one might relate to the other in terms of time. Explaining timelines for each event with diagrams may help. In other circumstances language such as: *as the … so the …* will help.

When explaining relationships *in graphs* we might say:

> 'You can see from the graph (pointing out relevant features) as the temperature increases so the rate of dissolving increases.'

> 'You will see that we can infer from the graph [pointing out relevant features] that as time has gone on so air travel has increased and sea travel has decreased.'

> 'The relationship between climate change and human activity is quite complex. First let us analyse what was happening between 1800 and 2000. Next let us analyse what scientists have found out about temperature in parts of the world between these times and then compare the two.'

Concepts (often abstract)

Concepts are defined as ideas or notions. These ideas or notions have common features that are recognisable, such as mammal or monarchy.

Concepts can be subdivided into those that are concrete, that is observable and tangible, and those that are abstract. The table below illustrates this.

	Concrete	Abstract
Familiar	Terms in everyday use and observable: e.g. wave (sea), trench, reptile, metal, paragraph	Terms in everyday use but not easily observable: e.g. design, democracy, health, flow (in dance), pace (in writing), erosion
Not familiar (often technical)	Terms used by specialists but observable: e.g. thermosetting plastic, gradient, ellipsis (in writing)	Terms used by specialists but not observable: e.g. urbanisation, atom, choreography, irony (in literature)

At Key Stages 3 and 4 there is a significant increase in the interaction with abstract ideas and these need particular attention. Using models and analogies supports pupils' visualisation of the concept. Examples include using layers of modelling clay to represent layers in a sedimentary rock, using long balloons to represent the guard cells around a stomata, and using a diagram of a school hierarchy to help understand the political and social hierarchy of a particular Shakespeare play.

Attitudes and values (involving some personal judgement)

In explaining an attitude or value the issue of judgement is important. This is often about opinion and is different from fact. These types of explanation, about people's values or attitudes, should feature the notion of opinion with justification, that is relating to some form of evidence. For instance when explaining the attitude of society towards the environment you might say:

> 'It is many people's opinion that we should not use green-field sites for new affordable housing because many think that there are sufficient brown-field sites to build 1- or 2-bedroom homes. Others think that … As a counter-argument some people think that …'

Task 1   Purposes for explanations   20 minutes

Think about your own subject. Reflect on the lessons that you taught last week or will teach this week. What were the purposes of the explanations you provided? Complete the tally chart below to provide a picture of the explanations that you use in your subject across each key stage.

Type of explanation	KS3 lessons	KS4 lessons	Post-16 lessons
Purposes and objectives of the lesson			
Processes, procedures and skills (explaining how)			
Cause and effect (explaining why)			
Relationships (how one factor affects another over time)			
Concepts (often abstract)			
Attitudes and values (involving some personal judgement)			

Reflection

You will probably find that the nature of explanation you use changes over the age range.

- Is the spread across the type and age range as you expected?

- Which types of explanation do you use most?

- Which types of explanation do you use least?

Discuss with a colleague your range of purposes for explanations and whether they think you should be using more or fewer of a particular type.

2 Characteristics of good explanations

Good explanations have a number of common features. A teacher will employ any number and combination of them according to the purpose of the explanation, the nature of the topic and the learning needs of the pupils. The most common features are:

- clear structure;

- key features identified;

- dynamic opening;

- clarity – using voice and body;

- signposting;

- examples and non-examples;

- model and analogy;

- props;

- questions;

- connections to pupils' experience;

- repetition;

- humour.

Clear structure

All successful explanations have a clear and logical structure to them, using words, images and analogies that pupils understand and well-chosen examples to illustrate key features. So when starting an explanation you might first check that pupils understand the key words that will be used, then proceed through the explanation by breaking it down into distinct parts, illustrating it with an example if needed before moving on. For instance, when explaining methods for calculating with fractions, you might explain a method, illustrate it with an example, then move on to the next method, hence creating a chain of method, example, method, example, and so on.

Key features identified

When planning explanations it is important to identify those key ingredients that aid understanding. Brown and Armstrong (1984) termed these 'keys'. A key could be a central principle, a generalisation, an example or an analogy that would 'unlock' understanding. They found that teachers who were most effective explainers used more keys and more types of key than other teachers. Complex explanations, such as an abstract concept like democracy, rely on the joining together of a number of such keys. So, for instance, an explanation of democracy might include examples, an analogy, a visual depiction, comparison with other forms of government etc., and all of these components would have to be linked in a logical sequence. The trick is to recognise those features that could unlock understanding.

Dynamic opening

Explanations benefit from a start that grabs interest and attention. Wragg and Brown (2001) refer to them as the 'tease' or the 'hook'. They include the example of 'In a minute I'm going to tell you why my uncle can't eat raspberries and walnuts any more', as a tease for explaining how to avoid dental decay. They draw the parallel with radio and TV programmes which start with quirky summaries of the items to keep you listening.

The hook can be a startling fact that is not obviously connected to the topic, an unusual way of representing the topic, a personal story or a connection to pupils' lives.

When introducing an explanation on:	Possible tease or hook
plate tectonics	Soon I'm going to tell you why it might be more dangerous to holiday in San Francisco than Dallas.
size and number of molecules	Do you realise it is a strong probability that you have drunk water that was also drunk by Elizabeth I?
infinite series in mathematics	I am going to prove to you that Saint Sebastian actually died of fright (with reference to Tom Stoppard's play *Jumpers*).
twelve-bar blues in music	How many of you like xxx (a current pop song) and yyy (a different pop song)? Well you can play these and many others with just three chords – want to know how?

Clarity – using voice and body

The voice can sound monotonous and dull, or varied and engaging. There are many ways in which intonation of the voice and the use of body language can emphasise certain points and maintain pupils' interest. Varying pitch and speed, slowing down perhaps to illustrate a key point, can sometimes help. Hands can obviously be used to point, gesture and emphasise. However, minor aspects of body language can also be important, especially to visual learners.

A teacher was once challenged by his pupils to sit on his hands for the whole lesson. He accepted the challenge but gave in after ten minutes. He found that being unable to use his hands badly affected his ability to explain things; he even felt that his memory was not working properly and he could not think what he wanted to say. You might also need to be careful about body language when talking to pupils. For example, standing in front of pupils with folded arms can give rise to negative responses (see unit 18 Improving the climate for learning).

Signposting

Important parts of the explanation can be signalled with such phrases as:

- 'what is really important to understand …';

- 'we are going to go through the three stages in this process: first …';

- 'to summarise what we have been talking about …'.

This will help the pupil to recognise the key points and also to follow the sequence of the explanation.

Examples and non-examples

Examples are crucial in explanations, especially in establishing understanding of concepts or principles. Examples will help others understand a situation or idea; more than one example, linked to everyday experience, is very useful to illustrate a point. However, non-examples can be just as important in establishing the boundary of an idea or concept. So in explaining what an insect is, using the example of an ant and a bee will be important (perhaps with a visual aid), but so will the use of spiders as a non-example. There are several possible patterns for using examples in explanations:

- example, non-example, rule/definition, example;

- example, rule/definition, non-example;

- rule/definition, example, non-example.

This idea of providing pupils with examples and non-examples and asking them to work out the concept or rule, is considered to be a pedagogy in itself and is often referred to as 'concept attainment' (see unit 2 Teaching models).

Models and analogies

Using models and analogies can help pupils to grasp an idea and visualise it. For instance, a three-dimensional model using ball-bearings could illustrate the kinetic theory of matter, or a plastic bag filled with water can model a cell. An example of an analogy is using the flow of water to represent the flow of electricity in a circuit.

Models and analogies help pupils to visualise:

- objects that are too big or too small to be seen clearly; e.g. the Earth or a cell;

- processes that cannot easily be seen directly;

- abstract ideas.

It is important to make sure that pupils understand the model or the analogy being used. They also need to be involved in discussing the strengths or weaknesses of the model or analogy.

Props

A picture (perhaps from an ICT source), a concrete object or a demonstration can add to the power of an explanation as it captures attention and focuses pupils' minds. Again it is useful for visual learners. For example, a balloon is a useful resource in geography for explaining air pressure differences. Giving pupils objects they can hold and examine also helps. For example, providing each pupil with a sedimentary rock will help when explaining characteristic features of the rocks.

Questions

As can be seen in the following section on Connections to pupils' experience, asking questions can be a very important ingredient in any explanation. Although asking open questions during an explanation can slow the explanation and may take it off-course, asking questions can help the teacher monitor the pupils' understanding during an explanation and also help it to be more interactive, involving and interesting (see unit 7 Questioning). It is important to monitor understanding in explanations since misconceptions can be recognised, and dealt with by using further examples or by changing the pitch or direction of the explanation.

Connections to pupils' experience

Explanations often attempt to explain something completely new to pupils and use examples and props to aid understanding. Another useful skill is to activate pupils' prior knowledge so that links between the new and the old can be made and the new ideas assimilated. So for instance, if there is to be an explanation of democracy, the teacher might first of all ask pupils what they know about how governments are elected and formed in this country. Or, when explaining the concept of insects, pupils could be asked what they already know about insects and this may well lead to the teacher being able to identify the sort of terminology that the pupils use ('antenna' or 'feelers') and any misconceptions or misunderstandings that they might have.

Repetition

Allied to the use of linguistic signposts mentioned above, is the use of repetition. Repetition is an important ploy to emphasise a key point, idea or terminology. For example:

> 'The *important point* that Lady Macbeth is making here …; the *important point* is …'

Whilst infrequent in written explanations, repetition is commonplace in spoken explanations as a means of emphasis.

Humour

Humour helps to keep attention and may make some things easier to remember. For example, when explaining how to throw a ball up in the air to serve in tennis, you could add that you don't throw the ball up miles – you don't want it coming down with ice on! This adds something to an otherwise pedestrian remark.

Task 2 — Characteristics of explanations — 20 minutes

Using the observation sheet below as a prompt, identify the characteristics of explanations present in video sequence 8a. The teacher is providing explanations in a music lesson.

Which aspects of the explanations do you think particularly helped pupils develop their understanding? You may not find them all.

Subject of explanation:	
Key features identified (tick)	**What are the key points or essential elements that will help pupils understand?**
Clear structure	
Key features identified	
Dynamic opening	
Clarity – using voice and body	
Signposts	
Examples and non-examples	
Models and analogies	
Props	
Questions	
Connections to pupils' experience	
Repetition	
Humour	

Reflection

In discussion with a colleague consider whether any other ingredients could be added to make any of the explanations more effective.

You could use this observation sheet to analyse your own or a colleague's explanations.

3 Planning explanations

When planning explanations it is important to start by considering the purpose of the explanation (such as whether it is to explain cause and effect, a concept or a procedure). This will determine the ingredients that will need to be present and are particularly important, such as the need for a model if an abstract idea is to be explained. Then the sequence and structure should be planned. Most explanation sequences and structures would start with a hook or tease and finish with a summary. In between, it is for you to decide which of the main ingredients should be included, in what quantity and in which order.

You might find it helpful when you have planned an explanation to review its likely success and impact using the following checklist.

Characteristic	Question
Clear structure	Is the explanation structured in a logical way showing how each part links together?
Key features identified	What are the key points or essential elements that pupils should understand?
Dynamic opening	What is the 'tease' or 'hook' that is used at the start?
Clarity – using voice and body	Can the voice or body be used in any way to emphasise or embellish certain points?
Signposts	Are there clear linguistic signposts to help pupils follow the sequence and understand which are the key points?
Examples and non-examples	Are there sufficient examples and non-examples to aid pupils' understanding of a concept?
Models and analogies	What models might help pupils understand an abstract idea? Are there any analogies you could use? Will pupils understand the analogy? How might you help pupils identify the strengths and weaknesses of the analogy?
Props	What concrete and visual aids can be used to help pupils understand more?
Questions	Are there opportunities to check for pupils' understanding at various points, and to note and act on any misconceptions or misunderstandings?

Are there opportunities for pupils to rehearse their understanding? |
Connections to pupils' experience	Are there opportunities, particularly at the start, to check pupils' prior knowledge of the subject and to link to their everyday experiences?
Repetition	Are there a number of distinct moments in the explanation when the key points that should be learned are repeated and emphasised?
Humour	When and how might it be appropriate to use humour?

Classroom assignment: planning an explanation

30 minutes

Identify a future lesson from your schemes of work that will require an explanation, perhaps one that is a bit tricky.

Using the advice and the checklist above, plan the explanation. Consider how you will know whether it works or not and then test it out.

Afterwards consider:

• which aspects of the explanation worked particularly well?

• which aspects still need attention and how could you improve it further?

Teaching and explanation

30 minutes

Identify another lesson in the future that also involves an explanation, but one that you will teach to two different groups. This time plan the ingredients of the explanation as before but try two different approaches, perhaps one with a tease or hook and one without. Does it make a difference?

You could also try varying other aspects of the explanation, such as including examples or not and perhaps using props or not. What impact does this have on pupils' understanding?

Reflection

After the lesson, jot down your thoughts concerning how successful you thought the explanation was, and compare your views with your mentor/ coach or another colleague.

4 Common pitfalls and possible solutions

Although explaining is a common feature of teaching, it is fair to say that explanations do not always lead to better understanding. This section identifies some common pitfalls of explaining and suggests some ways to avoid them.

Pupils do not appear to be interested

Consider how you may set up the explanation – what tease or hook can you use to stimulate interest? Having used the tease or hook, ask the pupils in pairs to come up with an answer to what they think you are going to explain. How long do they think the explanation will need to be? After hearing some views, start the explanation and ask them to listen carefully to find out who was right.

Explanations are overlong, pupils lose interest

You need to think in advance about the key elements of the explanation. In your initial explanation to answer follow-up questions, what points must you cover or what can you leave out? You will need to reflect about what type of explanation you are trying to give. For example, is it about a concept, an explanation of how (processes and procedures) or of why (cause and effect)? Are you using the right connectives, have you structured the explanation in this way?

In addition you need to consider the concentration span of your pupils. It has been suggested that the average concentration span corresponds roughly to chronological age plus one or two minutes. This is particularly important for challenging classes. If the explanation needs to be longer than a few minutes consider how you can break it up into parts, such as a quick explanation, followed by a break and pupil activity. For example, in pairs 'Use what I have told you so far to …' (pause) 'Can you predict the next part of what I am going to tell you?' (pause) 'In pairs, explain to your partner what I have just said in your own words. Does your partner understand, can they do better? You have 5 minutes.'

Explanations do not appear to lead to greater understanding and may create greater confusion

Before your explanation consider: do pupils know all the words you plan to use? Are they clear about why you are providing the explanation? Have you pitched it at the right level? To check for pitch you could ask pupils before you begin what they already know about the subject. You could use this as a starter activity, perhaps asking pupils to work in small groups (such as 3s or 4s) and come up with their ideas in about 3 minutes, then take feedback from some. You can then adjust your explanation to fit, introducing any new words before you begin. You will also need to consider what examples you can use to illustrate the explanation; and how to structure the explanation, such as explain a point, provide an example, explain another point, provide an example etc. Clarity of explanations is aided when there is a clear structure, language is understood and examples illustrate points.

Explanations of concepts that only involve talk

A key feature of the secondary curriculum is the introduction of increasingly abstract ideas. We tend to think about abstract ideas by turning them into pictures; we often call this visualisation. This point was made by Stephen Hawking in his book *A brief history of time* where he commented that we do not think in abstract terms, rather we turn these ideas into models and pictures in our heads so as to understand the idea. The problem with using these to explain an abstract idea is that you cannot assume the models you have are the same as the ones that others have. This is often not the case, so great care has to be taken when talking about models and analogies. It is much better to use something visual or analogies that are familiar to pupils. A key issue is enabling pupils to see something rather than just talking about it.

Explanations do not allow for checking of pupils' developing understanding

Explanations that provide information without checking on understanding are usually inefficient. Building in points for checking understanding can improve efficiency. For example, you could intersperse your explanation with questions that could check on understanding to date or you could ask one pupil to explain the idea back to you. Alternatively, you could ask pupils to 'traffic-light' their understanding, providing them with different coloured flash cards (red, amber, green) that they hold up at various stages to indicate their level of understanding.

Providing explanations that are unnecessary

Sometimes pupils lose interest in an explanation. This may be because parts (or all) of it are unnecessary. This can happen when explaining to pupils what to do at the beginning of an episode of a lesson where you are describing how to complete a task. Another cause of loss of interest is that the explanation was planned on the basis of the lowest common denominator, so that everyone understands. You may find it more efficient to explain a task more briefly for all pupils then spend some time with those who need more support.

Reflecting on a planned explanation can help you decide if you need to do it at all. Is there a better way of helping pupils understand something? For example, if you wanted to explain the concept of mammal, you could do it by providing examples and non-examples of mammals and asking pupils to build the concept for themselves. This is often referred to as 'concept attainment' (see unit 2 Teaching models).

Not treating pupils' questions seriously

Pupils may interrupt an explanation by asking you questions about what you are just about to cover, and so you ignore the question. In this case it might be helpful to plan for periods where you can pause to invite questions. You could first set out what you want to explain (the key ingredients). You could signal at the start that you will take questions at particular points by saying 'I will explain three points first and then pause and ask for questions'.

If pupils do ask questions it is important to acknowledge them, saying 'Thank you for that question, that is an interesting idea. I will deal with that now/later', or 'That is just what we are to move to next'. Even if the question is 'off beam' it is important to acknowledge it as a justifiable query and deal with it in some way.

> **Reflection**
>
> Look again at the pitfalls and think about your own teaching.
>
> Which of these pitfalls have you encountered during recent lessons?
>
> What will you do now to avoid them in future?

5 Developing pupils' explaining skills

Explaining is a valuable skill but it is also a powerful learning strategy. As Wragg and Brown (2001) point out, when pupils learn to explain a concept to another pupil it serves two important functions:

> *The first is that the child practises clear communication and thinks about the audience …; the second is that explaining to someone else can often clarify your own ideas or reveal what it is you do not fully understand.*

Extract from *Explaining in the Secondary School*, Wragg and Brown, (2001) Routledge Falmer. © Taylor and Francis Group plc. Used with permission.

Whilst not expecting most pupils to develop the sophisticated skills of their teachers, if you want pupils to explain to one another you should help them understand the basics of planning and structuring an explanation and also the main ingredients of an explanation that they can choose from. Perhaps one of the most effective ways of doing this would be for you to model planning an explanation and then provide them with a checklist similar to that on page 11. They can use this to try to spot the ingredients in a short explanation (perhaps about explanations!) that you give.

Task 5

Identifying opportunities for pupils to provide oral explanations

30 minutes

- Select a year group and consider the scheme of work for the next six weeks.

- Make a list of the times when pupils will be asked to give an explanation.

- Add to that list the support you normally provide for pupils who are to give explanations, e.g. key terms.

- Now reconsider the scheme of work. What further opportunities might there be to develop pupils' explaining skills?

- Build these opportunities into a revised scheme of work.

Task 6

Classroom assignment: pupils' explaining skills **30 minutes**

Select a class to work with over the next three tasks.

How good are your pupils' explaining skills? Plan a lesson to find out.

You could select an explanation you want pupils to provide to each other. Ask them to work in threes: one pupil provides the explanation, the other receives it and the third listens and assesses clarity and whether or not the explanation made sense. Roles can then be changed and repeated. This can be followed by a discussion that will allow you to make a judgement of their skills.

Alternatively you could:

- sit two pupils back to back on chairs;

- give one pupil a small model made of about eight building blocks;

- give the other pupil a box of twenty building blocks pieces including those in the first model;

- the first pupil explains to the other how to replicate the model – but only using words, nothing must be shown.

You can make a judgement about how effective these skills are by looking at the state of the finished product.

Reflection

After the pupils have had an opportunity to try out an explanation, jot down your thoughts as to how well they seem to have understood how to explain. How might you guide groups or individuals to improve their explanations in future?

Connectives in explanations

One distinct feature of all explanations is structure and knowing which connectives to use: *such as, because, since, in order to, as a result of, and so, therefore, by, if … then* and *the more the … the more …* can all help to organise an explanation.

Task 7

Scaffolding an explanation   15 minutes

- Watch video sequence 8b. Here the teacher asks pupils to explain to each other how they went about composing a piece of music. How does he support pupils in structuring their explanations?

- Reflect on the time you have asked pupils to explain ideas. How have you helped them structure their explanations?

This table or a similar one can be displayed as a verbal scaffold to help pupils structure their explanations.

Type of explanation	Useful connectives	Example of this type
Concept	so and so therefore because in order to	Position of verbs: *German positions the verb at the end of a sentence. Therefore the verb can be some distance from its subject. So when translating into English you must look at the end of the sentence in order to get the idea you need to turn into an active English verb.*
Cause and effect	when because however this makes this causes as a result	How to blind bake: *When you line the dish with pastry put dried beans on top of the pastry. This makes the pastry behave as if there was a filling because the beans hold the pastry in place. However, the beans do not become part of the pastry because …*
Procedures	first of all next then take care to after that I did this by finally	How to cut a piece of metal rod: *First select the correct material and diameter of rod. Next get a hacksaw from the rack. Take care that the blade is in the hacksaw correctly. After that measure and mark the length to be cut with a scribe. Finally cut through the rod with even strokes.*
Processes	first next then as a result of repeated finally	The process of erosion: *First the rain gets into a small crack in the rock. Then the water freezes as a result of a drop in temperature. Water expands when it freezes. This results in the crack widening. This can happen again and again until finally the rock breaks. The rock can then fall into a river and …*

Table continues

Relationships 1	The shape of the … As … goes up/down the … goes up/down as well. increases/decreases There is inconsistency in … The more the … the more …	Information from graphs: *When the material is liquid the shape of the graph goes down quickly meaning it is cooling. When the material starts to solidify the slope of the graph decreases meaning that it stops cooling down.*
Relationships 2	has (this feature) but … When you use this … in conjunction with …	Why spiders aren't insects but flies are: *Spiders are small and look similar to flies. Spiders have eight legs and only two parts to their body but flies have six legs and …*

In any situation where we are expecting pupils to engage in discussion with each other, be it feeding back in peer assessment or in providing explanations, it is better to scaffold their first attempts. Given the importance of pupils learning to provide explanations, paying attention to the teaching of this skill explicitly will pay dividends and will lead to raised achievement.

Knowing the right words to structure the explanation is not the only way to improve pupils' explanations. They will need help in identifying:

- key vocabulary;
- key features that must be included;
- good examples to illustrate points;
- the best models or analogies to help illustrate abstract concepts and some processes.

Providing pupils with a checklist, together with the list of connectives they need to use, can also help. However, the checklist will need to be explained. Such a checklist might be as follows.

Checklist for success

- Are you clear about the type of explanation you are providing?
- What connectives will you use?
- Which key ideas do you need to mention and are they in a logical sequence?
- Which examples or props will you use to illustrate the ideas?
- Make sure you have the right sequence.

Task 8

Classroom assignment: improving pupils' explaining skills

1 hour

Plan a session when you will explicitly teach pupils to improve their explaining skills.

- Select which type of explanation you will want them to produce.

- Provide pupils with a form of the table and checklist that will help.

- Model the process of planning an explanation.

- Provide time for pupils to plan their explanation, perhaps in pairs.

- Listen to the pupils' explanations, noting how often any connectives are used, which examples and any props that are used to improve clarity and flow. Note who does what.

- Now arrange a plenary session. Use your information to draw out ideas from the pupils about how this improves the quality of their explanations and how this could be further improved.

Summary of research

Explaining can be defined as 'giving understanding to another person'. Explanations by teachers are a common feature of lessons in all subjects. The skill of explaining is rated very highly by pupils and points out that studies have shown that from a list of teaching skills explaining clearly was placed first. Smith and Meux (1962), who looked at teaching 'episodes', found that explaining was one of the three most common teacher activities, taking about one-eighth of teachers' time. They also found that greatest confusion to children was caused by lack of precision in teachers' questions during an explanation.

Researchers have attempted to categorise explanations. suggested three categories of concepts, procedures and rules, whilst Wragg and Brown (2001) take a broader view, identifying seven main types, namely concepts, cause and effect, procedures, purposes and objectives, relationships and processes. The suggestion is that if you are clear about the type of explanation you are using, then this will help you to select the ingredients you need to include in your explanation. The type will also give you an indication of how best to structure it and the types of word connective to use.

Skilled explainers use common characteristics or ingredients. What in this unit has been termed key features, Brown and Armstrong (1984) termed 'keys' and found that teachers who were most effective explainers were clear about what keys to use and generally used more types of key than other teachers. These keys may be thought of as central principles or generalisations that must be present to unlock understanding. They also found that good explainers made pupils engage more with higher levels of thinking. The use of voice is also cited as an important characteristic, using variation in pitch, loudness and speed to stress and emphasise particular points. Gesture is also recognised as an important aid to explanation, for instance using gesture to indicate size. A clear structure is important in any explanation. Sometimes, as Wragg and Brown (2001) point out, you need to present ideas in a logical sequence where pupils often need to understand one point before moving on to the next. One characteristic identified in all these sources is a clear opening which includes an 'advance organiser' (Ausubel 1960). Put simply, this means telling pupils what is going to be explained and how, explaining it to them, then telling them what you have explained. Wragg and Brown (2001) also suggest beginning with a 'tease' or 'hook' to capture interest. The use of questioning, drama and role-play, and the use of teaching aids, are also included by many as common characteristics of good explanations.

The use of model and analogy is crucial to the explanation of many abstract concepts, and processes and procedures that cannot easily be seen such as geological formation of rocks. The importance of illustrating the strengths and limitations of models cannot be overestimated. Show that learners' and experts' views of models differ and this can lead to many misconceptions. They suggested some activities which might help pupils develop their understanding of models and of the target concepts. This includes providing learners with experience of using models to solve problems. The model can then become a tool of enquiry and not a package of facts. Another strategy is to provide multiple models of the same phenomenon. This can be helpful as concepts, such as atoms and molecules, are refined with increasing experience of their use.

References

- Ausubel, D. (1960) 'The use of advance organisers in learning and retention of verbal material'. *Journal of Educational Psychology* 51, 267–272.

- Brown, G. A. and Armstrong, S. (1984) 'Explaining and explanations'. In G. A. Brown and E. C. Wragg (eds) (1993) *Explaining*. Routledge.

- Smith, B. O. and Meux, M. O. (1962) 'A study of the logic of teaching'. In G. A. Brown and E. C. Wragg (eds) (1993) *Explaining*. Routledge.

- Wragg, E. C. and Brown, G. A. (2001) *Explaining in the secondary school*. Routledge Falmer. ISBN: 0415249562. (First published as *Explaining* in 1993 by Routledge.)

Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- For a GCSE course identify the big concepts (key ideas) that pupils must grasp in order to understand the subject. Consider how these might best be explained using the suggestions in this unit. With a colleague, plan two of these explanations, teach them and evaluate the impact. How effective were they?

- Investigate what pupils think inhibits their ability to explain ideas and what support they need. This could be carried out through discussion with a class or groups or by using a questionnaire.

- Construct a series of lessons over a period of six weeks that are explicitly designed to improve pupils' explaining skills. After the period evaluate the change produced. How much have pupils improved?

- Review the types of explanation required in your subject, either in Key Stage 3 tests or in GCSE examinations. Which types predominate? Is sufficient time given to developing the skills needed for these types? Does the textbook you are using promote these skills and match the demand of the test or examination papers?

- In the light of your findings of pupils' explanations, and the work you have done in this unit, review the balance of your lessons devoted to teacher and pupil explanation. Is there too much teacher explanation at the expense of pupil explanation?

For further reading, the following publications are recommended:

- Brown, G. and Hatton, N. 'Explanations and explaining'. In T. Kerry (2002) *Explaining and questioning*. Nelson Thornes. ISBN :0748768599.

- Wragg, E. C. and Brown, G. A. (2001) *Explaining in the secondary school*. RoutledgeFalmer. ISBN: 0415249562.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Task 9

Setting your targets   40 minutes

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

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Unit 10: Group work

Teaching repertoire

How to use this study guide

This study unit offers some practical strategies that teachers use to engage pupils through group work. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to group work. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 10, Group work, when working through this unit.

Group work

Contents

Introduction

Successful group work

Good communication and the ability to work as part of a team are two skills that employers value highly. These skills can be developed through effective use of group work.

When productive group work is a regular feature of lessons, pupils:

- fully develop their understanding of an idea because they have tried to explain it to others or argue a point of view;
- are more likely to develop social and team-working skills.

Group work gives pupils opportunities to:

- practise and to learn from each other;
- develop a sense of empathy and to understand other views;
- develop problem-solving skills.

Common issues

Effective group work does, however, require a significant amount of preparation by the teacher. In addition, pupils need to be able to cooperate with each other. Younger pupils and those from highly disadvantaged backgrounds often lack the skills necessary to interact positively with peers. This can lead to these pupils being unwilling to work in groups and collaborate with each other; when asked to do so they are often off-task and work remains unfinished. As a consequence, such pupils are rarely asked to work in groups or teams.

Resolving the issues

Pupils can, however, be helped to develop the skills needed for working with others and so benefit from learning in this way.

Pupils are more likely to work effectively in groups if the teacher:

- provides clear structures in which groups can operate;
- uses strategies that support positive behaviours and develop group-work skills;
- establishes clear rules and procedures;
- introduces tasks so that outcomes are clear and linked to the behaviours required;
- selects groups to suit the task;
- maintains momentum by effective intervention;
- sets group goals.

1 Group work – considering the research

Teachers, pupils and researchers recognise that group work has many benefits.

Task 1	**Why bother with group work and what are the crucial elements for success?** **30 minutes**

Choose one of your classes with which you would like to use group work more often. Think about these pupils as you complete the task below.

Read the summary of research on pages 19–22.

The research identifies the following as important issues when thinking about group work:

- giving and receiving help;
- necessary student social skills;
- organisation of the groups.

Think about the pupils on which you are going to focus. Which of these issues do you think is most relevant to their needs at the moment?

2 What skills can we expect of most Year 7 pupils?

When they arrive from primary school, pupils will have worked in groups at some time for every subject. Most will have developed a range of group-work skills and typically Year 7 pupils are able to:

- speak in turn;

- listen to others' points of view;

- participate, respond and make suggestions;

- cooperate within a small group;

- take on a given role (e.g. recorder or chair);

- take a lead role if requested;

- help to make sure that the task is completed;

- engage in exploratory talk.

However, as the research indicates, some pupils from disadvantaged backgrounds may not have well-developed skills.

Task 2

Pupil skills in group work   **20 minutes**

Video sequence 10a shows group work in primary schools and how pupils' skills develop over Key Stages 1 and 2. The video shows pupils in a primary school at ages 7 and 11, working in groups. This school is a main feeder to the secondary school shown in a later sequence for task 3.

Watch the video and note what skills you think pupils have. Notice that the skills are built up progressively; this is a result of careful teaching. Notice that the Year 6 teacher takes the time to debrief the group; this is deliberate and part of that careful teaching.

Being aware of the skills that pupils lack is an important first step in developing their ability to work in groups. There are strategies that you can use to improve pupils' skills. Troubleshooting during group work on pages 16–18 lists some suggestions that others have found useful. Some techniques are suitable for younger pupils, whilst others will be more suitable for older pupils in Key Stage 4.

3 Organising group work – including it in lessons

Like any teaching approach, group work will be harder to introduce and manage successfully with a challenging class; but it is not impossible. If it is made to work, it can improve the learning ethos of the class considerably.

In classes where behaviour is a problem, teachers tend to resort to strategies that strongly encourage individual work (e.g. seating pupils one to a desk). While these strategies may be appropriate to establish control in the short term, they may not promote an effective range of learning skills in the longer term. The key to effective group work is organisation. Even challenging pupils will work effectively in well-organised groups and will follow instructions, provided the instructions are straightforward and direct.

Structuring the learning

Structuring group work tightly can help pupils develop their skills of working with others. Examples of group-work structures which can be fun and enjoyable are listed in Group discussion strategies on page 15. Once you have tried some of these, you can invent your own.

If you have a challenging class, it is a good idea to introduce group work gradually. A 'snowball' (sometimes called 'twos and fours') provides a very tight structure and can be an easy way to start. Pupils will respond well, provided you are business-like in your approach and give clear instructions and time markers.

Case study 1

A Year 10 science group was exploring rates of reaction. The class was of middle ability, with a number of pupils prone to off-task behaviour. The teacher wanted pupils to generate as many ideas as possible. She decided to use a snowball to structure their learning and encourage them to discuss ideas. She gave instructions as follows.

Step 1: 'On your own, write down as many ways as you can that might speed up the reaction between hydrochloric acid and marble. You have 1 minute.'

Step 2: 'As a pair, compare your lists, agree a set of factors that you think have the best chance of speeding up the reaction and leave to one side those you think are irrelevant. You have 2 minutes.'

Step 3: 'As a four, select from your lists those two factors that you think will cause the biggest increase and are therefore worth investigating. You have 3 minutes.'

Step 4: 'As an eight, for each factor you have selected, use what you know about particles to give a reason for the effect you think it will have. You have 10 minutes and then I will ask for your reasons.'

In this example the snowball builds to a group of eight, but it could stop at four.

Task 3

Using a snowball to introduce group work gradually　　　　**10 minutes**

Watch video sequence 10b, which shows an example of a snowball in the context of MFL. Notice how the teacher gives instructions.

How does the activity the pupils are asked to do vary when they work:

- as individuals?
- in pairs?
- in groups of four?
- in groups of eight?

Notice how the teacher makes sure all will cooperate in a large group (an eight).

Practical tips　　　　**Planning a snowball activity**

Prepare well and in detail.

Select a simple activity and build to a four to start with.

Plan each question carefully. As a rule of thumb, have:

- a recall task for individuals;
- a comparison task with some decision for pairs;
- a decision-making task with discussion for fours or eights and an opportunity to feed back.

Make sure the seating arrangements allow for pairs and fours to form easily.

Give tight time guidelines and stick to them.

Task 4

Classroom assignment: try a snowball　　　　**30 minutes**

Try out the snowball technique. Use the examples and the practical tips to plan two different snowball activities for two different classes. You could work with a colleague who teaches the same class and compare notes. Try a 1, 2, 4 first.

Evaluate how the pupils responded.

What do you think were the key learning points for pupils?

Establishing clear rules and procedures

One of the main ways to ensure lessons run smoothly is to establish clear rules and procedures from the start. This is essential when considering the introduction of group work into your lessons.

Task 5

Setting ground rules 1   **5 minutes**

What would be a good set of ground rules for a group discussion? Add your own ideas to the one below. Aim for a total of no more than six rules.

Ground rules

- Listen to others.

-

-

-

-

-

For rules and procedures to work, they need to be actively taught to pupils. It is best to stick to a small number of rules that are clearly understood and consistently enforced. They need to become a routine part of pupil behaviour. Teachers who engage pupils effectively in group work often spend a lot of time and effort reinforcing the rules at the beginning of the school year. It is important that the teacher not only tells pupils what the rules are, but also explains the reasons they exist. Successful teachers often involve pupils in setting up the rules.

Establishing the ground rules with the participation of the pupils can be done in a single lesson and the rules displayed on a classroom poster. Ultimately, however, the ground rules will be learned only through consistent application and reinforcement over a period of time.

Task 6

Setting ground rules 2

Watch video sequence 10c, which shows a teacher establishing clear rules and procedures for group work.

Notice how the teacher engages the pupils through involving them in setting up the rules and listens to whether groups are abiding by the rules. Also notice how the teacher sums up at the end.

As a variation, each group could create and abide by its own set of rules. The teacher could then discuss with the whole class which group worked best at the end of the exercise and why.

How can you reinforce the rules?

Using praise is more productive than continually highlighting poor behaviour. During group work it is better to reinforce the good behaviours, for example:

> 'Well done, Gary. You are listening carefully to others.'

> 'I can see you have nearly completed the work. You must have stayed on-task well.'

> 'Your group has listened to one another and that helped you complete the task with a good set of results.'

Using the plenary for reflection

The plenary is not only a time when the results of the group task can be presented to the whole class but also one when pupils can be encouraged to reflect. Reflecting on talk helps to develop thinking and learning. A carefully planned plenary can provide effective opportunities for reflection, particularly when pupils are provided with appropriate vocabulary. A list of useful 'talk' words can be found below.

Reflecting on the processes involved in working as a group is also important. It is useful to start by asking a relatively successful group to explain what they thought helped their discussion to go well; what problems there were, if any; and how they overcame them.

To develop pupils' evaluative strategies further, one member of each group could be appointed to observe ways in which a group works together. Using a simple guide list devised by pupils, the observer watches and listens as the group works. At the end of the session, each member of the group writes a short evaluation of their own contribution to the group which can then be compared with the observer's evaluation in the plenary.

Some useful vocabulary for talk

opinion	agreement	relevant	argument	assertion
alternatives	challenge	discussion	reason	critical
respect	information	thinking together	dialogue	idea
sharing	group	justify	propose	summarise
support	oppose	explanation	suggestion	evaluate
synthesise	clarify	modify	consider	contribute

Introducing tasks to groups

Introducing tasks to groups needs careful handling, particularly if the class includes some challenging pupils. What you say has a big impact on how pupils respond.

Task 7	Introducing group tasks 1	15 minutes

When a task is introduced, pupils need to know:

- the objective;

- what will count as a good outcome;

- how long they have to achieve it;

- how their cooperative behaviour in the group will help to achieve the learning goal;

- the roles they each need to play within the group.

Case study 2 illustrates how an English teacher introduced a task. Annotate the text, identifying where each of the points above is addressed.

Case study 2

In a Year 10 English lesson, the class was discussing nuclear power. The teacher introduced the group task, explaining what the pupils had to do:

'What I am looking for from each group is a clear summary of the pros and cons of nuclear power, together with a summarising statement that says whether you think it is good or bad for humanity. You will have to decide how best to present your summary: it can be a poster, a chart or an oral presentation lasting no more than 3 minutes.

For top marks you will need to use precise vocabulary and clear sentences. The pros and cons should be succinct and punchy. Your summarising statement should state your position clearly and relate to the evidence.

To do this well you will need to decide who will collect the scientific information, who will collect the political views from the resources available, who will analyse and who will record the decisions. You can only do this if you cooperate fully.

What I am looking for is the group that presents their argument in the most persuasive way.

Okay. Each group has 2 minutes to sort out roles. I will check with you so that you all know what you are doing. You then have 30 minutes to complete the task.'

Introducing group tasks 2   **25 minutes**

Watch video sequences 10d and 10e, which show two teachers introducing group work in their classrooms.

How does each teacher share the objectives of the activity with the pupils?

How are the expected outcomes made clear?

Notice how roles are allocated particularly in video sequence 10e.

Task 9

Classroom assignment: introducing tasks   **30 minutes**
to groups and allocating roles

Design a group activity to try with a class.

Write down the words you will use to introduce the task. (Some researchers have suggested it is helpful to use structures such as 'What I am looking for is …' or 'This is because ...'.)

Decide the roles pupils will play. (You might like to refer to the list in the summary of research on page 21.)

Identify the resources you will need.

Choosing and selecting groups

Choice of groups for group work may be predetermined to a certain extent by any setting of classes that has already taken place. Your grouping of pupils might be based on a number of different criteria linked to the outcomes of the activity in which the groups are engaged. You may consider, at different times, factors such as ability, communication skills, social mix, behaviour, gender, SEN, disability and EAL.

Reflection

Think about a class where you have used group work. What influenced your selection of pupils?

Group composition

Benefits and limitations of different grouping criteria 15 minutes

Look at the grid below. It shows a range of different criteria for grouping, with their benefits and limitations. The right-hand column indicates when these criteria may support your teaching.

Highlight the issues you have encountered, and add any extra points from your own experience.

Grouping	Benefits	Limitations	When to use
Friendship	Secure and unthreatening	Prone to consensus	When sharing and confidence building are priorities
Ability	Work can more easily be pitched at the optimum level of challenge	Visible in-class setting	When differentiation can only be achieved by task
Structured mix	Ensures a range of views	Reproduces the power relations in society	When diversity is required
Random selection	• Builds up pupils' experiences of different partners and views • Accepted by pupils as democratic	Can get awkward mixes and 'bad group chemistry'	• When pupils complain about who is allowed to sit with whom • When groups have become stale
Single sex	Socially more comfortable for some	Increases the gender divide	In contexts where one sex habitually loses out, e.g. competing to control the computer keyboard

Group size

Task 11	**Benefits and limitations of different-sized groups** **30 minutes**

Look at the grid below. It shows a range of different-sized groupings with their benefits and limitations. The right-hand column indicates when groups of this size may support your teaching.

Think about one of the classes you teach. Annotate the grid to indicate which benefits and limitations apply for this class.

Ask another teacher who also teaches this class how they approach group working with them. Discuss with your colleague in which lessons or circumstances you would each use the different group sizes.

Select two issues from the limitations column. How would you and your colleague address them if you wanted to use the corresponding group size in a lesson?

Grouping	Benefits	Limitations	When to use
Individual	Has to think for self	Isolated within own experience and knowledge	When you want to be sure it is all their own work
Pair	• Obliged to talk • Secure • Unthreatening • No need to move desks • Quick	• Prone to quick consensus • Little challenge from different viewpoints • Allocation of loners can be difficult	• When the topic is personal or sensitive • When you need only a brief discussion
Small group (three to four)	• Diversity of opinion without the size of group being too threatening • Turning a pair round can create a table of four without moving desks	• Social pressures begin to set in: 'We always work together'; 'Do we have to work with girls?'; 'I have no one to work with' • Possible for individuals to stay quiet once there are more than two	• To build confidence • To increase social interaction in the class • As an interim stage before whole-class discussion

<div align="right">

Task continues

</div>

Grouping	Benefits	Limitations	When to use
Large group (five to seven)	• Diversity of ideas, experience, opinion • Bridges the gap between small-group experience and contributing to whole-class discussion	• Have to move desks • Requires chairing and social skills • Can easily be dominated • More pupils remain silent	• For discussion requiring a range of views and ideas • For developing teamwork
Whole class	• Everyone gets the same experience • Teacher can monitor and support the talk	• Several pupils remain silent • More difficult to contribute and there can be frustration in having to wait, discussion moving on, etc. • Risk of domination by the bright, confident and talkative • Risk of teacher doing most of the talking	When it is essential that all pupils hear the same messages

Maintaining momentum

It is vital to maintain the momentum of group work. Effective intervention should support pupils through the task without interrupting or interfering. For instance, it is all too easy for a teacher to join a discussion and unintentionally take it over.

Task 12	**Strategies for effective intervention**	**15 minutes**

Look at the grid below, which sets out the main reasons for intervention.

Add any other strategies, prompts and questions that you have found useful when intervening during group work.

Choose an activity that you are planning for one of your classes. For each of the reasons for intervention, write a suitable prompt or question that you might be able to use during this particular activity.

Reason for intervention	Strategies, prompts and questions
To focus pupils on the learning	Ask these three questions to focus pupils' attention on the task. (You may have to modify the first two slightly, according to the nature of the task.) • What are you trying to find out / do? • What do you think will happen / the answer is likely to be? • Why?
To ensure that pupils are working within the time frame available	• Give time markers, e.g. 'You have 10 minutes left', or prompt pupils, e.g. 'How much time do you think you have left? What else needs to be done?' • Ask pupils to map out how they will use the remaining time, e.g. 15 minutes research, 5 minutes discussion. (You could ask them to do this at the start to avoid problems later.)
To support pupils who are stuck on the task	• Ask pupils to restate the task in their own words. Ask them to explain their thinking about where they are, then ask them to speculate about the way forward, e.g. 'What do you think we need to do next?' or 'What could we do next? What are the options?' • Provide pupils with a scaffold such as a speaking frame (like a writing frame) to support discussion.

Task continues

Reason for intervention	Strategies, prompts and questions
To support groups who are having problems cooperating with each other	• Provide pupils with a group goal. • Allocate different roles to group members. • Restate the learning outcome required and link it to the behaviour required, e.g. 'To do this you will need to cooperate …'.
To press pupils to take their thinking one step further by asking questions or supplying additional information	Use a hierarchy of questions moving from recall through comprehension, application, analysis and synthesis to evaluation (Bloom's taxonomy). Use question stems that start with: • name, state, describe, where, what; • how, why, illustrate, summarise; • use or predict, show me where; • analyse, break this down into, relate this to; • design, create, compose, reorganise; • assess, evaluate, justify.
To correct misunderstandings	Make a judgement about the nature of the misunderstanding. If it is straightforward, then correct it. If it has arisen from a misconception, then use questioning to probe pupils' thinking.
To give pupils feedback on their performance	Pupils respond well to praise, so link the learning to behaviours and force pupils to consider what to do next, e.g. 'As a group you have collected the data and completed the table well; that means you concentrated. Do you think the graph you have drawn matches the data?'

Task 13

Classroom assignment: intervention using questions   1 hour

First watch video sequence 10f, which shows a teacher intervening during group work in an English lesson.

Note how the teacher uses questioning to focus pupils' thinking. She uses many *Why?* and *What does this mean?* questions to promote and stimulate thinking.

Focusing pupils on the learning is important. Arrange a group-work exercise for the pupils in one of your classes. Allow them to get started, and after 3 or 4 minutes approach each group and try out the three focusing questions in task 12. Later intervene by asking questions to promote thinking further.

Evaluate how effective such approaches are.

4 Extending strategies for structuring group work

Once the basic practice and procedures of group work are firmly in place in the classroom, you will be able to embark on new challenges to extend pupils' learning styles and skills. Remember that it is easier to introduce more demanding processes using familiar subject material. Once the group-work strategies are understood, more challenging subject content can be introduced. Here are some alternative ways of structuring group work with examples of their main practice taken from: *Teaching talking and learning in Key Stage 3*, part of the National Curriculum Council and National Oracy Project.

Group discussion strategies

Listening triads: Pupils work in groups of three. One pupil takes on the role of talker, one the role of questioner and one the recorder. The talker explains something, or comments on an issue, or expresses opinions. The questioner prompts and seeks clarification. The recorder makes notes and gives a report at the end of the conversation. Next time, pupils change roles.

Example: Pupils in a Year 9 English class were given a poem. Each pupil selected sections that they felt were interesting or significant. The teacher organised the pupils into groups of three and each read out her or his chosen section and discussed with the 'questioner' reasons for the choice. At the end, after all three had introduced their chosen sections, and taken a turn as questioner and recorder, the recorder's notes were considered and the group drafted a collaborative written response to the whole poem.

Envoys: Once groups have carried out a task, one person from each group is selected as an 'envoy'. The envoy moves to a new group to explain and summarise their group's work and to find out what the new group thought, decided or achieved. The envoy then returns to the original group and feeds back. This is an effective way of avoiding tedious and repetitive reporting-back sessions. It also encourages the envoy to think about his/her use of language and creates groups of active listeners.

Example: A Year 7 history class was divided into small groups. Each group was given a different historical artefact to handle and speculate about. Once some ideas about origin, age and use had been generated, one group member went to the next group to introduce the artefact and explain the group's thinking. The new group contributed ideas before the envoy returned to the original group.

Rainbow groups: This is a way of ensuring that pupils are regrouped and learn to work with a range of others. After groups have done a task, each pupil in the group is given a number or colour. Pupils with the same number or colour then join up to form new groups comprising representatives of each original group. In their new groups, pupils take turns to report on their original group's work and perhaps begin to work on a new, combined task.

Example: A Year 7 science class was asked, in pairs, to draw a concept map of all their ideas about the term 'force'. Pairs then formed fours to compare lists and categorise their ideas into different kinds of force. The teacher then gave each pupil a colour (red, green, blue, yellow). New 'rainbow' groupings were then formed – all those with the same colour – and pupils were asked to introduce their force

categories to each other. Each new group was then asked to devise some scientific questions in preparation for a class discussion.

Jigsaw: A topic is divided into sections. In 'home' groups of four or five, pupils take a section each and then regroup into 'expert' groups. The experts work together on their chosen areas, then return to their home groups to report on their area of expertise. The home group is then set a task that requires the pupils to use the different areas of expertise for a joint outcome. This strategy requires advance planning, but is a very effective speaking and listening strategy because it ensures the participation of all pupils.

Example: A Year 9 history class was working on maps of the local town. Five maps were used, each from a different period of history. Home groups of five divided the maps up and then expert groups formed, with a checklist of questions to help them to interrogate their map. When home groups reformed, each pupil was required to introduce his or her map and talk through the information gleaned from it. Each group was then asked to summarise what it had learned about how the town had developed over a 200-year period, and to start speculating about the reasons for this.

Summary of group discussion strategies from *Teaching talking and learning at Key Stage 3*, Angela Martin (illustrator), (1997) National Curriculum Council Titles. © QCA. Used with permission.

5 Troubleshooting during group work – developing social skills

Problems during group work arise almost invariably because pupils lack the specific skills needed to get on with the task. As the research shows, challenging pupils in particular often lack the social skills necessary to engage effectively in group work.

Task 14	**Classroom assignment: develop social skills** **30 minutes**

Below are some strategies to improve pupils' social skills.

Think about a class that you teach whose skills you want to develop. Plan a group-work activity that develops these skills by using some of the suggested strategies.

How would you change the task if you wanted to focus on different skills?

Skill to develop	Strategies to use
Share and take turns	• Provide each group with an object (e.g. a hat, a counter or a ball) that has to be passed round. Group members may only speak or contribute when they have the object. • Give each group member a number (e.g. 1 to 6). You call out a number to indicate when each person should participate, e.g. 'Contributions from number 2, please', 'Opinions from number 6, please', 'A prediction from number 4, please', 'Now one from number 5', 'Another explanation from number 1, please'.

Task continues

Skill to develop	Strategies to use
	• Choose one pupil in each group to be a chairperson. Brief them so they understand it is their task to ensure each member takes a turn.
Listen to others' points of view	• Agree/disagree: After hearing a point of view, any person giving a response has to begin by summarising the ideas, then adding 'I agree/disagree because …', e.g. 'John said that the surface area was the biggest factor affecting friction; I disagree because …'.
	• Hot-seating and 'goldfish bowl': The seating is arranged so that two pupils with opposing views are seated opposite each other with a vacant seat next to them. The others are seated around them in a circle. The two in the middle each take a turn to express their views whilst others listen. When someone else wants to make a comment, they have to take the vacant seat and all have to listen. When they have finished commenting, they return to their own seat. This works well in Key Stage 3.
Participate, respond and make suggestions	• Following a statement from one pupil, the person sitting three chairs to the left must respond.
	• Provide each group member with a card giving a different sentence stem that relates to the task in hand, e.g. for exploring data about a country, cards might say 'I think the data on hours of sunshine show that ...', 'The rainfall data show …', 'The evidence to support the view that this is an island is …'. (You can easily accommodate pupils of all abilities by differentiating the question stems.) Each pupil has to use the sentence stem as the basis of their contribution.
	• 'Round robin': Each group member in turn must make a suggestion, e.g. contributing one idea about America to pool prior knowledge, practising a sentence structure in MFL, or giving an evaluative comment in PE after watching a video of a team performance.
Cooperate with others	• Provide group goals or targets, e.g. to prepare a presentation where all members have to take part.
	• Provide the group with a task in which they can only succeed if they support each other. You could provide each pupil with a different piece of information which they have to share in order for the group to produce the required piece of work, e.g. an explanation of why an event took place, an overview of a topic, or a graph.
	• Provide group rewards for success.
	• Introduce tasks in a way that links behaviours to the learning outcomes required, e.g. 'What I am looking for is for each group to produce a concept map that shows how the key words are linked together. A good map will show clusters and why the words are linked. To complete this you will have to cooperate well.'

Skill to develop	Strategies to use
Take on a role	• Give the group a structure where each member has a different role, e.g. researcher, summariser, checker, recorder and troubleshooter. Rotate roles in the next group activity.
Take the lead	• Teach pupils how to chair a group and give the role to a different pupil in each group session.
Make sure tasks are completed	• Break the task down into small steps. Provide one member of the group with a checklist of steps and time allocations.
Engage in exploratory talk	• Provide structures that will help pupils discuss ideas in a supportive way, e.g. insist that whenever someone makes a statement, they must justify it: 'I think … because …'. • Provide groups with a 'learning mat' to focus their talk. The mat could be a photocopied sheet of A3 containing a collection of linked images or newspaper cuttings, all numbered. You guide the discussion by saying, e.g., 'What do images 3 and 4 have in common?' or 'What do you think is the main point of article number 2?' A similar type of guided discussion can be done by providing an object to explore, e.g. a rock which pupils examine in order to describe its structure or a copy of a pupil's written answer to a question. • Stage or structure the talk around a prompt list, or task guidelines, or the oral equivalent of a writing frame.

Summary of research

A useful review of research in this area is contained in *Effective teaching: a review of the literature*, by David Reynolds and Daniel Muijs, some of which is included here.

It is important to acknowledge that there is firm evidence that cooperative group work is effective in improving attainment compared with pupils working alone (Johnson and Johnson 1999).

Some basics

Collaborative work in small groups is designed to develop 'higher order' skills. The key elements are the talking and associated thinking that take place between group members. However, putting pupils in groups is no guarantee that they work as groups (Bennett 1976), so much deliberate work needs to be done to make group work productive.

According to Johnson and Johnson (1999) the cooperative group has five defining elements:

* positive independence – pupils need to feel that their success depends on whether they work together or not (they sink or swim together);

* face-to-face supportive interaction – pupils need to be active in helping one another learn and provide positive feedback;

* individual and group accountability – everyone has to feel that they contribute to achieving the group goals;

* interpersonal and small-group skills – communication, trust, leadership, decision making and conflict resolution;

* group processing – the group reflecting on its performance and functioning and on how to improve.

Collaborative small-group work

An alternative approach to individual practice is the use of cooperative small-group work during the review and practice part of the lesson. This method has gained in popularity in recent years, and has attracted a lot of research interest in a number of countries, such as the United States (Slavin 1996). In other countries such as the United Kingdom this method is still underused, however. In a recent study in primary schools Muijs and Reynolds (2001) found that less than 10% of lesson time was spent doing group work.

The use of small-group work is posited to have a number of advantages over individual practice. The main benefit of small-group work seems to lie in the co-operative aspects it can help foster. One advantage of this lies in the contribution this method can make to the development of students' social skills. Working with other students may help them to develop their empathetic abilities, by allowing them to see others' viewpoints, which can help them to realise that everyone has strengths and weaknesses. Trying to find a solution to a problem in a group also develops skills such as the need to accommodate others' views.

Students can also provide each other with scaffolding in the same way the teacher can during questioning. The total knowledge available in a group is likely to be

larger than that available to individual students, which can enable more powerful problem solving and can therefore allow the teacher to give students more difficult problems than s/he could give to individual students.

The main elements of collaborative group work identified as crucial by research are:

Giving and receiving help

One of the main advantages of cooperative small-group work lies in the help students give one another. Not all kinds of help are necessarily useful, however. Just giving the right answer is not associated with enhanced understanding or achievement. In his review of research, Webb (1991) reports a positive relationship between giving content-related help and achievement. Giving non-content-related help did not seem to improve student achievement, though. Receiving explanations was found to be positive in some studies, and non-significant in others, this presumably because the receiver has to understand the help given and be able to use it. This may well require training the students to give clear help. Receiving non-explanatory help (e.g. being told the answer without being told how to work it out) was negatively or non-significantly related to achievement in the studies reviewed, while being engaged in off-task activities (e.g. socialising) was negative. In a more recent study Nattiv (1994) found that giving and receiving explanations was positively related to achievement, giving and receiving other help was slightly positively related to achievement, while receiving no help after requesting it was negatively related to achievement.

Necessary student social skills

Effective small-group work does require a significant amount of preparation, and a number of preconditions have to be met beforehand in order for it to be effective. Firstly, students must be able to cooperate with one another, and to provide each other with help in a constructive way. A number of studies have found that while small-group work is positively related to achievement when group interaction is respectful and inclusive, use of group work is actually negatively related to achievement if group interaction is disrespectful or unequal (Linn and Burbules 1994; Battistich et al. 1993). This is very possible, as many (especially young students and students from highly disadvantaged backgrounds) have been found to lack the social skills necessary to interact positively with peers.

Thus, students often lack sharing skills, which means that they have difficulty sharing time and materials and can try to dominate the group. This problem can be alleviated by teaching sharing skills, for example by using the Round Robin technique in which the teacher asks a question and introduces an idea that has many possible answers. During Round Robin questioning a first student is asked to give an answer, and then passes his turn to the next student. This goes on until all students have had a chance to contribute.

Other students may lack participation skills. This means that they find it difficult to participate in group work because they are shy or uncooperative. This can be alleviated by structuring the task so that these students have to play a particular role in the group or by giving all students 'time tokens', worth a specified amount of 'talk time'. Students have to give up a token to a monitor whenever they have used up their talk time, after which they are not allowed to say anything further. In this way all students get a chance to contribute.

Students may also lack communication skills. This means that they are not able to effectively communicate their ideas to others, obviously making it difficult for them to function in a cooperative group. Communication skills, such as paraphrasing, may need to be explicitly taught to students before small-group work can be used.

Finally, some students may lack listening skills. This can frequently be a problem with younger students who will sit waiting their turn to contribute without listening to other students. This can be counteracted by making students paraphrase what the student who has contributed before them has said before allowing them to contribute.

Organising small-group work

For small-group work to be effective, one needs to take a number of elements into account in the structuring of the task. Before commencing the task, the goals of the activity need to be clearly stated and the activity needs to be explained in such a way that no ambiguity can exist about the desired outcomes of the task. The teacher needs to make clear that cooperation between students in the group is desired. According to Slavin (1996) the goals need to be group goals, in order to facilitate cooperation, which need to be accompanied by individual accountability for work done in order to avoid free-rider effects. Giving both group and individual grades can help accomplish this, as can use of a shared manipulative or tool such as a computer.

Avoiding free-rider effects can be aided by structuring the group task in such a way that every group member is assigned a particular task. One way of doing this is by making completion of one part of the task dependent on completion of a previous stage, so students will pressure each other to put the effort in to complete the stage before them. Johnson and Johnson (1994) suggest a number of roles that can be assigned to students in small groups, such as:

- the summariser, who will prepare the group's presentation to the class and summarise conclusions reached to see if the rest of the group agrees;

- the researcher, who collects background information and looks up any additional information that is needed to complete the task;

- the checker, who checks that the facts that the group will use are indeed correct and will stand up to scrutiny from the teacher or other groups;

- the runner, who tries to find the resources needed to complete the task, such as equipment and dictionaries;

- the observer/troubleshooter, who takes notes and records group processes. These may be used during the debriefing following the group work;

- the recorder, who writes down the major output of the group, and synthesises the work of the other group members.

After finishing the group task the results need to be presented to the whole class and a debriefing focusing on the process of the group work (the effectiveness of the collaborative effort) should be held. A useful way of starting a debriefing session is by asking students what they thought had gone particularly well or badly during group work (the observers mentioned above should be able to do this).

Research has shown that cooperative groups should be somewhat, but not too, heterogeneous with respect to student ability. Groups composed of high and

medium, or medium and low, ability students gave and received more explanations than students in high-medium-low ability groups. Less heterogeneous groupings were especially advantageous for medium-ability students. When students of the same ability are grouped together, it has been found that high-ability students thought it unnecessary to help one another while low-ability students were less able to do so (Webb 1991; Askew and Wiliam 1995).

In this unit we have treated collaborative small-group work as a potential alternative to individual practice. However, many educators consider small-group work to be so advantageous that they have advocated structuring the whole lesson around the cooperative small-group work (e.g. Slavin 1996).

Extracts from *Effective teaching: a review of the literature*,
http://www.teachernet.gov.uk/professionaldevelopment/nqtbehaviourmanagement,
© Dr David Reynolds and Dr Daniel Muijs. Used with permission.

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Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Look at a unit you are about to teach. What opportunities are there to use the group discussion strategies in section 4? Select one plan and test it out. How effective was it? How might you improve further?

- Work with a colleague who teaches the same class and try out the different group discussion strategies of listening triads, envoys, rainbow groups and jigsaws. You will need to teach pupils the 'rules' of each as you proceed, and this will take time. It is best to plan opportunities over two terms. Which methods work best with your pupils?

- Work with a colleague who teaches the same class and investigate which of the strategies suggested for developing social skills in task 14 is most effective with this class by testing them out in turn.

- Work with a colleague and, after considering the strategies for structuring group work, devise some of your own. There are a number of others that can be found in the literature such as hot-seating and goldfish bowl.

For further reading, the following publications are recommended:

- Joyce, B. et al. (2002) *Models of learning: tools for teaching.* Open University Press. ISBN: 0335210155.

- Mercer, N. (2000) *Words and minds: how we use language to think together*. Routledge. ISBN: 0415224764.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Task 15	**Setting your targets**	**40 minutes**

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

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Unit 15: Using ICT to enhance learning

Creating effective learners

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How to use this study guide

This study unit offers some practical strategies that teachers use to enhance learning through the use of ICT. The techniques suggested are tried and tested; they draw both on academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing the use of ICT to enhance learning. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

Using ICT to enhance learning

Contents

Introduction

ICT capability is about having the technical and cognitive proficiency to access appropriately, to use, develop, create and communicate information using technological tools. Learners demonstrate this capability by purposefully applying technology to solve problems, analyse and exchange information, develop ideas, create models and control devices. They are discriminating in their use of information and ICT tools, and systematic in reviewing and evaluating the contribution ICT can make to their work as it progresses.

ICT capability is much broader than a set of technical competences in software applications although, clearly, these are important. ICT capability involves the appropriate selection, use and evaluation of ICT. In essence, pupils need to know *what* aspects of ICT are available to them, *when* to use it and *why* it is appropriate for the task.

For example, when creating a presentation, ICT capability involves the selection of appropriate software, consideration of fitness for purpose and matching content and style to a given audience. It is important that lessons are not software- or technology-driven but focused on clear teaching and learning objectives where ICT is used as a vehicle to support achievement of those objectives.

Common issues

The past five years have seen a slow but steady improvement in pupils' achievements in ICT capability, the quality of teaching, and the leadership and management of ICT … The complementary use of ICT across subjects, however, has been slow to develop and is uneven across schools and subjects ...

The effective balance between the teaching of ICT skills, knowledge and understanding on the one hand and the application of these as part of learning across subjects on the other hand remains a difficult and elusive goal for the majority of schools.

Information and communication technology in secondary schools: Ofsted subject reports 2002–03

Resolving the issues

Enhancing teaching and learning using ICT works best when pupils are taught ICT capability in discrete lessons, and when teachers of other subjects enable pupils to apply that ICT capability, using it to enhance learning in the subject. It is important to recognise that pupils will bring with them a range of experience from their discrete lessons in ICT. They will have capability that can be both developed and applied in other lessons across the curriculum. As a subject teacher, you will need to be able to decide when to use ICT in your lessons.

Task 1

| **ICT in your subject**	**20 minutes**

Select the scheme of work for one of the classes you teach.

Where is ICT being used? Identify where pupils are using ICT and where teachers are using ICT.

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1 How does ICT support teaching and learning?

Pupils' ability to apply their ICT capability across the curriculum is largely dependent on the effective teaching and learning of ICT in the first place. Pupils' use of ICT in other subjects may be ineffective if they do not already have an appropriate level and understanding of ICT capability. This may result in a lack of progress in both ICT and the subject area. For example, asking pupils to produce a presentation in a given subject will be unproductive if they have little experience of using the software or understanding of how to create meaning and impact for a given audience. Pupils who try to learn new areas of ICT at the same time as new subject content will often fail in both endeavours.

It is crucial that pupils are taught the appropriate ICT capability before applying it in other subjects. The relationship between 'ICT – the subject' and 'ICT – in subjects' can therefore be viewed as interactive and mutually supportive, as shown in the diagram below.
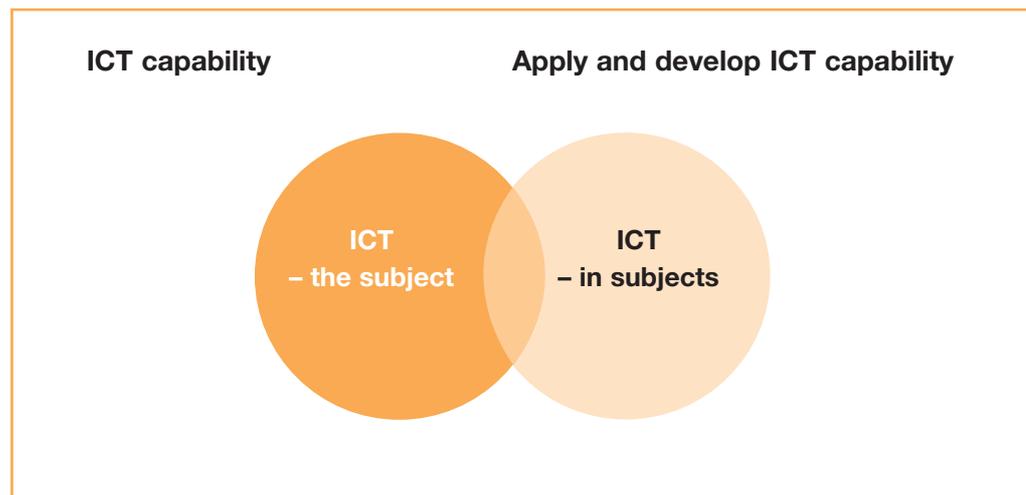
Purposeful and appropriate application of ICT in subjects offers pupils opportunities to:

- use their ICT capability to assist and progress their learning in subjects;

- engage in higher-order thinking skills, for example by using ICT to undertake detailed analysis when modelling data;

- demonstrate, apply and reinforce their understanding of ICT capability within a range of subject contexts. The transferability of ICT capability is an important aspect of progression in pupils' knowledge, skills and understanding.

It is important to recognise that pupils using ICT effectively in subjects may not always be applying high levels of ICT capability. For example, using a wordprocessor to draft and re-draft text is a valid and powerful activity in a range of subjects; using software to support learning in MFL or using a learning support program in mathematics or a bespoke program designed to aid learning in science can be significant in helping pupils to make progress. In all such cases, ICT fulfils a legitimate function if using it moves learning in the subject forward, but it may make little contribution to developing the ICT capability taught in ICT lessons.

As pupils become more confident and proficient in using ICT, there will be opportunities to apply and develop higher ICT capability in subjects, for example producing web pages for a given purpose and audience, manipulating data to prove a hypothesis, or incorporating sound and video into a presentation to add meaning and impact. It is important to reiterate that, whatever the level of ICT capability applied, it must add value to the teaching and learning in the subject.

Although the *Framework for teaching ICT capability*, Ref. DfES 0321/2002 recommends that schools allocate discrete ICT teaching time in all years at Key Stage 3, it will be for schools to decide which is the most effective model. There may be some opportunities for aspects of ICT capability to be taught in a different subject area and then also applied in an appropriate context. For example, the control elements of the National Curriculum for ICT could be taught within design technology. However, teaching subject objectives and ICT objectives at the same time can be problematic, and teachers should be aware of the potential for the lesson to lose sight of the ICT objectives. Progress in the teaching and learning of a particular subject can also be disrupted by the time taken to teach the required ICT component from scratch.

Task 2

National Curriculum requirements   40 minutes

Does the use of ICT in your department reflect the National Curriculum requirements for your subject?

Identify any explicit references to the use of ICT in your own National Curriculum subject orders and ensure that these areas are already being covered in your scheme of work.
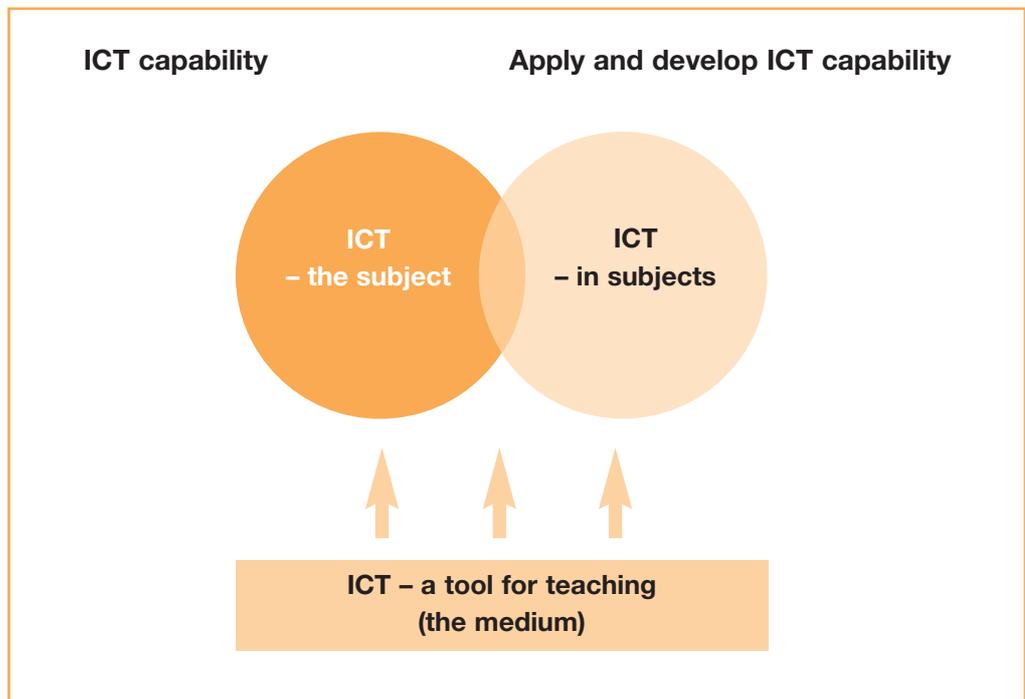
How do you ensure that you are dealing with the explicit references to ICT in your subject?

How do you monitor, review and evaluate the ICT experiences of all pupils across all classes that you are teaching?

So far we have reviewed the use of ICT as a learning tool for pupils and have acknowledged how pupils who are confident and proficient in ICT can bring with them opportunities for extending their learning as they use their ICT in other subjects in the school curriculum.

However, existing and emerging ICT *teaching* tools provide further opportunities to enhance subjects and add value to teaching and learning. For example, the use of interactive whiteboards, video projection units, microscopes connected to computers, prepared spreadsheets to capture and model data, CD-ROMs, presentations with video and carefully selected resources from the Internet all provide examples of how ICT can be embedded into subject teaching.

The diagram on page 3, showing ICT across the curriculum, can therefore be extended to include ICT as a tool or medium for teaching. Clearly, elements of the model will overlap and impinge on each other. When thinking about how ICT enhances teaching and learning, the challenge is to make the most purposeful use of the available resources across all teaching and learning. Opportunities to embed ICT in subject teaching need to be exploited, as appropriate.

ICT capability	Apply and develop ICT capability

ICT – the subject

ICT – in subjects

ICT – a tool for teaching (the medium)

Your use of ICT may involve little or no use of ICT by pupils and, consequently, may do little to apply and develop their ICT capability. However, use of ICT as a medium of teaching can enhance and stimulate the learning experiences of pupils and contribute to the achievement of subject objectives. It is important to recognise the different contributions that ICT can make to teaching and learning and to acknowledge the importance of each.

Task 3

Identifying how ICT is taught in your school   20 minutes

How is the teaching of the ICT National Curriculum organised in your school?

Identify the aspects of ICT that pupils have been taught in ICT lessons during Years 7, 8 and 9.

What ICT capability, through taught ICT lessons, can you reasonably expect pupils to be bringing to your subject lessons in each term?

2 ICT supporting teaching: administration, planning and preparation

ICT can reduce teachers' workloads. It has a role to play in reducing the time teachers spend in planning and preparing for teaching and learning activities.

Enhancing planning and preparation with ICT   40 minutes

The table below describes ways in which ICT has been applied, by teachers, to plan and prepare for teaching.

Read through the table. Make a note if you have been able to use this aspect of ICT. Identify, in discussion with your mentor or coach, if you need further training and support to apply some aspects of ICT in your planning and preparation. Is there anything that you do that is not included here?

Uses of ICT	My use?	What sort of training will I need?
Wordprocessing templates, stored centrally, make it easier and quicker to write lesson plans and schemes of work		
Web-based assignments reduce time spent on marking		
Recording pupils' assessment data on spreadsheets makes producing reports and setting attainment targets much easier		
It's easier to share resources, expertise and advice through a school or LEA intranet or teachernet.gov.uk		
There is less duplication of effort in preparing lesson plans, worksheets and reports when they are shared on the school intranet		
Use of an interactive whiteboard and the preparation of shared resources can save time, as can emailing pupil homeworks		
Video conferencing between schools can support pupil and teacher learning		

Read through the summary of research on pages 20–21, and look at the research section of Becta's website: www.becta.org.uk/research/index.cfm
Identify how ICT can support your planning and preparation in:

- collecting, storing and using data;

- communication;

- increasing non-contact time;

- issues affecting workload reduction.

Resource planning   **30 minutes**

Use the Internet to research curriculum-specific websites and resources for teaching and learning appropriate to the classes that you teach.

Discuss your findings with a colleague. How useful are they? What opportunities do you have to apply some of your findings?

3 ICT supporting teaching: pedagogical impact

ICT – in subjects

Successful implementation of the ICT strand of the Key Stage 3 National Strategy will give pupils a sound level of ICT capability and the transferable skills to build upon in their learning of other subjects. This has implications for teachers across all subjects in the curriculum.

Pupils will come to subject lessons with expectations about how they might apply ICT to move their own learning forward. Subject teachers will not need to teach ICT capability, but can exploit new opportunities for pupils to apply and develop the capability that they have, to enhance their learning in the subject. Consequently, the focus of the lesson remains firmly rooted in the subject being taught.

There are implications for subject teachers, in that they will need a good understanding of the breadth of ICT capability that pupils have been taught and will be bringing to their lesson. Teachers will also need to know which parts of ICT capability offer significant opportunities for teaching and learning in their subject and how they can be incorporated into existing schemes of work. The use of ICT needs to be purposeful and to add value to the teaching and learning of the subject and should not be seen simply as a 'bolt-on'. It needs to be carefully integrated into subject lessons, with a clear rationale for its use.

Whether you choose to use ICT or not in a subject lesson to support learning is an important decision. In general the use of ICT is helpful when:

- you could not do a task otherwise (e.g. demonstrate the nature of alternating current by monitoring a fluorescent tube);

- it enables you to do a task more efficiently (e.g. search for information, do an experiment in one-third of the time);

- it motivates pupils to learn.

ICT and pedagogy

Constructing meaning

There are many pedagogical models that can be applied in the ICT classroom. Increasingly, researchers and educators are linking constructivism, technology and learning. At the same time, numerous researchers and educators are busy designing what they refer to as constructivist learning environments.

Central to constructivism is its concept of learning. Learning is a process of making sense of the world around you and constructing knowledge, through the experiences you have, by relating your experience to what you already know, and through the guidance that teachers are able to offer you (von Glasersfeld 1995).

In the ICT-rich classroom, the provision of additional sources of knowledge and information reduces the dependency of pupils upon the teacher. The pupils are able to use the ICT at their disposal to control and pace their own learning, taking an active role, and constructing knowledge rather than taking the more passive role of receiving it. Their constructions of knowledge can then be assessed against those of other members of the class, including those the teacher had planned for. Having choices and making independent and/or collaboratively negotiated decisions are features of independent learning.

The table below lists some of the characteristics of constructivist learning and teaching. ICT-based projects, which make partial use of the Internet to provide students with rich learning environments, need to include some of these characteristics to enable pupils to develop the qualities of independent learning evident in the National Curriculum Programme of Study for ICT.

Characteristic	Teacher use	Pupil use	Not seen
Multiple perspectives			
Pupil-directed goals			
Teachers as coaches			
Metacognition			
Learner control			
Real-world activities and contexts			
Knowledge construction			
Sharing knowledge			
Reference to what pupils know already			
Problem solving			
Explicit thinking about errors and misconceptions			
Exploration			
Peer-group learning			
Alternative viewpoints offered			
Scaffolding			
Assessment for learning			
Primary sources of data			

Task 6

Teaching for independent learning   1 hour

Identify a teacher who is confident in their use of ICT as a medium for teaching and learning. They need not necessarily be from your subject specialism. Ask to observe them using ICT during a lesson.

Use the checklist above to identify the features of the lesson. How does the teacher provide opportunities for independent learning?

Look back to the diagram on page 5. In which segment of the diagram is the teacher operating?

Changing learning behaviours

Behaviourists claim that learning changes behaviour when learners respond to teaching by exhibiting similar responses to the same, or similar, teaching stimuli. In ICT this would be seen as the use of models of programmed learning, where pupils use software to redress deficiencies in basic skills (usually in literacy and numeracy) or the use of drill and practice approaches to teaching.

Keyboarding is a prime example of the drill and practice approach, where pupils spend time learning which fingers to use for which keys on the keyboard so that, eventually, they can type, using all their fingers appropriately, without looking at the keyboard. Some would argue that this makes working with the major input medium much more efficient and that the time spent going over basic skills until proficiency is gained establishes reinforcers that will serve us well in the future, rather like the notions that apply to 'riding a bike'.

This has often been referred to as 'operant conditioning' and can be seen as an important aspect of learning reinforcement. Behaviourism grew therefore from a belief that positive and negative reinforcement with punishment appropriately applied would, when arranged effectively, cause pupils to learn. The teachers' role in this was to organise the reinforcers and to develop appropriate directed teaching sessions to support the learners as they progressed.

Many of the skills-based approaches to teaching with ICT follow a behaviourist model, directing the learning step by step, prompting pupils with praise and passwords (positive reinforcement) when they have completed tasks effectively, or focusing on the requirement to follow instructions exactly and making keystrokes accurate when working in order to pass (negative reinforcement).

Drill software and drill approaches to teaching are underpinned by such techniques as *mastery learning* (Bloom 1986). Here pupils are encouraged to master basic skills before progressing to higher-order skills and competencies, while the teacher is required to present learning opportunities and activities that will enable pupils to demonstrate their knowledge, skills and understanding.

Teachers using ICT may find directed teaching specifically appropriate when they identify pupils who, perhaps for improved classroom management and a better learning environment for all, need to have a system of structured learning in place. They may also find it appropriate when certain prerequisite skills need to be in place before an element of active learning can best be established.

| Task 7	**Reviewing your teaching and learning** **25 minutes**

Read through the descriptions above, and through the summary of research.

What claims are made about the use of ICT to enhance teaching and learning?

Look again at the diagram on page 5. Where do you see directed teaching fitting into the diagram?

4 Classroom organisation

Managing effective learning can be greatly influenced by the layout of the classroom in which you are teaching. If you are teaching in a computer room there is often nothing you can do about the layout of the room. Consider the classroom layout below:

Board

Teacher

A
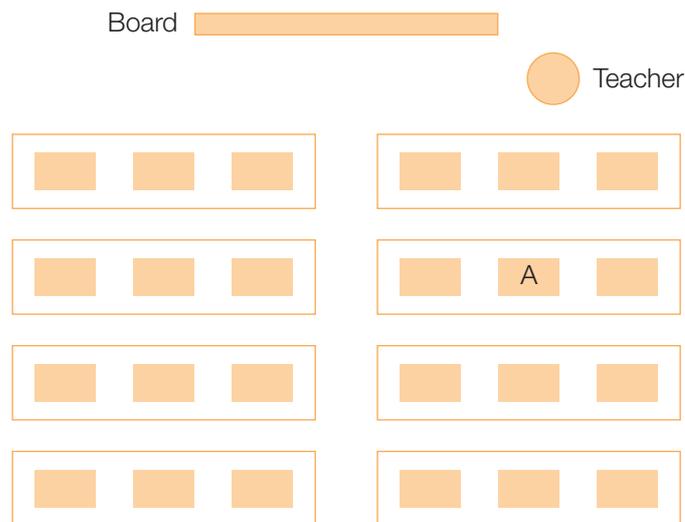
There are problems with this layout. From the front of the classroom the teacher cannot see all the pupils, nor can the teacher see what the pupils are doing. It would be difficult to move behind each row of pupils. If the teacher needed to spend time with pupil **A** then the actions of the majority of the class would be unknown at worst, or difficult to monitor at best.

Constant movement around the classroom is important here. The pupils need to know that you are confident in a teaching environment like this. You also need to be confident that you can maintain a working atmosphere in a classroom that you may only use occasionally. It is also important to recognise that standing at the back of the classroom has an important psychological effect – when focused on their work pupils are less likely to know just where you are, and are consequently less likely to misbehave.

| Task 8 | Establishing your position | 15 minutes |

Look at the various rooms you are likely to be using for teaching. Look especially at the ICT rooms. In each room go to different points and try to establish:

- the focal point of the room;

- where pupils may have their backs to you;

- whether or not there is space for pupils to do some writing;

- health and safety issues – bags and coats;

- where you can move to easily;

- the blind spots that could occur if you give help to individual or groups of pupils.

Classroom organisation is not just about the layout of the room. Your perceived role as teacher will also have an impact. Consider the implications of the following teaching roles:

- learning facilitator;

- information giver;

- pupil manager.

These roles can take place within the same lesson, or separately. As with any lesson the principles of classroom organisation involve the establishment and maintenance of familiar rules and routines. You may, in lessons which do not involve ICT, determine that there should be no movement around the classroom unless permission is given. There should be no reason why that routine should change in an ICT room. Printouts, for example, are often one reason why pupils attempt to move around the ICT classroom, and when waiting for printouts are otherwise unoccupied. Establish clear routines for dealing with this – either by distributing printouts yourself, allocating the responsibility to a pupil or setting specific collection and transition times during lesson activity.

Transitions are another aspect to consider carefully. These occur at different points in the lesson: from starter activities to the main part of the lesson; from episode to episode within the lesson; and from main activity to the plenary.

The main barrier between you and the pupils when the pupils are using computers is the computer itself. The focus of attention will be the screen in front of the pupils. To gain attention you have to draw the pupils away from the focal point in front of them and the work they are doing, to you.

During a starter activity, or during a demonstration, it is advisable that monitors are turned off. This makes any intervention you want to make much more focused, and removes the temptation to talk over the class. Your instructions and demonstrations are much more likely to enable you to focus and direct work, and will enable you to make an effective transition from classroom activity to a plenary session.

These are important points to consider when using interactive whiteboards. Here the focus of the activity is on the demonstration, and on the opportunity that pupils have to interact with the demonstration, to be involved in the learning, and to demonstrate that they are learning. You need to consider how pupils will move from their seat to the front of the classroom, and back to their seat, causing the minimum of disruption. The focus is the work at the front of the classroom – not what is on the monitors before them. Again, routine is the order of the day.

<table>
<tr><td>Task 9</td><td colspan="2">Looking at lesson transitions</td><td>15 minutes</td></tr>
</table>

Looking at lesson transitions   **15 minutes**

Select a lesson from your scheme of work where you are planning to use ICT. Think about the nature of the starter and the main episodes.

Consider the class and the setting. Is it just one computer and data projector? Is it a computer room with limited space for off-computer working? Are you dealing with laptops or hand-held computers?

Plan how you will organise a transition from a demonstration starter activity to the beginning of a practical exercise and any further episodes.

5 Using ICT to enhance subject teaching

An overview

The expectation is that pupils will have been taught in all nine key concepts of ICT capability in their ICT lessons. This provides the foundation for the application and further development of these ICT key concepts across the curriculum. The nine key concepts are shown in the diagram below.

Although all ICT key concepts could be applied and developed in most subjects, some are more significant than others. The four ICT key concepts, highlighted on the diagram below, that have been identified as being particularly significant for English are:

- using data and information sources;

- searching and selecting;

- fitness for purpose;

- refining and presenting information.
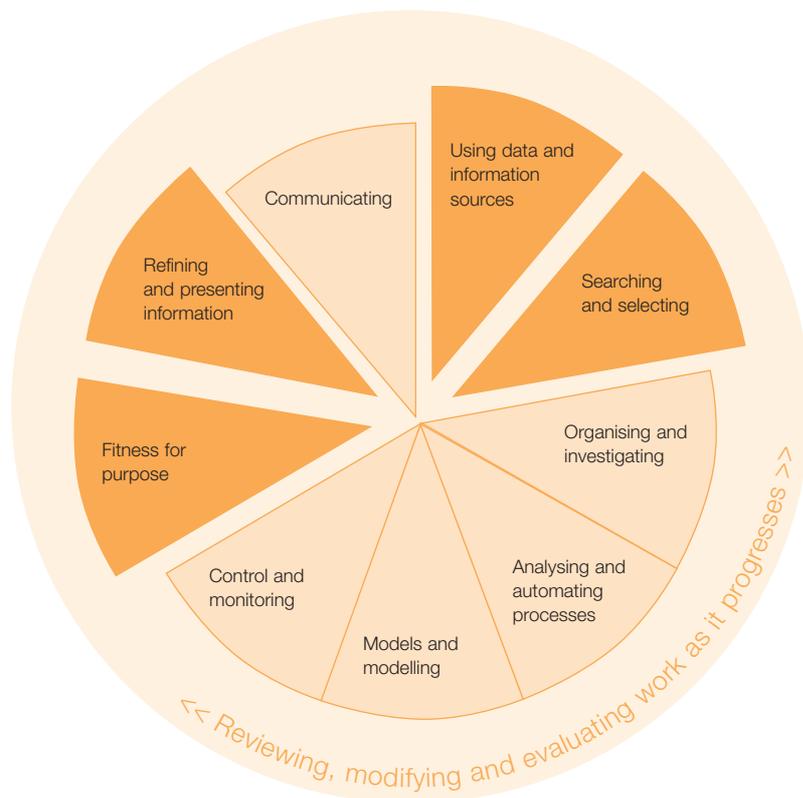
## Establishing the fit between ICT and subject objectives   **10 minutes**

Looking at the four key concepts highlighted in the diagram above, it may strike you as strange that Communicating has not been extended beyond the pie. Communication is after all a key concept within English!

Look at the yearly teaching objectives for ICT in Years 7, 8 and 9 (pages 30–32) in the *Framework for teaching ICT capability*, Ref. DfES 0321/2002. Why do you think it is that Communicating in ICT has not been highlighted for development during English lessons?

For science, the four key concepts (highlighted in the diagram below) that are particularly significant are:

- searching and selecting;

- organising and investigating;

- models and modelling;

- control and monitoring.
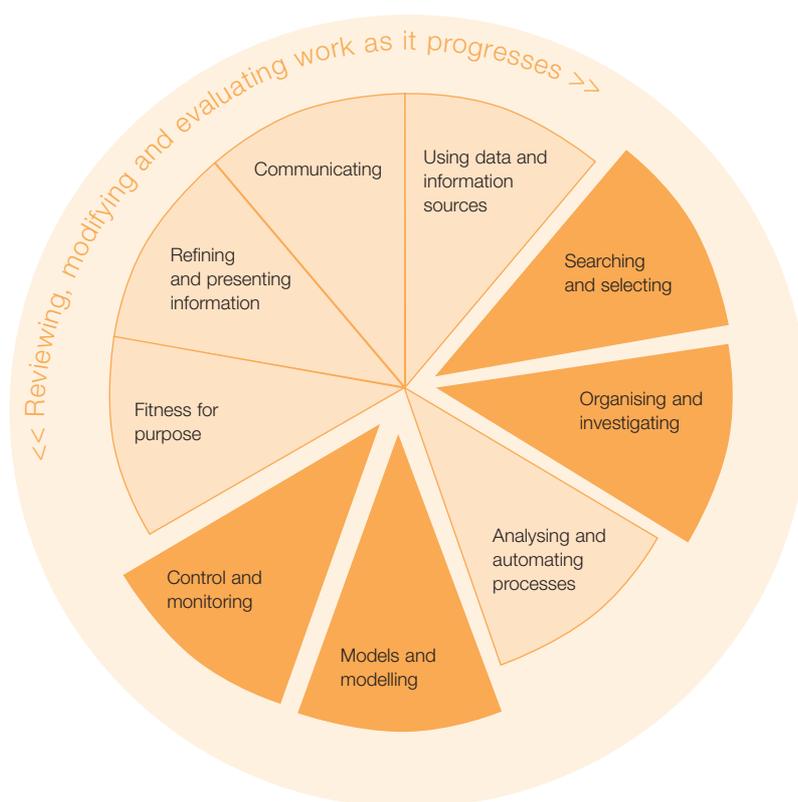
Other key concepts could also be applied and developed in any subject. If this is done, the relationship between the key concept being developed, the yearly teaching objectives for ICT and the subject objectives must be carefully considered.

Relating ICT objectives to your own subject   30 minutes

Diagrams such as those you have been looking at exist for each subject within the curriculum at Key Stage 3. Subject Associations highlighted the key concepts for ICT that could be developed and applied in subject lessons. They are published within the *ICT across the curriculum* pack, which can be ordered by every school Ref. DfES 0171-2004.

Talk to your school Strategy manager about the ICT *across the curriculum* materials.

Identify the elements of the pack that relate most closely to your subject.

Use your subject 'pie diagram' to find out more about the yearly teaching objectives for ICT, and talk to your ICT coordinator about the expectations you should have about pupils' capability in ICT and the impact it should have on the use of ICT in your lessons.

How can the use of ICT raise standards in other subjects?

ICT can be used as a tool to:

- support teachers to:
  - improve lesson design;
  - transform teaching and learning;
  - engage and motivate pupils to learn more effectively;
  - provide opportunities for pupils to learn in alternative and challenging ways, using a wide range of sources of information and techniques to support critical thinking;
  - support both individual and collaborative work;

- enable pupils to:
  - see patterns or behaviours more clearly;
  - add reliability or accuracy to their work;
  - engage in whole-class discussion regarding first-hand observations;
  - consider issues raised by their observations within a wide range of contexts;
  - draft and plan, manipulate their writing and access a wider variety of strategies to improve attainment;
  - review, refine, re-draft and modify work in progress;
  - refine and present their ideas more effectively and in different ways.

Planning and progression

Teachers should expect pupils in any given year to have covered all or most of the ICT Framework objectives from the previous year. Subject teachers may also wish pupils to apply ICT skills that they learn during the year in which they are being taught. It is important to liaise with the ICT department to ensure that the levels of expectation and challenge are appropriate to pupils' experiences and levels of ICT capability.

Using ICT effectively in your subject teaching

To ensure the effective use of ICT in your subject, you should:

- plan the use of ICT by pupils, in collaboration with the ICT department, to ensure that pupils have appropriate ICT skills;

- analyse how to build on prior learning in your subject and ICT to inform planning of schemes of work and design of lessons;

- be sure that appropriate ICT resources are available for the lesson.

It is important to plan for a range of uses of ICT, to ensure that pupils' capability is developed and consolidated as they progress, both in your subject and in the use of ICT. In particular, you should plan to use ICT in your lessons at a level that will have been covered in ICT lessons.

You will need to ensure that:

- pupils' use of ICT is varied but appropriate to their learning in your subject;

- as pupils' ICT capability increases they should be given further opportunities to apply and develop appropriate aspects of that capability in subject lessons.

It may be appropriate to use low-level ICT skills to enhance learning in your subject but pupils should also be given opportunities to apply higher-order skills. This should enable pupils to enhance their subject learning further, as well as to develop their ICT capability. Using higher-level ICT skills will also increase pupils' motivation by providing new opportunities for learning that could not be achieved easily in other ways.

Awareness of the capabilities of pupils' competence in ICT will enable you to plan lessons that use ICT to help challenge and motivate pupils of all attainment levels. It is expected that:

- Year 6 ICT capabilities will support Year 7 subject work;

- Year 7 ICT capabilities will support later Year 7 and Year 8 subject work;

- Year 8 ICT capabilities will support later Year 8 and Year 9 subject work;

- Year 9 ICT capabilities will support both later Year 9 subject work and Key Stage 4 work.

6 Using classroom support staff effectively

You may be working in a school that makes use of learning mentors or classroom assistants. Classroom support staff will largely be working with specific groups of pupils in your classroom. Some may be targeting students with specific learning difficulties; some may be working with pupils who need literacy and numeracy development; while others will be working with pupils identified as 'gifted and talented'.

The identification of pupils who need support in your lessons will involve a number of parties. If your classroom includes pupils who require learning support, you will need to identify how you can best plan for their full inclusion. A first step would be to identify the learning outcomes that these pupils can demonstrate as a consequence of teaching. A second would be to discuss the supporting role the classroom support staff will take. You will also need to check what the classroom support staff will need to know in order to be able to work with the pupils who have been targeted.

Working with classroom support staff   **30 minutes**

Discuss the three questions below with your peers and with your coach or mentor.

- What effect can classroom support staff have in an ICT-rich classroom environment?

- Does their knowledge of what you are doing have any bearing on your planning and preparation?

- Should you include them in your lesson planning?

Draw up a set of operational questions that you need to explore with classroom support staff.

Discuss the results with your peers and with your coach or mentor. Amend your planning list as necessary.

7 Building capacity in school

Schools put considerable investment into ICT resources. However, this investment alone will not necessarily give pupils appropriate opportunities to 'apply and develop' ICT capability – nor automatically add value to teaching and learning. Effective implementation of ICT across the curriculum is much more complex and involves strategic management and coordination within whole-school policies. An effective model of applying and developing ICT across the curriculum depends on a number of factors, including:

- effective teaching of the National Curriculum programme of study for ICT (the subject);

- appropriate opportunities for pupils to apply and develop ICT capability in a range of subjects and contexts (transferable knowledge, skills and understanding);

- deployment of resources so that subject areas can access ICT when it is needed, including provision of ICT within subject classrooms or areas;

- a policy for purchasing of resources that maximises their use and allows for provision, laptops and wireless networking capability;

- appropriate subject-specific resources in all departments, that are selected on the basis of fulfilling subject learning objectives;

- planned use of ICT in schemes of work for all subjects, so that resources can be appropriately deployed and organised;

- whole-school policies which clearly map and sequence opportunities for application and development of ICT, so that pupils bring the appropriate ICT capability to subject lessons;

- whole-staff awareness of ICT capability and what can reasonably be expected of flexibility of use, for example whole-class teaching, small-group work, individual teacher use – this could include consideration of whole-school networking of pupils in each year.

Planning and sequencing ICT across the curriculum

Subject teachers need to know what they can reasonably expect a pupil to know, understand and be able to do at each point in Key Stage 3.

Schools will need to map and sequence the teaching of ICT capability. This will identify when subject teachers can reasonably expect to develop and apply pupils' ICT capability and move teaching and learning forward in their own subject. For example, once pupils have been taught appropriate search techniques on the Internet, including consideration of validity and bias, they can be expected to undertake purposeful research in other subjects and present their findings.

Establishing expectations

It is also important to consider the experiences of pupils at Key Stage 2. Again, individual schools will differ but the extract below (taken from the *Framework for teaching ICT capability: Years 7, 8 and 9*) describes what most pupils should have learned in ICT by the end of Key Stage 2. This summary is based largely on pupils following the Key Stage 2 QCA scheme of work, or equivalent, during Years 5 and 6.

Finding things out

By the end of Year 6, most pupils should be able to:

- identify the information they need to complete a simple task or solve a simple problem;

- use simple search techniques, including indexes and lists of contents, to find information;

- prepare information for use in a task by downloading relevant pieces or collecting them from various sources;

- classify information for use in a database and understand how a suitable structure is created;

- recognise different types of information such as text, numbers, graphics;

- enter data into a database, search it and present data in simple tables and graphs;

- check that information is accurate and reasonable;

- discuss what might happen if information is entered into the computer incorrectly or not downloaded completely.

| Task 13 | **Establishing expectations of pupil capability**   **20 minutes** |

There are expectations at the end of Key Stage 2 for each of the ICT key concepts. They establish a baseline for your expectations of pupil capability as they enter your classroom in Year 7.

Read through the expectations for the end of Key Stage 2 outlined in the *Framework for teaching ICT capability: Years 7, 8 and 9*, which can be found at www.standards.dfes.gov.uk/keystage3/respub/ictframework/ictfwkdl

Discuss with your peers and with your coach or mentor the impact these expectations of capability will have on your planned use of ICT in your subject.

8 Continuing to develop your professional capability

Key questions

- How is use of ICT currently enhancing teaching and learning in your subject?

- What further opportunities can be exploited?

- What is inhibiting further use of ICT?

- What are the next steps in moving the department forward?

This section is intended to support your thinking when working with your colleagues to move ICT across the curriculum forward. It offers suggestions for some next steps for you and your department, broadly based around:

- the use of ICT in your department;

- reviewing your current position;

- applying and developing ICT capability from the ICT National Curriculum.

Below are some prompts and suggestions for thinking about your existing provision, understanding how ICT is taught in your school and identifying potential new opportunities for teaching and learning in your subject.

How is ICT being used in your department?

Identify ways in which ICT is currently used in your lessons to add value to teaching and learning.

- What good practice in using ICT currently exists in your department and how does it enhance teaching and learning?

- For each of these areas, is ICT being used by pupils, by teachers or by both?

- Are all teachers in your department using ICT in lessons in the same way or are individual teachers just using their own ideas?

- How can these ideas be shared with other teachers in the department?

Reviewing your current position

You could consider:

- identifying where pupils use ICT in their lessons and how it impacts on teaching and learning in your subject;

- allocating time at departmental meetings to share existing good practice and to look at ways in which it could be incorporated or adapted into schemes of work for all teachers in the department;

- setting up peer observation or paired teaching with colleagues to observe each other and assess the value that ICT is adding to the lesson – you may find the Key Stage 3 guidance on coaching (included in *Sustaining improvement: a suite of modules on coaching, running networks and building capacity* Ref. DfES 0565-2003) a useful tool to help you with this.

Applying and developing ICT capability

Identify where your current scheme of work gives pupils opportunities to apply and develop their ICT capability at a level appropriate to their experience.

- Are you fully aware of the breadth of ICT capability that pupils are taught in ICT?

- Which parts of the ICT National Curriculum are particularly significant for your subject and give pupils potential opportunities to apply and develop their ICT capability?

- Are there implications for your training?

- Does the scheduling of your subject scheme of work and the ICT scheme of work provide a coherent way forward for pupils' use of ICT?

You could consider:

- talking to the ICT subject leader about the breadth of ICT capability that pupils are taught in the ICT National Curriculum;

- identifying areas for your development, with your subject leader and your coach or mentor, and working with the ICT subject leader and the LEA to establish sources of support;

- discussing with the ICT subject leader possible changes to the schedule of the schemes of work to ensure that, in subject lessons, pupils are building on ICT that has already been taught;

- working with the school's ICT coordinator to identify how your department contributes to the whole-school policy of ICT across the curriculum;

- discussing with other teachers in the school how they give pupils opportunities to apply and develop ICT capability in their respective subjects.

Summary of research

Effective use of ICT in other subjects often builds on discrete ICT lessons by providing fresh contexts for applying newly learned skills and understanding. This example of a lesson with a higher-attaining English set is described in *ICT in schools*, published by Ofsted in April 2002, and available from the Ofsted website: www.ofsted.gov.uk/publications/index.cfm

> ### *Example*
>
> *The pupils were working on a genre study of horror fiction. In the previous lesson they had begun to write text and sketch design ideas for a horror fiction website home page. They had started learning about web-page design in their ICT lessons and in the previous English unit. They were now working in the ICT suite, designing their home page with hypertext links to other pages. They referred to a worksheet, which contained clear instructions for setting up hypertext links. The teacher stressed primacy of purpose and audience rather than design for its own sake. Pupils worked quickly and effectively in pairs, constructing their home pages and incorporating images and text from the Internet as required. Motivation*

was very high and the task forced pupils to summarise in a very accessible form what they had learned about the horror genre, which they did very well.

There is a statutory requirement to use ICT to support pupils' learning in every Key Stage 3 subject. The main purpose of using ICT in a lesson in another subject may be to develop pupils' skills and understanding in that subject. If so, the ICT objectives may be at a relatively low level (although they may provide some useful practice). On the other hand, the main purpose of the use of ICT in another subject may be to enhance pupils' ICT capability in a different context. In this case, the subsidiary objectives for the other subject must be challenging enough to meet pupils' needs in that subject without distracting from the ICT objectives.

ICT resources are not a panacea for all eventualities. In some situations they will be the best way to convey or consolidate a new concept, but not always. ICT needs to be planned carefully into departmental schemes of work so that pupils make good progress. Teachers can check whether the use of ICT is appropriate by asking whether it will:

- allow pupils to investigate or be creative in ways not possible otherwise;

- give them access to information not otherwise readily available;

- engage them in the selection and interpretation of information;

- help them to think through and understand important ideas;

- enable them to see patterns or behaviours more clearly;

- add reliability or accuracy to measurements;

- enhance the quality of their presentations;

- save time, for example spent on measuring, recording or writing.

Teachers' knowledge

Passey (1998) identifies a need for teachers to begin to see ICT in the same way that their pupils do, and, in coming to see the technology as part of their natural teaching and learning repertoire, they will support their own development of a pedagogic competence in ICT (Loveless et al. 2001; Barker and Franklin 1998).

The argument is that teachers who are confident in their teaching and learning styles, and who are clear about the 'whats', 'hows' and 'whys' of teaching and learning, should find that the incorporation of ICT knowledge and skills should enhance their overall capability.

The view that teachers who can 'teach' enhance their capability by taking ICT on board is perhaps challenged by views about the quality of teaching and learning using ICT across the curriculum (see the Ofsted quote on page 2).

Passey's views are more important for those teachers of *ICT across the curriculum* who need to utilise ICT in the teaching of their own subject, and who need to develop confidence in applying the tools and so enrich the pedagogic competency they already have. The significance for teachers of ICT is that they develop pedagogic competency in the teaching of ICT, in a framework of secure subject knowledge, and the confidence to apply their functional competency in contexts which encourage and enhance rich learning opportunities for their pupils.

References

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Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- consider undertaking some action research based on your evaluations of the impact of your changed practice using ICT;

- review and revise the scheme of work for an examination group who could benefit from using ICT to enhance their learning;

- contact the school Strategy manager and ask for your subject guidance from the *ICT across the curriculum* pack, Ref. DfES 0171-2004. Read through the suggested approaches and implement the ideas. What areas have greatest impact in the classroom and why?

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   **40 minutes**

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

• What are your objectives for the next year?

• What are the expected outcomes in terms of pupils' achievements?

• What strategies will you employ to achieve these outcomes?

• How will you track progress over the year?

• How will you know whether you have been successful or not?

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Raising
Standards
Standards and Effectiveness Unit

INVESTOR IN PEOPLE

Creating conditions for learning

Pedagogy and Practice: Teaching and Learning in Secondary Schools

Unit 18: Improving the climate for learning

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How to use this study guide

This study unit offers some practical strategies that teachers use to improve the climate for learning. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to improving the climate for learning. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 18, Improving the climate for learning, when working through this unit.

Improving the climate for learning

Contents

Introduction

Positive classroom climates

The climate in a classroom has an important effect on the quality of learning which takes place there. Measures of a positive classroom climate include:

- a recognition by pupils that the teacher treats them fairly, and is committed to teaching them;

- effective classroom routines, such as the way pupils enter and leave and the way lessons begin and end;

- strategies for making learning dynamic, interesting and challenging;

- a concern that pupils should feel secure, both in terms of the physical environment and emotionally;

- classroom displays which support learning and are up-to-date and attractive;

- table and seating arrangements which are varied to suit different teaching strategies and pupil groupings, and so enhance the learning process.

Every time pupils enter a classroom they respond according to their perceptions of how issues such as those above are being supported and implemented.

Common issues

Creating a positive classroom climate requires significant input from teachers. Often, it seems that it takes pupils a long time to focus at the start of a lesson and there never seems to be enough time to cover everything on the lesson plan. Pupils seem to have a very short attention span, spending considerable amounts of time off-task, and work remains unfinished. In addition, homework tends to be of a low standard or not done at all. As a result, teachers often feel that they spend much of the lesson trying to keep pupils on-task rather than addressing the learning objectives.

Resolving the issues

You can make a significant difference to your own classroom. Start with something which is well within your control and relatively easy to manage. Be determined to maintain the change deliberately and purposefully for the first few weeks as your pupils adjust. By then your change will have become established and you will often find pupils themselves taking more interest and supporting your efforts.

The classroom climate is more likely to be conducive to learning if teachers:

- make the most of lesson beginnings by being in the classroom before pupils arrive;

- share lesson objectives with pupils;

- move quickly into the lesson itself;

- make the most of lesson endings by leaving time to review what has been covered;

- set the scene for the next lesson;

- set up efficient homework routines, make homework appropriate and provide feedback;

- display all pupils' work regularly;

- use different arrangements of furniture for different activities;

- over time, speak to each pupil individually about things that interest them;

- use language in a way that builds relationships and raises pupils' self-esteem.

1   Classroom routines

Established classroom routines that pupils are familiar with are a common feature of effective lessons. However, some routines are more successful than others! The grid below, which is adapted from *Closing the Learning Gap*, by Mike Hughes, contrasts some effective and some ineffective routines.

Table opposite: Adapted from: Mike Hughes. *Closing the Learning Gap* (Network Educational Press) © 1999 Mike Hughes. Reproduced by permission of the publisher. www.networkpress.co.uk; PO Box 635, Stafford ST16 1BF; fax: 01785 228566.

More effective	Less effective
The teacher is waiting at the door to meet the pupils at the very start of the lesson.	The teacher arrives late and already the pupils are unsettled and ill prepared to learn.
The teacher ensures that the pupils enter the classroom in an orderly manner and asks them, in an encouraging way, to quickly get their books out and get ready to learn.	Pupils drift in, taking time to settle and get books out ready for the lesson.
The teacher gains eye contact with the latecomers who are directed by a nod of the head to enter quickly and quietly. They know that the teacher will eventually speak to them and expect a good explanation for their lateness.	Each latecomer is, in turn, chastised by the teacher in front of the others. Those pupils who arrived on time feel as if they are to blame.
The teacher begins the lesson promptly by making clear the context for the lesson and its objectives in a way pupils understand. This conveys the expectation that pupils will learn something of value during the lesson.	As a hush descends, the teacher reads out the register and then starts the lesson by collecting in last week's homework. Most pupils hand this in. A handful (whose identity is no great surprise) explain nervously, or sometimes aggressively, why they have failed to complete the task.
The teacher describes and explains the structure of the lesson and gives timings for various elements or tasks. The first activity is quickly under way, making explicit demands for pupils' full attention.	The teacher debates with frustration, although occasionally with amusement, each pupil's reason for not doing their homework. By the time this is over some 8 minutes of lesson time have already elapsed.
The teacher shows interest in the pupils and the work, and as a consequence the pupils engage positively with tasks, anticipating challenge and interest. Textbooks, if required, are efficiently distributed by a couple of pupils in a well-understood routine.	The teacher fails to notice that some pupils are beginning to get restless; any sense of anticipation is fading fast.
The teacher organises the time effectively so that there is an opportunity at the end of the lesson for a plenary, which includes a period of reflection on what was learned. Pupils understand the importance of this to their learning.	The teacher fails to plan the timing of the lesson effectively, and the end is characterised by pupils dashing around, collecting resources and packing away.
The teacher gives high status to the importance of the homework by giving the necessary amount of time to introduce it and to give the pupils a chance to ask questions and to check their understanding.	The pupils are not fully engaged in the task and their attention wanders on to other things, such as the next lesson or getting to the front of the lunch queue. Homework is hurriedly set, but the bell is imminent and not all pupils record the task effectively.
The teacher controls how pupils leave the lesson, so that departure is orderly. The opportunity is taken to say something of personal interest to one or two pupils as they leave. Over time every pupil is included.	The teacher allows the pupils to scramble out of the room, pushing and shoving. Not only are many unsure of the homework task, most are already forgetting the lesson completely.

Review your classroom routines   **15 minutes**

Read through the table of classroom routines above. Reflect on your own lessons. Where in a continuum between more and less effective do your classroom routines lie?

What the Key Stage 3 Strategy has to say about effective lessons

Throughout the Key Stage 3 Strategy there is a focus on good teaching within effective lessons, which have characteristically: a starter, a middle section, consisting of a number of episodes and mini-plenaries when appropriate, and a final plenary. Both research and the developing experience within the Strategy confirm that lessons that have well-planned and purposeful beginnings, with well-organised episodes of learning in the middle section and clearly defined and meaningful ends are more effective in enabling pupils to learn.

2   Beginnings and endings

The importance of lesson beginnings and ends cannot be overemphasised. In *Closing the Learning Gap*, Mike Hughes explains:

> *Students learn more at the beginning and the end of a learning experience than they do in the middle. This is sometimes called the BEM (beginning, end, middle) principle.*

> *The beginning, in particular, is the time when the potential for learning is at its greatest, when the relatively high concentration, but particularly anticipation, makes the learner more receptive.*

This principle has important implications that teachers should be aware of and actively exploit. In planning a lesson, consider how you will:

- make the most of the beginning;

- create lots of 'beginnings' throughout the lesson;

- make the most of the end.

Making the most of lesson beginnings

You can use a number of simple tactics to start your lessons more productively.

- Be at the door to greet pupils as they arrive. Be welcoming and positive. Smile at all of them, even ones you regard as difficult or uncooperative. Over time try to notice something positive about each of them. Remember names and use them.

- Engage the class in the first minute with something about today's lesson, or something positive and memorable from the last one. Alternatively, use a stimulating starter activity.

- With the potential for learning at its greatest, the lesson beginning is the crucial moment during which to emphasise what you want all pupils to learn and why. Have the lesson objectives written on the board and clearly and quickly identify

the expected learning outcomes using language with which the pupils can easily engage.

- Get straight into the lesson, leaving the register and collecting of homework until later.

For more on effective starter activities, see unit 5 Starters and plenaries.

Practical tip

If you need to take the register early in the lesson, then write a simple task on the board to engage the class while you do it. One possibility is to get pupils to write down three important words that they remember from the last lesson. You can follow this up by asking individuals to give you one word and the reason for choosing it. Alternatively you could quickly poll the five most common words.

Task 2

Improve the start to your lesson   **15 minutes**

- Choose one class you feel confident with.

- Plan an improved start to their lesson, keeping in mind the tactics suggested above. Include a challenging task, for example:

  – Write down one fact you know about …

  – What evidence is there that …?

  – Write down two key words from last lesson; be prepared to explain to the rest of the class (or to a small group) why they are key words for you.

- At the end of one lesson explain that you are going to change the way you begin the next lesson and why. Tell the pupils to be ready, or perhaps give them a question to think about for homework.

- Begin the next lesson as you have planned. During the lesson you can follow up the responses to your initial questions, if necessary modifying what you teach to more closely match what the pupils already know. This raises pupils' self-esteem by acknowledging that they do know something already.

- Towards the end of your lesson you could ask the pupils what they thought about the new routine.

- With your mentor or another teacher from the department, review the effectiveness of your lesson start.

It can take time to change the pupils' behaviour. Be gently persistent and consistent with what you ask, always ensuring that it is a reasonable request. Pupils need to understand the routine and its purpose before they will engage properly.

As you restructure your lesson beginnings, explain to the class the purpose of the change and your expectations of them. Emphasise how it will help them to learn better. Once introduced, you need to use the routine for every lesson until it becomes embedded.

In Year 9, the organisation of science teaching meant that the teachers saw each class only once a week. One teacher planned to maximise the time for learning by careful management of these lessons. This is how she described her strategy.

'I try hard to be in my lab before the pupils arrive, and they know that we have to make a sharp start to the lesson. Sometimes they complain that I hurry them too much, but with only one lesson a week we have a lot to do and I often remind them of this. I get one or two pupils to hand back homework and go straight into the lesson by explaining the objective and how today's learning fits in with last week. Dealing with homework can be such an interruption in the lesson, so I insist that pupils do it on the evening of the lesson and hand their books in the next day. I have a special bookshelf for the purpose. I check at lunchtime for any missing work and send notes to form tutors in time for the afternoon registration. I mark the work that evening and any which is less than acceptable is returned via the form tutor with a request for the pupil to find me and talk about the work. In this way I try to ensure that all pupils produce meaningful work which supports their learning and that we don't use lesson time doing wasteful administration or remonstrating with individuals. We can usefully talk about how the homework outcomes have prepared the pupils for today's lesson.'

Making lots of beginnings

To really make the most of pupils' potential for learning, you can increase the number of beginnings in a lesson. Effective lessons are often constructed from a number of episodes, each of which offers an opportunity for a new beginning. For more on planning episodes of teaching, see unit 1 Structuring learning and unit 5 Starters and plenaries.

Making the most of lesson endings

There are some simple tactics you can use for more organised and productive endings to the lesson.

- End early. Don't try to cover too much and leave up to 10 minutes to finish the lesson properly.

- Use the last part of the lesson for a plenary – group or individual reflection on what has been learned.

- Ask pupils to identify two or three key points they have learned from the lesson. They could share these in pairs and then record them in words or pictures, adding colour if it helps. Reviewing these key points could be part of the homework routine.

- If appropriate, summarise the learning. You could remind pupils of the context for the lesson in terms of what went before and what is to come.

- Set the scene for the following lesson.

- Have clear routines for an organised departure and have some way of saying goodbye and thanking the pupils for a good lesson.

Planning plenary activities

The plenary is an important part of the lesson ending. The Key Stage 3 Strategy leaflet *Making good use of the plenary* lists the purposes of plenaries.

> *To provide the necessary variety, plenaries can be used to:*
>
> - *draw together what has been learned in terms of the learning outcomes, to highlight the most important rather than the most recent points, to summarise key facts, ideas and vocabulary, and stress what needs to be remembered;*
>
> - *generalise from examples generated earlier in the lesson;*
>
> - *go through an exercise, question pupils and rectify any remaining misunderstandings;*
>
> - *make links to other work and what the class will go on to do next;*
>
> - *highlight the progress pupils have made and remind them about their personal targets;*
>
> - *highlight not only what progress pupils have made but how they have learned;*
>
> - *set homework to extend or consolidate classwork and prepare for future lessons.*

The leaflet itself offers suggestions for plenary-session activities and you will find further ideas in unit 5 Starters and plenaries.

Improve your lesson endings   15 minutes

As with task 2 choose a class you feel confident with.

Keeping in mind the tactics suggested above, plan a lesson ending. It should include a plenary activity – for example:

- Ask pupils to write down individually two or three things they have learned from the lesson. Don't specify what the things need to be; encourage the pupils to reflect.

- Ask pupils to explain one thing from their list to a partner, or to a group of four or to the whole class.

- Ask one or two 'volunteers' to remind the class of the lesson objective and to say whether it has been achieved. This is much more effective if you forewarn the 'volunteers' of this task during the lesson so they can think about it. Allow others to contribute their views.

At the beginning of the lesson explain to the class what you have planned for the plenary and why, to help them prepare.

With your mentor or another teacher review how the lesson ending went.

There may also be plenaries during the course of the lesson. These 'mini-plenaries' provide opportunities for teachers and pupils to reflect on and recognise what has been learned and how this learning took place. Additionally, such plenaries facilitate assessment, whereby the teacher can judge how successfully lesson objectives have been met, and what further steps are necessary. See unit 5 Starters and plenaries.

Homework routines

There is some controversy about the value of homework, but research generally confirms that pupils who do homework make more progress than pupils who don't. In both primary and secondary schools homework helps to develop good study habits and positive attitudes towards school and learning. The following list suggests general principles for effective homework.

- **Do value homework as a learning tool:** If the pupils see it as something that adds to their learning they will be more willing to complete it.

- **Integrate homework with the lesson or topic:** Make it plain how the homework consolidates or extends work done in class. Review homework during the following lesson to draw attention to its importance in learning the topic. Whilst practising skills during homework can be necessary, homework is most effective when it reinforces major curriculum ideas.

- **Make homework manageable:** Homework should be challenging but pupils should be able to complete it successfully. It should not be confusing or frustrating or used as a way of testing pupils.

- **Provide appropriate feedback:** For pupils to see that the teacher takes homework seriously it must be marked and returned as soon as possible. It must be properly corrected as uncorrected work gives the impression that simply doing something was enough. Feedback must be meaningful and supportive and if the pupil has to do some supplementary work then this too must be quickly followed up. Research also shows that feedback should be in the form of comments and not marks, which can be seen as an end in themselves and are demotivating for students who habitually fail to score highly.

- **Connect homework to everyday life:** This can make homework more relevant. For example, ask pupils to calculate the volume of paint needed to paint their own room, or to select leaves from garden plants as part of a science activity.

- **Use homework planners:** These can help pupils develop independent learning and organisational skills. Pupils have to be taught how to use a planner effectively. It is common for form tutors to check such planners weekly but this is often cursory, not seen as very important and focuses on completion. It is better to spend the time each week checking fewer planners and discussing with pupils how their planners can best be used. Ensure that all homework is written down.

- **Pursue non-completion of homework:** The consequences of non-completion need to be made clear in terms of failed learning opportunities. There should be routines for dealing with this such as completion of homework during breaks or by the following day. It may be necessary to spend time with individual pupils to support completion. This is often time well spent. Failure to pursue non-completion indicates that the homework was not important in the first place.

3 The physical environment

The physical environment has a significant impact on how pupils feel about their learning. In effective classrooms, teachers work at creating a room where it is evident that learning is its purpose. When pupils enter the room they are given clear messages about the importance of learning and about what is expected of them. Within the room there is information and other support they might need. The furniture need not always be in the same place but it is organised to help them learn.

If you teach in several classrooms, then it may be possible to work with another teacher who shares one of the rooms. The advantage of this approach is that you can share ideas and tasks. Ensure that you talk to and involve any other teachers who share the room, explaining what you are doing and why. They may not be able to help, but at least they will be able to encourage the pupils to support and sustain your efforts.

Display

Research has shown that an important component of the classroom climate is the quality of the display.

Display is intended mainly to support learning but it can also reflect the teacher's enthusiasm for their subject and make a dull classroom attractive and exciting. Bright, colourful displays simply make a room more pleasant to be in. Furthermore, some research suggests that a significant amount of learning may happen subconsciously. If this is the case, then it is possible that pupils learn subconsciously from display.

Teachers are not expected to put up and maintain displays: this can usefully be completed by teaching assistants, or even pupils. However, planning displays is a professional activity because it provides a learning experience. Displays do need to be presentable, and by implication be important, and have taken care to produce. Teaching assistants can share the responsibility, and pupils should contribute when appropriate.

Displays can:

- provide information such as key words, key facts or the 'big picture' of a topic;

- reinforce good habits through the use of key questions: what, when, why, how, who and where;

- stimulate curiosity, by offering new information, a puzzle or a challenge;

- affirm and inspire, for instance through examples of effective work or suitable quotations.

To be most effective, displays should be positioned just above eye level. Research shows that when the brain is in visual mode the eyes tend to look up (in auditory mode the eyes tend to remain level and in kinaesthetic mode they tend to look down). Because the brain is stimulated by novelty, display needs to be changed regularly.

Task 4

Review the displays in your room　　　　　**15 minutes**

Ask yourself the following questions about the displays in your room:

- How much display is in the room and how much space is available?

- Do displays support and demonstrate quality work by pupils?

- What condition are the displays in, when were they last changed and who put them up?

- How do the displays support your current teaching?

- How much pupils' work is included?

- What do the pupils think of the displays?

- What do the displays say about your approach to teaching?

Task continues

Then, in the light of your observations, think about what improvements could be made and consider:

- What improvement could be made to the room as it is?
- Does the room need additional resources to improve display? These could be:
  - display board(s);
  - shelves or other surfaces for artefacts, resources or possibly plants;
  - coat pegs or bag stores to release existing surfaces.
- Who would supply these resources?
- What do you have to do to try to obtain them?

Make notes on your thoughts and ideas. You may find it useful to talk to your head of department or mentor about your ideas before taking any action.

Having thought about what improvements you would like to make, you will need to identify how you might obtain any resources you need. Your colleagues are more likely to be supportive if you are clear in your reasoning for the need for certain resources – in particular, the ways in which you intend to use them to support more effective learning.

Planning your displays

Use the displays in your room to reflect your ideas and interests as well as those of the pupils. Also include information such as fire escape routes and the weekly bulletin. This too needs to be organised.

What you put in a display should be determined by the purpose you want it to serve. This will include the objectives for topics and even lessons. It can also serve longer-term objectives such as raising pupils' self-esteem. The purposes of a display may include the following.

Modelling good practice: This can be done with pupils' work or even some of your own which shows the qualities you are looking for. It is often useful to display work along with comments or a commentary that shows how the work meets any assessment criteria. In this way pupils gain a better understanding of how they can improve their own work. It should go without saying that you should not display heavily corrected work. Displaying work of older pupils can raise pupils' expectations by providing useful insights into what they will cover in the subject and the standards that are expected. A display of pupils' work with a commentary is sometimes called a 'quality board'. The word 'quality' can refer to the fact that it focuses on the qualities of the work and helps to show what 'good quality' looks like.

Raising pupils' self-esteem: To make your display effective, try to ensure that over time the work of all pupils is displayed. Avoid displaying only the very best or neatest work because this usually means that some pupils' work may never be displayed.

Providing information: Good-quality, commercially produced, subject-specific material can provide information to kindle interest or could be used by pupils for tasks that you set. General-interest material may remain in a display for a term or so. Topic-specific information should be displayed only for as long as the topic is being covered in lessons.

Providing instructions or guidance: Displayed teacher-produced (and some commercially produced) materials such as word lists, writing frames and other guidance can easily be accessed by pupils at any point in a lesson. Such material usually changes with each topic.

Providing short-term school and form notices: Notices generally have a short life and can often look scrappy. You could appoint one or two pupils to be responsible for this section, removing and replacing items as necessary. Particularly important items can be highlighted by backing or headings or perhaps the use of large arrows which could say 'read this now' or something similar.

Providing long-term information: Long-term notices such as fire routines often become 'wallpaper', unnoticed and gradually getting dirty and scruffy. Have a separate section for this kind of information; ensure that it is mounted carefully and changed at least annually, even if you just replace one sheet with an identical copy.

Practical tip

Some teachers have a separate section of display for news items. These are usually short pieces cut from newspapers, magazines etc. Of necessity, these have a short 'shelf life', and teachers who have this sort of display tend to clear it out every month, building it up again over the next month. Pupils very quickly become interested in this kind of information and can be encouraged to contribute their own cuttings.

Case study 2

A mathematics teacher was keen to improve the quality of her Year 7 pupils' work by building more effectively on their primary experience. Having visited one of the feeder primary schools, she decided that she would tackle a topic on shape, space and measures. She obtained Year 6 work done by some of her pupils and displayed it at the start of the topic to remind the class of what they had already learned. Over the next few lessons she added Year 7 work to the display. Following the primary-school practice, she mounted the new work on backing sheets and used computer-generated arrows and words to highlight the development of ideas from Year 6 to Year 7. She found that pupils remembered more easily what they had done before and were keen to talk about their new learning. Conveniently, the display was up for the school's open evening and it generated much interest from parents as well as prospective pupils.

Creating a quality board

The essential elements of a quality board are:

- a good piece of pupil's work;

- a good-quality picture frame, large enough to contain the work and a surrounding commentary;

- teacher annotations, either handwritten or produced on computer, explaining why the work is good.

To be most beneficial a quality board should be:

- related specifically to your planned teaching – for example, how to use standard column procedures for multiplication and division, how to write a conclusion and evaluation for a science investigation, how to set out an argument;

- referred to during a lesson as part of the teaching process before pupils tackle a related activity;

- left on display so pupils can check their work against it;

- changed when you move on to another topic.

Task 5	**Creating a quality board**	**30 minutes**

Consider a topic you are going to teach over the coming two or three weeks. Find and photocopy a good piece of pupil's work, then plan your annotations. Obtain a picture frame and assemble the quality board. When you come to use it with a class, make sure you explain what you have done and that you will be looking for work from them for quality boards in the future.

After pupils have completed their work on the topic, ask them how useful they found the quality board.

After you have checked the pupils' work, evaluate the effectiveness of the quality board.

Making the best use of the environment

15 minutes

Watch video sequence 18a. In this video extract, a music teacher describes the way he uses display to support learning in his classroom.

- How does he organise and present his wall displays to make the most effective use of the available resources and space?

- Identify two ways in which the teacher uses the display to support pupil learning in his classroom.

- Identify two ways in which you might improve the displays and their use in your classroom.

Planning your display

20 minutes

It's a good idea to have discrete areas for different sorts of display. Work through the following questions to help plan a display that meets your own needs. You may find it useful to discuss your answers with your mentor or another teacher.

- What separate areas will you need? You might include:
  - school or form notices which change regularly;
  - more permanent notices, such as information on fire drill and first aid;
  - other news and information which changes regularly;
  - pupils' work which changes regularly;
  - published materials which change with your topic;
  - topic-specific materials such as word banks, writing frames etc.;
  - other subject-specific materials which do not change so often.
- How will you organise these areas? You could:
  - use separate notice boards for all or some of them;
  - divide notice boards or wall space with ribbon or coloured paper strips;
  - give each area a title.
- Where will you begin? You might choose one or two categories of display and start with these to see what you and the pupils think of them.

Remember, you have embarked on a continuous process which involves developing and changing the display regularly. Start thinking now about other classes, other topics and other sources of material and about what you want the display to do.

Arranging the furniture

The arrangements of chairs and tables should reflect and support the way you want pupils to learn. The type of activity will not be the same for every class, every lesson, so neither should the chairs and tables. Even if your classroom has fixed tables, you may still be able to rearrange chairs to make your teaching more effective.

| Task 8 | **Using a double-horseshoe arrangement** | **10 minutes** |

Watch video sequence 18b. The teacher is using a double-horseshoe arrangement, which enables all pupils to focus on the front of the room but also offers options for changing pairings in group work. While you are watching this sequence, make notes of the advantages for the teacher and pupils of this furniture arrangement. Can you see any disadvantages?

Some schools have arranged their classroom like this in every subject, including science and D&T, where design permits.

Reflection   **Barriers to change**

Consider your classroom. What is the dominant furniture arrangement? How does this influence the teaching and learning approaches you can use? Do any of the following present barriers to change?

- The furniture is fixed and offers very limited scope for flexibility.

- Some classes would not respond well either to having the furniture in different positions or to moving it.

- You have no experience of teaching with different furniture arrangements.

- The classroom may have too much stored in it and be untidy.

Points to consider:

- Can you move your table or do away with it altogether? If you only use it to store books etc., a shelf may do just as well.

- Having tables and chairs in rows is fine for pupils working individually. However, if you want pupils to move about, this arrangement is possibly the worst of all, particularly if coats, large bags and other items of pupils' kit are strewn about the gangways. If you have fixed furniture arranged in rows, think about what you can do to store these things elsewhere.

- For group work, pupils need to be able to face each other to talk without having to shout or move about.

- Circles of chairs allow large groups of pupils to see, talk and listen to each other. You can be part of the circle or not, depending on your purpose.

- Consider swapping rooms on occasions when your furniture arrangement constrains what you want to do in a particular lesson.

Task 9

Furniture arrangements and pupil groupings   20 minutes

Now that you have considered your current room, discuss with your mentor or a colleague any of the furniture and pupil arrangements that are possible in your class. Remember, pupils who have been accustomed to deciding for themselves where to sit will need clear, non-confrontational explanations as to why you are making particular decisions and how it will improve their learning.

As always, begin with a plan that is manageable and not too ambitious. The following advice is adapted from Alistair Smith's book *Accelerated learning in the classroom*.

- On paper, plan some arrangements of tables and chairs. Give each table a letter or number and map out two or three arrangements which will support your teaching and help pupils learn more effectively. Make sure each plan shows exactly where the tables and chairs should be. These room plans are very important and it will be helpful to display them in your room so that pupils can refer to them.

- Select a class you think will respond well to these changes in furniture, then choose a lesson where a different arrangement will help. Think about what sorts of grouping you will need. Will these stay the same for the whole lesson? What will the best furniture arrangement be?

- Plan your lesson. Be clear about how working in groups with different furniture arrangements will help pupils learn, and rehearse your explanation to them.

- Plan how pupils will be grouped, even if this is not essential. If you start out by putting pupils into the groups that you want, it helps to establish this as a deliberate way of working. Then it is easier to vary the type of grouping and the combinations of pupils in the future. It also prevents pupils from getting into combinations that do not work as well.

- Discuss your plans and potential pitfalls with your mentor or a colleague.

Adapted from A. Smith. *Accelerated Learning in the Classroom*. Network Educational Press. Reproduced by permission of the publisher. www.networkpress.co.uk; PO Box 635, Stafford ST16 1BF; fax 01785 228566.

Task 10

Put the plan into practice   90 minutes

- Securely label each table with the number or letter from the map and give each group of tables a name.

- Before the selected lesson, enlist some help to move the furniture to your planned rearrangement.

- As the class arrives, welcome pupils and point out that you have rearranged the furniture. Say that you will explain why at the start of the lesson.

- Once the class is in and settled quickly, explain what you have done by referring to your room plan on the wall. Explain how this will help pupils to learn better.

Task continues

- Before the end of the lesson, take a few minutes to ask pupils what they thought of the new arrangement. Then explain that you want them to return the furniture to its original arrangement before they leave. Refer to the appropriate room plan and give any specific instructions which will help. Tell them to work quickly and quietly.

- Before pupils leave, praise them for their positive response and say that in future lessons they may have to move furniture before they start work or even during the lesson. They will have to learn to follow the plans and do this quickly.

- Continue moving the furniture regularly over the following three weeks until your pupils have made the adjustment and can move themselves and furniture efficiently.

- You are now ready to try this with another class whose interest may have been aroused by the display of room plans on the wall.

Once you have established the habit, rotate furniture regularly with a minimum of fuss. In your lesson plans, identify the arrangements which are most appropriate and routinely explain to pupils why you have chosen a particular arrangement. By keeping them informed, you will involve pupils more in their learning – and all the research suggests that the more pupils are involved, the better they learn. Giving pupils choice offers further benefits to their self-esteem, so you might on some occasions explain the lesson and let them decide which arrangement they would prefer.

Practical tip

Where you stand in the classroom will influence which pupils you address directly in question-and-answer sessions. Teachers tend to focus on pupils within a fairly narrow arc. Simply by moving to different points in the room you can ensure a wider range of pupils is included.
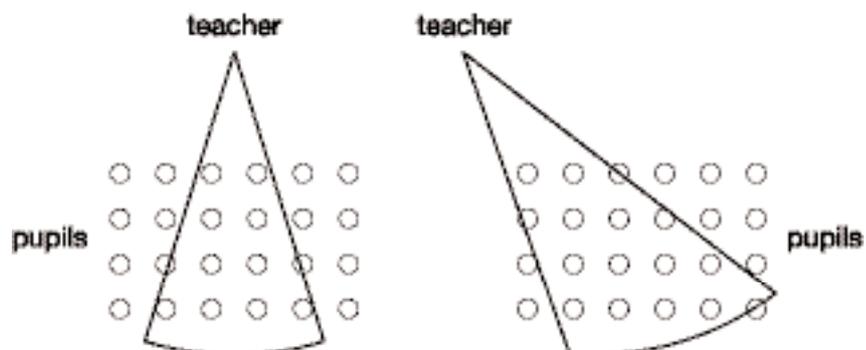
4　Language for learning

Beyond the explanations, the instructions and the other 'stuff' of lessons, what teachers say and how it is said have a significant impact on pupils. This influences how pupils perceive the relationship between themselves and the teacher, which in turn affects their commitment to learning. It is the way that teachers show their commitment to the principles of respect, fairness, challenge, support and security described in the introduction.

Some ways to convey this commitment were suggested in section 1. These included being welcoming and positive to pupils as they arrive, using their names, saying something positive to every pupil individually over a period of time and thanking pupils at the end of a good lesson.

In *Strategies for closing the learning gap*, Mike Hughes describes the types of language that teachers can use to influence pupils' motivation and learning.

- **The language of success:** This means giving pupils the message that you have confidence in them and in their abilities. For example, saying to a pupil 'I *know* you can …' is far more encouraging than saying 'I *think* you can …'.

- **The language of hope:** Ban phrases such as 'I can't do this'. Instead, encourage pupils to adopt the attitude 'I can do it and I'll need some help'. Display phrases such as 'You can do it. What help do you need?'

- **The language of possibility:** Pupils often put limits on what they think is possible, believing that in some way a task or even a subject is beyond their capability. They may describe their supposed inabilities with phrases such as 'I'll never be any good at maths' or 'I always mess up science experiments'. Unsurprisingly, their belief affects their motivation and their commitment to learning. By careful choice of language, teachers can create a climate of greater possibility which will influence pupils' views of themselves. An example of this is given below.

Task 11	Reviewing your use of language	15 minutes
	The grid on the next page is adapted from *Strategies for Closing the Learning Gap*. It shows how a slight shift in language can make a significant difference to the outcome of a typical classroom situation.	
	Reflect on a recent situation in which you responded in a way similar to the teacher in the first example.	
	How could you have changed what you said in order to encourage the pupil?	
	How will you remember to adopt the language of possibility more often?	
Student: I can't do this. It's boring.	The student is actually saying, 'I don't believe I can be successful with this and therefore I don't want to take the risk.' Note: It may or may not be 'boring'.	

Task continues

Teacher: Of course you can. Just keep trying and put a bit more effort in and you'll get it.	Inadvertently, we have denied the validity of the student's feelings. Exhorting her to 'keep trying' is not motivating if she believes the task is beyond her. Asking her to put in a bit more effort presupposes she isn't trying hard enough and it's her fault. Again – not motivating.
A simple shift in language may have the desired effect	
Student: I can't do this. It's boring.	
Teacher: OK, it's a little tricky at the moment. Which bit can't you do yet?	By initially agreeing with the student, we are validating how she is actually feeling, which will always (*sic*) be correct. This is a start to gaining rapport and therefore effective communication. However, by reframing the problem as a 'little tricky at the moment', we have also diluted the severity of the problem and made it a temporary stage. 'Which bit can't you do yet?' repeats the student's words (*can't*), which she will accept, and also lessens the difficulty by presupposing it's only 'a bit'. The inclusion of the word 'yet' serves to emphasise the temporary nature of the difficulty and retains a connection to the possibility of things improving.

We all fall into the trap of using negative language at times, even when it does not accurately describe what we think. You may find, for example, colleagues exclaiming that '9C are unteachable', when they really mean that the lesson did not go to plan for some reason. We need to recognise and sympathise with these kinds of feelings in pupils as well as colleagues. Remember, however, to use language to support learning.

As well as adopting positive language you can also:

- **Remove the language of failure:** Try to avoid telling pupils they are wrong. As well as being demotivating it does not encourage pupils to see mistakes as a vital part of learning. 'You're a step nearer to the right answer' is a very different message from 'You're wrong again!' Words like 'rehearsal' or 'trial' can also be useful.

- **Use no-blame language:** Avoid appearing to blame pupils for their lack of learning. Phrases such as 'Which bit haven't I explained well enough?' will stop pupils feeling it's all their fault.

Other useful positive words and phrases for the classroom include:

- When you finish …

- I know you can …

- Which part didn't I explain well enough?

- I'm sorry, I should have made it clearer.

- What do we need to remember here?

- OK, so you haven't quite mastered it yet.

- Up to now, this bit has proved a little tricky.

- Today you have a fantastic opportunity to show yourself how much you've remembered from the last module.

- You will remember …

- Your choice / it's up to you / you decide.

- That's right, isn't it?

Support your words

The following strategies can also help create a better climate for learning.

- Smile often. It promotes confidence.

- Use open and welcoming body language.

- Although you cannot speak to every pupil individually every lesson, over time try to notice and say something positive about each of them.

- Make eye contact with pupils, especially as they are answering questions.

- Use polite language to model the tone of responses you expect.

- Use names frequently in affirmative ways, for example 'Tom gave two of the really important points in that answer and backed each one up with an example'. Avoid pointing.

- Try to keep your voice pitched low and avoid shouting.

- Try to use praise, frequently but not indiscriminately. Reward progress towards and achievement of targets. Pupils will value the praise if it is clear that it is deserved because of their efforts or achievements. Pupils in challenging classes tend to respond more positively to praise given directly to them even if work is also acknowledged more publicly.

- Encourage pupils to be supportive of each other, to listen and respond with respect, for example by using structures such as 'I agree with Tom that …; however, I think that …'.

- Avoid putting pupils on the spot. Use strategies to ensure pupils feel 'safe' to answer – for example, extending wait time (try to count to eight before expecting an answer); using 'think, pair, share'; prefacing challenging questions with 'This is a really difficult question so I'm going to ask several people and then we'll try to construct a best answer together'.

- At this point you might like to review video sequence 20a.

Task 12 | **Use support strategies** — **15 minutes**

Reflect on the list of support strategies and choose three that you don't use currently or would like to use better.

When you plan your next lesson, identify some opportunities to use the strategies and write them into the notes for the lesson.

Summary of research

Effort

It is important that students believe that effort influences achievement. Other common pupil explanations about how achievement is gained include ability, other people and luck, and none of these is likely to be productive. In one study (Van Overwalle and De Metsenaere 1990), students who were taught about the link between effort and achievement increased their achievement more than the students who were taught techniques for time management and comprehension of new material. Effort is very significant because to grapple with complex problems pupils need to take risks and apply themselves. Students' attitude to effort is determined considerably by praise.

In this respect blanket praise is usually counterproductive. Morine-Dershimer's (1982) research review shows that praise for 'easy' work can undermine achievement because students see it as undeserved, and this lowers their perception of their ability. However, rewards do not have a consistently negative effect (Wiersma 1992; Cameron and Pierce 1994). Reward works fairly well when it is based on the attainment of some specified performance standard. For students to respond to reward or praise they must perceive that the reward is justified. There is evidence, too, that concrete rewards, such as sweets, are less effective than words. Earned praise seems to be an effective way of developing a better learning climate. It is extrinsic but the evidence is that when it is removed, positive attitudes and behaviour continue as intrinsic motivation takes over (Kohn 1993). This outline would fit broadly with the main principles of assessment for learning – pupils working towards clear criteria and developing a sense of achievement and motivation as a consequence.

Relationships

Brekelmans et al. (1993) have researched interpersonal behaviour by teachers with pupils. This model has two dimensions, which are plotted on axes at right angles. The first is 'proximity' which describes the degree of cooperation or closeness between those who are communicating, and the two extremes of the scale are Opposition and Cooperation. The second is the 'influence' dimension and on this scale the extremes are Dominance and Submission. Using standardised data from science tests and questionnaires, completed by Dutch pupils, the researchers were able to correlate achievement with student outcomes. Interestingly, 'Repressive' teachers, who were high on opposition and dominance scores, had the highest attainment. 'Directive', 'Authoritarian' and 'Tolerant' teachers also had high outcomes whilst teachers who were generally submissive had low attainment scores.

However, teachers who were high on the cooperation scale induced more positive attitudes from students. 'Repressive' teachers were high on attainment and low on attitudes. Teachers with disorderly classrooms have low outcomes on student achievement and attitudes. There are a number of texts that summarise research and give advice on relationships and interactions between teachers and pupils (see for example Neil and Caswell 1993).

Another radical approach to improving the climate for learning is using pupils as researchers. In their very accessible, research-based publication, Fielding and Bragg (2003) outline a number of examples where pupils have performed this role. These include:

- good lessons, good teaching, effective grouping practices (Y8);

- developing new teaching approaches (Y9);

- PSHE provision (Y10).

Not only can classroom conditions change as a result, but so can the essential relationship between teachers and pupils.

Creating orderly lessons

Establishing rules

Experienced and successful teachers are clear in their minds at the start of the year how they will conduct their lessons. Most aim for some kind of dominant presence to give a sense of being in charge. They use their eyes, movement, speech and gesture to create the desired atmosphere. They have also established a set of clear rules or expectations (see Wragg 1984 for a fuller account). This investment of time is productive as it pays off through the year, as less time is wasted. These general rules are built upon by having clear procedures for lesson starts and there is much advice within KS3 Strategy materials on lesson starters.

Maintaining momentum during the lesson

Muijs and Reynolds (2001) have summarised some key features of momentum in lessons. It seems that one of the most fruitful ways of preventing pupil misbehaviour during lessons is to ensure the smooth flow of a lesson. Sometimes teachers can themselves slow momentum by, for example, stopping an activity in order to do something else (sometimes referred to as a dangle). Where the teacher returns to the original activity afterwards, this is sometimes called a flip-flop. Both can leave pupils confused about their task and priorities. Overdwelling occurs when teachers go on explaining instructions well after the pupils have grasped what they have to do. Fragmentation is where a task is broken down into too many very small steps. All these can easily be avoided by careful planning.

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Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Investigate what your pupils think about the physical environment of the classroom they are taught in. You might plan a questionnaire and ask questions such as what do they like most and least about particular aspects of their classroom. You might ask them to suggest improvements that will enhance their learning. What did you find out? Were there any common issues raised by different year groups?

- Work with a colleague and investigate how changes to the language you use impact on pupil motivation. Can you generate a larger range of positive words and phrases to add to those on pages 19 and 20?

- Work with your entire department to develop a systematic approach within the department in your subject, which pupils will recognise as a focus for improving their learning. Use section 1 Classroom routines to begin to identify the areas of current practice that you wish to develop. How will you evaluate whether any change has resulted in improved learning? What success criteria will you use?

For further reading, the following publications are recommended:

- Hughes, M. (1999) *Closing the Learning Gap*. Network Educational Press. ISBN: 1855390515.

- Hughes, M. and Vass, A. (2001) *Strategies for Closing the Learning Gap*. Network Educational Press. ISBN: 1855390752.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets

40 minutes

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

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Raising
Standards
Standards and Effectiveness Unit

INVESTOR IN PEOPLE

Creating effective learners

Pedagogy and Practice: Teaching and Learning in Secondary Schools

Unit 16: Leading in learning

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How to use this study guide

Leading in Learning refers to a systematic programme for teaching the five National Curriculum thinking skills. It has been developed as part of the Key Stage 3 Strategy's support for whole-school improvement, and will be available to schools from February 2005. This study unit draws on the *Leading in Learning* approach. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide, you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to teaching thinking skills. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community. Record successes in your CPD portfolio.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

Leading in learning

Contents

Introduction

Most teachers would support the idea that pupils should leave school not only with good examination results to open the gates to employment or higher education, but also equipped to be well-motivated learners. As such they would be able to:

- organise themselves;

- set goals or make plans;

- identify, find and use resources and sources of help;

- collect and analyse information;

- generate ideas;

- reach conclusions or produce a product;

- review or evaluate the outcome.

Through this process they would be able to plan, monitor progress, refocus where necessary and reflect on the experience. In new learning episodes they would be using knowledge from past learning and they would have confidence in themselves, their ability to work with others and a thirst for learning. This capacity for lifelong learning would not only characterise their education and work-life but pervade their social and family life. Not many pupils attain this profile.

Common issues

Recent studies show that pupils in England tend to see education in very utilitarian terms – you go to school to get qualifications in order to get a job or go to college or university. Pupils don't have a clear grasp of learning as a process that can be developed and applied.

Part of the problem is a lack of a precise, common language for considering thinking skills and learning capabilities, which are important to all subjects. Even where teachers are aware of the problem, most feel that they have not got time to address it because of content that has to be 'got through'. The curriculum becomes, therefore, the experience of 'doing' 11 or more independent subjects which do not add up to a coherent whole. Some consequences of this are as follows.

- Plenaries are rushed in the pursuit of coverage and the final plenary is usually reported to be the weakest part of common lesson structures. As the plenary is the opportunity to draw out more general learning, its weakness often means that subject content remains the dominant theme of lessons.

- Pupils do not readily make connections between lessons (within or across subjects) or transfer their learning.

- Pupils are placed in different groupings for different subjects with different teachers, and therefore do not build up coherent relationships or norms as a class and do not have common learning experiences upon which they can all draw.

Resolving the issues

In the most general terms many schools have made attempts to tackle these problems. Often whole-school initiatives related to learning are an expression of such concern. So projects which focus on accelerated learning, learning styles, CASE (Cognitive Acceleration through Science Education) and building learning power address such issues. The *KS3 Learning Challenge* (Ref. DfES 0088-2004) is also relevant to these concerns.

It is important that a structure is used to bring coherence to the curriculum and that this is communicated to pupils.

Teaching with a high level of challenge is a vital ingredient. Learning that demands higher-order skills, problem solving, collaborative learning, critical and creative thinking is necessary to draw out significant transferable skills. It is in such teaching that one is likely to find the threads that connect subjects.

The teaching of plenaries needs to be improved. Pupils have to develop the ability to think and talk about learning so that they are aware of not only what they have learned but also how they have learned it. This cannot be done every lesson but it needs to be a common feature of each pupil's learning career.

Perhaps, above all, teachers benefit from support at the whole-school level that helps them develop their knowledge and practice through:

- planning lessons collaboratively;

- watching others teach;

- being coached;

- gaining access to theoretical ideas which can help them understand and develop their practice.

Reflecting on your school   **20 minutes**

Do you recognise these issues in your school?

How are they being addressed?

Sometimes people reinvent the wheel. To avoid this:

- informally ask around to find out which departments or individual teachers are interested in teaching thinking skills and which have developed experience and expertise;

- more formally consult senior managers with responsibilities such as Curriculum, Teaching and Learning, and Professional Development to build up a profile of interest and expertise in thinking skills across the whole staff. Don't make too many assumptions as there may be Newly Qualified Teachers or teachers nearing retirement who should be included.

1   Making a start

This section contains two tasks that can done in either order. They are valuable because they can provide some first-hand experience which will help in building further understanding in the rest of the unit. From the response that you get from pupils you can begin to judge whether there are already important foundations in the school or whether you are starting from scratch.

Getting the pupil perspective   **30 minutes**

Much of the research evidence suggests that pupils do not develop a rounded view of what schools and education are for.

Select a class, perhaps in Y7 or Y9, and interview a small group (3–4) of pupils centred on the question:

What do you learn in school?

Their first response will probably be a list of subjects. If pressed further they may mention particular topics and possibly issues raised by PSHE, assemblies and extra-curricular activities. With more probing they might begin to discuss how they learn. Some further questions that might help are:

In what subjects do you learn the most?

Do you learn anything about how you learn?

Are there any connections between what you learn in different subjects?

Task continues

If you need to dig hard to get to this layer, and if they find it hard to talk about it because of a lack of language or familiarity with the topic, then the more likely it is that they have not been affected by 'teaching thinking' approaches.

It is also possible that they might have some 'buzz' words such as Visual, Auditory and Kinaesthetic Learning and different kinds of intelligence. In this case see if anything lies behind it.

At this point you may wish to watch video sequence 3a, in which pupils discuss what helps them to learn (unit 3) and video sequence 19a, in which pupils and teachers talk about learning styles (unit19).

Task 3

An early classroom experiment   1 hour

If you do not have any experience of teaching thinking skills then you might try this idea.

Odd One Out is a very simple strategy. Provide pupils with a series of 'sets' of three or four important words in the topic you are teaching. Ask them to choose the Odd One Out. Emphasise three things:

- they must have a reason for their choice;
- in addition to saying why one is different they must also say what the others have in common;
- their answers should relate to understanding the topic – this helps avoid tangential answers such as 'the Odd One Out has four letters and the others have six'.

Make some of the later sets more open or ambiguous so that pupils might generate alternative answers. In some subjects you might prefer to use photographs, pictures, sounds/music or actions instead of words.

Appropriate objectives for such an activity might relate to understanding important words, concepts or terminology in a topic.

2   What is meant by teaching thinking skills?

There is a variety of approaches to teaching thinking skills that can be broadly related to the type of thinking that is being focused on.

1   **General thinking ability or information-processing capacity** (this should not be equated to information processing as a skill): This is the level targeted by CASE (Cognitive Acceleration through Science Education) and CAME (Cognitive Acceleration in Mathematics Education). Both aim to enable pupils to handle more complex thinking or 'formal operations'.

2 **Specific thinking abilities**: This is the approach addressed in the five National Curriculum thinking skills. This approach is dependent on developing reasoning, creative thinking and evaluation through collaborative work and exploratory talk. The thinking that is generated by the talk between pupils gradually becomes internalised by the individual, so that the group's collective thinking becomes their own. This process is greatly assisted if thinking and learning are identified, labelled and explored. This approach is strongly influenced by the work of the Russian researcher Vygotsky.

3 **Metacognition**: This can broadly be described as 'thinking about thinking' and being critical in the ability to plan, monitor and regulate thinking processes. This approach is part of the first, builds the second and requires that pupils periodically stand back from their work. Metacognition is highly dependent on developing a language about thinking and is central to the process of transfer of learning (see unit 2 Teaching models).

These approaches are not competing theories: in fact they can complement one another extremely well. This unit and the *Leading in Learning* initiative focus on the five National Curriculum specific thinking skills and metacognition to encourage transfer. Pupils' disposition and attitudes towards learning are likely to be affected and these will probably be the overt signs of the impact of developing thinking skills.

Although not an approach to teaching thinking skills, it is extremely important to consider pupils' motivation and theories about themselves. For example, Carol Dweck (an American academic) distinguishes pupils who have an entity theory about intelligence/ability from those with an incremental theory. Entity theory suggests that you believe that you are born with a fixed amount of intelligence; so taking risks with hard open tasks has no pay-off as you risk showing that you are not as clever as you believe. Incremental theory implies that you can develop intelligence; so open challenging tasks offer the chance to become a better learner. Making the teaching of thinking skills work is bound up with making pupils believe that they are capable learners and that it is 'cool' to learn. The good news is that pupils can change their theory about intelligence.

| Task 4 | **Reflecting on pupils' theories about themselves** 15 minutes |

Consider the same class as in task 3, or a class you have taught some thinking lessons to. Which pupils appeared most at home with the task and relished the challenge (incremental theorists)? Which pupils seemed most anxious – worried about getting the right answer or uncertain of the purpose of the task (entity theorists)?

3 Characteristics of higher-order thinking lessons

We think nearly all of the time. So, in a sense, all lessons could be considered thinking lessons, but this misses the point.

So what is different about thinking skills lessons?

They focus deliberately on higher-order thinking. Bloom's taxonomy (see unit 5 Starters and plenaries, appendix 1) identifies six levels of thinking: knowledge, comprehension, application, analysis, synthesis and evaluation. The last three are regarded as more complex and demanding.

For teachers, one of the difficulties in teaching thinking skills is that it is more difficult to specify learning. This is because in such open learning contexts there may be a wide variety of learning outcomes. None the less it is important to have objectives and to pursue a focus whilst remembering that learning outcomes may be more diverse. In these circumstances the plenary takes on special importance in terms of drawing out learning – a process sometimes referred to as debriefing.

Lauren Resnick (1987) has characterised higher-order thinking as follows:

- higher-order thinking is not *routine* – your planned actions cannot be totally specified in advance;

- higher-order thinking tends to be *complex* – the total path is not visible (mentally speaking) from any single vantage point;

- higher-order thinking often yields *multiple solutions*, each with costs and benefits, rather than unique solutions;

- higher-order thinking involves *nuanced judgements* and interpretation;

- higher-order thinking involves the application of *multiple criteria* which sometimes conflict with one another;

- higher-order thinking involves *uncertainty* – not everything that is relevant to the task at hand is known;

- higher-order thinking involves *self-regulation* of the thinking process – this does not occur when someone else tells you what to do at every step;

- higher-order thinking involves *imposing meaning* or *finding structure* in apparent disorder;

- higher-order thinking is *effortful* – there is considerable mental work involved in the kinds of thinking and judgements required.

Extract from *Education and learning to think*, Resnick, Lauren © 1987 National Academy of Sciences. Reprinted courtesy of the National Academies Press, Washington, D.C.

This is a generalised description. To help develop it, a parallel can be drawn with one of those occasions in adult life that is reputed to be highly stressful – moving house (task 5). To cope with such an event, it can be argued, you need higher-order thinking.

Understanding higher-order thinking   **10 minutes**

Relate this description of the process of buying a new house to the characteristics of higher-order thinking and then consider the review questions at the end.

> When you buy a new house you cannot make the decision in a simple routine sequence, like a formula. You don't know how things will turn out because you don't know which houses are available, whether you can sell your own or borrow enough money, whether other people will make higher bids or whether the houses have bad survey reports. As you consider possible houses all the front runners have pros and cons, none is perfect. So you have to start deciding priorities (multiple solutions and fine judgements). Different members of the family have different opinions (multiple criteria). Just when you think you have got the right house, someone else makes a higher offer or your buyer falls through (uncertainty). You can take advice but you have to get involved, stay calm and fairly rational, and think things through (self-regulation). You have to be really clear about what you are doing, how and why you are doing it, and how it will be achieved (imposing meaning). This is all effortful, to the point of being stressful.

Part of the importance of this kind of activity is that it reminds us that education is a preparation for life and pupils will face such situations. As educators we have the ambition to prepare them for such exertions. Some lessons need to be complex, demanding and even have elements of confusion.

Review questions

1 When you have tried thinking skills lessons, such as Odd One Out in task 3, have pupils started to show signs of higher-order thinking? Are they looking for different solutions, using a variety of criteria, *struggling* to find meaning, thinking things through and making a real effort?

2 If the answer is generally 'yes', can you identify how this could be further improved, perhaps through structuring the task so that there are more acceptable solutions? If the answer is generally 'no', discuss your difficulties with a colleague.

4 National Curriculum thinking skills

The National Curriculum provides a framework of five thinking skills. These are:

- **Information-processing skills**: These enable pupils to locate and collect relevant information; to sort, classify, sequence, compare and contrast; and to analyse part/whole relationships.

- **Reasoning skills**: These enable pupils to give reasons for opinions and actions, to draw inferences and make deductions, to use precise language to explain what they think, and to make judgements and decisions informed by reasons or evidence.

- **Enquiry skills**: These enable pupils to ask questions, to pose and define problems, to plan what to do and how to research, to predict outcomes and anticipate consequences, and to test conclusions and improve ideas.

- **Creative thinking skills**: These enable pupils to generate and extend ideas, to suggest hypotheses, to apply imagination, and to look for alternative innovative outcomes.

- **Evaluation skills**: These enable pupils to evaluate information; to judge the value of what they read, hear and do; to develop criteria for judging the value of their own and others' work or ideas; and to have confidence in their judgements.

| Task 6 | **Relating National Curriculum thinking skills to your subject at GCSE** | **45 minutes** |

The components of the five National Curriculum thinking skills are set out in the table below.

Have some recent GCSE papers and your current GCSE coursework tasks in front of you. Identify 5–10 of the skills on the basis of their importance to GCSE in your subject and note in the right-hand column where and why they are important to attainment.

National Curriculum thinking skills

National Curriculum thinking skills	Relevance to your subject
Information processing	
Collect material	
Sort and classify	
Sequence	
Compare and contrast	
Analyse parts and wholes	
Reasoning	
Give reasons	
Make inferences and deductions	
Explain	
Make decisions	

Table continues

Enquiry	
Ask questions	
Pose problems	
Plan what to do	
Predict outcomes	
Improve ideas	
Creative thinking	
Generate and extend ideas	
Hypothesise	
Look for alternatives	
Apply imagination	
Evaluation	
Develop criteria	
Weigh information	

Infusing thinking skills into Key Stages 3 and 4

In the current context in England, infusion of teaching thinking into subject teaching promises to be the most effective model of implementation. There are a number of ways in which this can be approached:

- using the Cognitive Acceleration through Science Education (CASE) or Cognitive Acceleration in Mathematics Education (CAME) programmes integrates the major principles of teaching thinking into lessons; for example, challenge (or cognitive conflict), collaborative talk and metacognition (www.kcl.ac.uk/kings_college/depsta/education/teaching/CASE.html and www.kcl.ac.uk/depsta/education/came.html) (see also unit 2, section 2);

- adopting an approach such as Philosophy for Children, which is an excellent vehicle for promoting questioning, listening, collaboration and reasoning, and very valuable in English and the humanities subjects (www.sapere.net);

- using teaching 'strategies' as found in the *Leading in Learning* initiative, such as Reading images, Summarising, Analogies, and Audience and Purpose. With this approach it is important to maintain a focus on the five National Curriculum thinking skills.

***Leading in Learning* example**

The following is an abridged version of one of the ten 'strategies' offered in the *Leading in Learning* whole-school initiative.

Reading images

This very basic but powerful technique involves providing pupils with a photograph or other visual image (reproduced with a white border) as a source of information and asking them to annotate or label it. They are asked to make links to what they already know, whether from previous work or general knowledge, and should suggest a title or overall heading for the image. There are variations around this basic approach. As with other thinking strategies, it is important for pupils to explain their thinking to others.

Rationale

We live in a highly visual society saturated with educational, work and leisure images. This strategy aims to develop pupils' visual literacy so that they are better equipped to decode this type of information. There can be a pay-off on many levels:

- working with visual information is a gateway to creativity and can boost the self-esteem of pupils who are struggling with literacy;

- pupils with visual learning preferences can learn more effectively through images of various kinds;

- in examinations for many subjects, information is often provided as diagrams, photographs, pictures and maps;

- there is great joy in being able to make sense of visual information.

The teacher's role is to get pupils to look harder, find patterns, make inferences and look for connections.

National Curriculum thinking skills addressed

Reading images is strong for:

- information processing in terms of analysing part/whole relationships;

- reasoning skills, particularly explaining thinking, giving reasons for opinions, drawing inferences and making deductions;

- creative thinking, including suggesting hypotheses and applying imagination.

Creating the right level of challenge

To support lower-achieving pupils you might:

- model the process of making links and annotations using an OHP, projector or interactive whiteboard, centred on questions such as 'What can we see here?', 'What is happening here?' and 'What does this image show or suggest?';

- place a 'grid' on a clear acetate sheet over the image and ask them to 'read' it square by square. This can support the analysis of part/whole relationships;

- create mixed-ability pairings to work collaboratively;

- encourage pupils to use questions such as '*Who* are these people?', '*Where* have they come from?', '*What* are they doing?', '*Why* are they doing this?' and '*When* is this happening?'. This is termed using the *5Ws* – using *Who*, *What*, *Where*, *Why* and *When* – as question stems.

To challenge higher-achieving pupils you can:

- encourage them to move beyond what they can actually see, to what it implies or means, thus making more abstract or generalised links;

- ask groups to make a case for something in the image – different groups of pupils can be given different or opposing cases;

- ask groups to put a number of images in a time or causal sequence.

Identifying successful thinking

Levels of response or staged success criteria can be used to support you in short- and medium-term planning for progression.

- Connections are made but are largely unsubstantiated or inaccurate.

- One or two relevant connections are made relating to visible features in the image, but there are problems in explaining the connection. Cannot produce a reasoned title.

- Three or more direct connections are made relating to visible features in the image, but there are still weaknesses in explaining the connections. Difficulty in producing a title.

- A number of relevant connections are made and explained adequately with some linkage between the points. Able to generate a justifiable title or heading. Often able to describe basic processes used.

- Inferences or deductions are made beyond the direct connections. Use is made of wider knowledge, and some connections are likely to use higher-order or abstract concepts and thus be more generalised. May generate alternative explanations or interpretations. Can describe processes used in some detail.

- Can do all of the above but also shows an awareness of an overall strategy to complete the task, i.e. has gone from 'this is how I did the task' to a more generalised 'this is how you tackle tasks like this'.

In progressing through these levels pupils would also be improving their skills in analysing part/whole relationships, and asking questions. In certain contexts they might also develop the skills of suggesting hypotheses and applying imagination.

Troubleshooting

Possible difficulties	Possible solutions
Pupils come to this 'cold' and don't know where to start	Model the process, encouraging early efforts and stressing that there is no one right answer
Pupils focus only on visible features and are unable to make more abstract generalised links	Scan systematically and focus on visible features using the *5W* strategy (*who, what, where, why, when*) to take them beyond the visible
Pupils do not justify the links they make	Pupils need to be pressed both in their groups and in the whole-class discussion to justify the connection they make with the picture
Pupils run out of steam quickly after finding two or three links	Start with pairs working together and then put pairs together to make fours which exchange connections – this creates a bit of peer pressure
Pupils can be timid, if they are unused to such approaches, in either challenging or extending connections made by others	This can be modelled by the teacher, who might make a vague connection and ask pupils whether enough had been said and invite them to ask questions for clarification etc.

Metacognitive plenaries

Questioning for metacognition helps pupils to unpack what and how they have learned and what they might do with this learning. The following sequence of generic questions can be used to encourage pupils to take a metacognitive approach to reading images.

Type of question	Generic teacher questions
A warm-up question	'What connections have you made?'
Reflective – general	'How did you do it?'
Reflective – specific	'What makes a good connection?'
Lead-in question	'What is your title?'
Reasoning question	'Why that title?'
Challenge/ reasoning question	'Do you prefer or like anyone else's title? Why?'
Application question	'Why is being able to "read" an image, picture or real-life scene important?'

Bridging scenarios

Stories, prompts, analogies and scenarios should be used to encourage pupils to make connections, generalise and see a bigger picture with regard to the value of being able to read images. They can be used at either the beginning or the end of lessons. They are vital to encouraging pupils to respond to application questions like the one above. Bridging scenario examples include:

- This is like the programmes that you see on TV, where a detective visits a crime scene and looks carefully around, at photographs, things that tell them about the person, things that are out of place and don't make sense, using visual clues to build up a picture.

- If you ever watch a builder sizing up a repair or extension job, a doctor examining a new patient, a clothes consultant giving the 'once-over' to a client, they all look at the 'problem' from all angles, looking for all the tell-tale signs, sizing up the job, making connections – they are reading the visual image.

- There are art experts who can look at a painting and can tell you not only what the painting is about but how it connects to the time and place it was painted and the ideas and motivation of the artist. For example, they might say that the priest in the background represents the power of the church and the dog curled up at his feet is the same as the one the artist had as a boy.

The important point is about the difference between looking and seeing. Two people can look at something but they see different things because one is able to make more connections and therefore to make more sense of what they see.

5 Improving planning and teaching of thinking skills lessons

In the previous section the *Leading in Learning* example related to 'reading images' had seven headings which can be used in general planning of thinking skills lessons. However, it is important that you develop a clear model of stages in thinking skills lessons as a basis for improving practice.

The launch

The notion of a launch is an analogy. Consider a space travel vehicle. It needs a rocket to launch it so that it can overcome gravity, get through the Earth's atmosphere and get headed on the right course. So it is with pupils on some occasions. They need the boost of the rocket to get them off the ground – in this case thinking! They need some help to get through the first hard, dangerous bit where they are dealing with the atmosphere and gravity. Once in space they can travel under their own power. But before they get there they will need their bearings, so:

- help pupils see the relevance or interest in the forthcoming task;

- outline what you are looking for in terms of learning behaviour;

- get pupils tuned to the type of thinking and effort required, which may require modelling;

- clarify any terms, concepts or procedures that may be required.

There will be some distinctive features to the launch of a thinking skills lesson.

- Objectives will focus on the thinking and learning in which pupils will be engaged.

- There is a strong emphasis on collaborative working, sharing ideas and talk together. You might suggest that they are sharing their brains to produce better ideas and thinking.

- Connections to other subjects or contexts are stressed, 'bridging scenarios'. You might ask pupils to consider what they already know that will help them with the task that they have been set.

> **Practical tip**
>
> If pupils fail to see the point of focusing on a thinking skill, offer them a real-life application and perhaps ask them if they can think of another.

Task 8

> **Helping pupils make connections** **15 minutes**
>
> For a particular lesson tell the pupils a short story, real or imaginary, about yourself, friends, family or someone famous, that illustrates the relevance of the objective or aim of a lesson – it does not have to be a thinking skills lesson. Pupils love stories – so get them hooked but don't ramble on. You can think of it as being like a mini-fable that conveys an important message.

The middle or group-work phase of a thinking skills lesson

In the middle phase of the lesson pupils should be working in groups on the challenging open task that has been set. Their thinking is expressed in the talk that takes place. This talk helps stimulate further higher-order thinking. Part of the purpose of the plenary is to review and rehearse learning and therefore the middle phase of the lesson is an opportunity to eavesdrop on pupils' thinking and talking. If you do this you can ensure that this thinking is shared more widely in the plenary and greater learning is possible.

- A part of your role during the group-work phase is to administer and move the task on. Depending on the strategy this might be managing timing, handing out blank cards, etc.

- Watch and listen to groups as much as possible. Reflect on your questions for the plenary, making notes on anything that may be useful.

- If you need to intervene in a group which is really stuck:
  - encourage the group to discuss their own difficulties to see if they can be more self-reliant and less helpless;
  - encourage evaluation and reflection on progress and methods, so that ideas are refined and improved.

- On occasions, you may want to draw the class together in order to move their collective thinking on a stage. However, do not allow this to disturb the flow of group discussion or leave you short of time for the final plenary.

From a teaching perspective, distinctive features of the group-work phase are:

- eavesdropping on discussion in the groups in order to capture pupils' thinking to inform the plenary;

- keeping interventions minimal, because it is important to allow pupils to learn from struggling (collaboratively) with the task or problem.

> **Practical tip**
>
> If a group is obviously stuck or asks for your help, get them to identify specifically what they are finding difficult, then tell them that you will leave them to talk it through for two minutes. They should come up with one or two ways of overcoming the problem and you will return to help them to choose the best way or to offer another suggestion. You are encouraging them to be more self-reliant.

The plenary

The plenary is a vital part of every thinking skills lesson but is usually reported to be the most difficult phase. Pupils have to develop the ability to think and talk about learning so that they are aware of not only what they have learned but also how they have learned it – this is metacognition. It requires you to ask the right kinds of question and to provide the language structures that pupils need to talk about their thinking. Plan key questions in advance but be prepared to develop them on the basis of what you overhear during group work.

- **Ensure extended answers.** Ask a fair proportion of open questions and use supplementary prompts such as 'Go on', 'Tell me more about that' and 'Explain why you think that', so that you get extended answers.

- **Encourage build-up of joint thinking.** Encourage pupils to listen to each other and respond to, criticise, evaluate or disagree with each other: 'Does anybody have a different idea/approach/method?', 'Do you all agree?', 'I know that some other groups were thinking differently'. At this point your earlier listening and watching can pay real dividends as you can invite other groups or individuals to contribute.

- **Summarise thinking** and act like a broker for ideas and reasoning, so that good thinking is offered to all.

- **Focus on the 'how'.** On some occasions focus on how the task has been done. Identify main patterns and little idiosyncrasies, in terms of both how individuals thought and the ways in which groups operated.

- **Make connections.** If at all possible make a connection between the solutions or the methods and other contexts, so that pupils can see the wider purchase and application of the emerging learning. The examples in the 'Bridging scenarios' section for the Reading images strategy in task 7 should provide some stimulus.

- **Establish generalisations** that relate to the five National Curriculum thinking skills so that they become more visible and transferable in other lessons and contexts. This is partly achieved through the stories, examples and analogies.

The singular distinctive feature of a thinking skills plenary is that it is not about subject content – the 'what' of the lesson. It is exclusively focused on the thinking skill – the 'how' of the lesson.

Practical tip

Plenaries can founder because pupils are not used to this process. They need some 'think time' to rehearse their thoughts. Put two or three questions on the board and tell groups that they have a few minutes to prepare answers. Make it clear that anyone might be expected to make a contribution.

Task 9

Improving the plenary   **20 minutes**

Choose a suitable thinking skills lesson when pupils are working well in groups and listen to them talking. Note down some of the things that they say and perhaps what is happening in the group. For example, one person is dominating, a group clarifies or rehearses what they have to do in a task, or someone has a good idea which is ignored. Actually write what you see or hear on paper.

Consider whether any of these observations would be useful in the plenary to draw out good strategies or ideas.

6   Evaluating impact

To sustain developments in classroom practice you need to get an immediate positive response from pupils. It isn't helpful to wait months or years before pupils sit public examinations – we need the evidence of our eyes and other senses to confirm that we are doing something worthwhile.

Task 10

Evaluating successes and weaknesses   **30 minutes**
of lessons

Consider any recent thinking skills lesson. Use the framework on the next page to analyse the successes and weaknesses of the lesson.

- Start with the successes. Tick any of the successes of the lesson in the 'Evidence of positive outcomes' boxes.

- Now tick any of the boxes labelled 'Possible causes of positive outcomes' which you think help explain the successes. Draw arrows between any of the ticked causes and ticked successes to indicate a link between them. Annotate the arrows if possible. You may wish to add extra causes and positive outcomes.

- Then do the same for weaknesses.

Any lesson could have both successes and weaknesses. An advantage of going through this process is that it can identify reasons for lesson outcomes so that they can be strengthened further or improved.

Evaluating thinking skills lessons

Possible causes of positive outcomes

| different type of more open activity |

| a good launch |

| working in groups |

| plenary focused on reasoning or metacognition |

Evidence of positive outcomes

| pupils more interested or motivated | good quality of talk between pupils |

| longer answers in plenary | good ideas being generated |

| better behaviour from 'difficult' pupils | pupils seeing connections |

Possible causes of weaknesses

| unfamiliar, 'threatening' type of work |

| poor social skills amongst pupils |

| weak (or no) plenary |

| uncertain launch |

Evidence of weaknesses

| pupils slow to start | no deep or creative thinking |

| limited talk within groups | pupils don't talk about their thinking |

| pupils give up or finish too easily/quickly | pupils off-task |

7 Progression

Teachers who have infused thinking skills within their own subject and/or planned to coordinate teaching across several subjects have found planning progression a challenge. Five approaches have been developed in the *Leading in Learning* initiative.

1 **Increasing the difficulty of the task**: This might be done by providing more information, introducing conflicting information halfway through an activity, or asking pupils to evaluate as well as create ideas.

2 **Reducing the amount of support**: The support may have been in the form of questioning, modelling, explaining or scaffolding that is available for the task. Reducing support means pupils are expected to work more independently. This can be done by asking them before they start an activity to consider what they already know that might be useful in the current task, and to generate a rough plan for tackling it.

3 **Increasing the complexity of the group work**: This can be done by, for example, asking pupils to work with those that they don't normally work with, perhaps in mixed-gender groupings. The richness of the group work and talk can also be extended by asking pupils to use cue cards. Cue cards are reminders to pupils, printed on card and available on the desk, to try particular behaviours in talk or thinking, such as 'Has everyone been asked for their ideas and been listened to?'.

4 **Increasing the level of challenge in the plenary**: You could ask pupils to reflect more on how tasks have been done and what significance this has. This will make the plenary more metacognitive.

5 **Expecting improved performance or attainment**.

In summary, you should aim for either an improved individual outcome or an improved group outcome. The significance of the latter is that what the members of a group may be able to do together this week, an individual from that group may be able to do next week on their own. That will show that the process or skill has been internalised. This corresponds with the idea of a Zone of Proximal Development, or ZPD, as proposed by the influential Soviet researcher Vygotsky whose work has become very popular in the West recently although he died in the 1930s.

Task 11

Experimenting with progression   **30 minutes**

- You could plan to use one of these approaches to progression in a forthcoming thinking skills lesson and evaluate its effect.

And/or:

- You could consider any thinking skills lessons you have taught recently. Which if any approaches to progression did you use in your planning and teaching? Were these approaches successful?

Thinking words

The table below contains a list of 'thinking' words from various Key Stage 3 National Curriculum subjects, which represent important skills. Do pupils really understand these words (which is more than being able to give a rehearsed definition)? If they understand them at all, do they have depth in that understanding? In relation to evaluation, do pupils know:

- what criteria are?

- that criteria selected should be chosen according to purpose?

- that values influence choice of criteria?

- what prejudice is?

- that criteria can be used in a variety of ways, such as equal weighting, loaded weighting, intuitively?

analyse	listen for gist	synthesise
identify	vary	speculate
evaluate	organise and present	question critically
prioritise	skim	adapt
select	scan	practise
clarify	summarise	improvise
classify	explore ideas	develop ideas
justify	investigate	compare
make decisions	listen with discrimination	weigh viewpoints
explain	experiment	rehearse
apply rules and conventions	make reasoned judgements	recognise limitations of accuracy
infer	deduce	check
narrow down	draw conclusions	use logical argument
refine	collaborate	combine

Selecting thinking words for your subject 30 minutes

Without looking at the National Curriculum programmes of study, your subject framework or departmental schemes of work – in other words using a 'gut' response – select about ten 'thinking' words from the table that you think are particularly important in your subject across Key Stages 3 and 4.

If you are working collaboratively, compare your list with colleagues from either the same department or other departments. What have you got in common?

Now select just three of these words which you regard as most important. Identify from your departmental schemes of work how they are taught – are they explicit or implicit? They are implicit if pupils are just meant to pick them up along the way.

Compare your long list of ten and shortlist of three with the five National Curriculum thinking skills. Can you link your thinking words with the five National Curriculum thinking skills: Information processing, Reasoning, Enquiry, Creative thinking, and Evaluation?

Summary of research

Two research reports provide a backdrop to this booklet. They are *From thinking skills to thinking classrooms: a review and evaluation of approaches for developing pupils' thinking* (McGuinness 1999), which was a DfEE research report, and *Teaching thinking skills* (Cotton 1991), prepared by one of the major centres for teaching and learning in the USA.

The report by Kathleen Cotton establishes some important contexts.

- Nearly all the thinking skills programmes and practices investigated made a positive difference to achievement levels of students.

- Gains in achievement levels were reported most commonly in relation to creative and critical thinking skills, and metacognition.

- There was a strong emphasis in the research studies on classroom climate, such as high expectations, teacher 'warmth' and encouragement. It is seen as important that pupils feel free to explore and express opinions, consider alternative opinions and justify their thoughts and ideas. Moving beyond one's normal mental habits is *risky* and needs nurturing.

- The success of a programme depends considerably on 'implementation' factors such as management support, appropriateness and the extent to which it is put into operation in the intended manner, so that it is not superficial, partial or cutting corners.

Cotton's report is from the USA, so it is valuable that the McGuinness report is written with the British context in mind. It is important to note that this document puts greater emphasis on interpretation and recommendations for policy and practice. Some of the selected findings are given in the table below with some commentary in relation to effective implementation.

Selected findings	Commentary
Raising standards requires that attention is directed not only on what is to be learned but also on how children learn and how teachers intervene to achieve this.	*This suggests that much greater emphasis be given both to developing pupils' generic capability as learners and to developing teachers' skills in the classroom to make critical interventions.*
A successful prototype for developing curriculum materials was identified: strong theoretical underpinning; well-designed, contextualised materials; explicit pedagogy; teaching support and programme evaluations. Curriculum materials alone are not sufficient.	*Producing training materials or a folder is not sufficient. Teachers need to work together with support, attending to their practice and their understanding of the principles of teaching thinking. The KS3 Strategy, through its consultants and networks, can provide much of this support. LIG collaboratives also provide an appropriate infrastructure.*
There is scope for … more systematic work within subject areas … to examine commonalities and differences between thinking skills as they are exercised in disciplinary contexts.	*This highlights the incalculable practical value of cross-subject collaborative work within schools.*
(There are) opportunities for embedding thinking skills across the curriculum and there are clear arguments in favour of doing this. Nevertheless, the challenges of adopting an infusion approach should not be underestimated, especially the risk that the thinking skills framework may become trivialised or 'watered down'.	*There is a strong echo here of the warning in Cotton's work about the importance of implementation factors. There is a tendency for some schools to say 'We are <u>doing</u> thinking skills'. One of the characteristics of schools that are implementing rigorously is that they know how much there is still to do and learn, especially in relation to managing discussion and developing metacognition and transfer.*
Much of the research on the efficacy of teaching thinking was conducted under optimal learning conditions and problems with scaling up and transferring the effects of everyday classrooms have been identified.	*One of the aspects of implementation is how an institution embeds its successes. Great attention needs to be given to sharing practice, inducting new members of staff and refining schemes of work to reflect progress.*

… the idea of thinking classrooms, and schools as thinking communities, requires further articulation and interpretation …. Nevertheless thinking classrooms brings thinking skills analysis the full circle and links with emerging research on school ethos.	*There is the need for a shift in mind-set to make 'thinking' an established feature of schools. To encourage pupils to be more autonomous, ways have to be found for giving them more choice and control, not only in managing their own learning but also in contributing to school development. Likewise, to develop pupils as learners schools need to create the conditions for staff to think and learn.*

Thinking skills frameworks for post-16 learners: an evaluation (Moseley et al. 2003), although focused on post-compulsory education, reviewed evidence relating to wider age groups. This report recognised from the research evidence that:

> *If learners are to benefit from thinking skills approaches they need to develop a deeper understanding of learning and instruction and appreciate the value of thinking skills in daily life.*

To do this for Key Stage 3 and 4 pupils means that teachers must help them to blur the sharp boundaries between school and other aspects of their lives.

References

- Cotton, K. (1991) *Teaching thinking skills.* School Improvement Research Series, North West Regional Educational Laboratory (www.nwrel.org/scpd/sirs/6/cu11.html).

- McGuinness, C. (1999) *From thinking skills to thinking classrooms: a review and evaluation of approaches for developing pupils' thinking*. DfEE research report RR115.

- Moseley, D. et al. (2003) *Thinking skills frameworks for post-16 learners: an evaluation.* Research report to the LSDA, University of Newcastle and University of Sunderland.

- www.standards.gov.uk (and select thinking skills).

Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Continue working with your own class, using learning logs to help pupils to become more reflective about their learning. Evaluate the impact of using the logs by reviewing a sample of the logs after a period of time and interviewing one or two pupils.

- Enlist the help of a TA or student mentor (e.g. from the sixth form) to assist with questioning particular groups of pupils or to eavesdrop on group discussions and record points to feed back to you.

- Work with a colleague in another department who teaches the same class as you. Choose a relevant thinking skill and plan lessons in both subjects to develop that skill explicitly. If possible, observe each other's lessons. Meet between the lessons to review progress and identify points for the second lesson. Meet afterwards to assess the impact of your lessons.

- Find out about local support networks of teachers developing thinking skills, as a way of sharing developments and extending your practice.

For further reading the following publications are recommended:

- Baumfield, V. (2002) *Thinking through religious education*. Chris Kington Publishing. ISBN: 189985746X.

- Claxton, G. (1999) *Wise-up – the challenge of lifelong learning*. Bloomsbury. ISBN: 1582340927.

- DfES (2002) *Training materials for the foundation subjects*. Ref. DfES 0350/2002.

- Dweck, C. (2000) *Self-theories – their role in motivation, personality and development*. Psychology Press. ISBN: 1841690244.

- Fisher, P. (2002) *Thinking through history.* Chris Kington Publishing. ISBN: 1899857443.

- Leat, D. (ed) (1998) *Thinking through geography*. Chris Kington Publishing. ISBN: 1899857990.

- Lin, M. and Mackay, C. (2004) *Thinking through modern foreign languages.* Chris Kington Publishing. ISBN: 1899857958.

- Nichols, A. (ed) (2001) *More thinking through geography*. Chris Kington Publishing. ISBN: 1899857435.

- Resnick, L. (1987) *Education and learning to think*. National Academy Press. ISBN: 0309037859.

- Shayer, M. and Adey, P. (eds) (2002) *Learning intelligence.* Open University Press. ISBN: 0335211364.

- Shayer, M. and Gamble, R. (2001) *Bridging from CASE to core science*. The Association for Science Education, Black Bear Press. ISBN: 0863573322.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets
40 minutes

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

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Raising
Standards
Standards and Effectiveness Unit

INVESTOR IN PEOPLE

Pedagogy and Practice:
Teaching and Learning in
Secondary Schools

Unit 4: Lesson design for inclusion

Designing lessons

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How to use this study guide

This study unit offers some practical strategies that teachers use to design effectively inclusive lessons. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to working with a range of pupils. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 4, Lesson design for inclusion

Lesson design for inclusion

Contents

Introduction

Successful inclusion teaching and learning

Pupils in inclusive schools/classrooms will:

- have an equal chance of access and achievement in the mainstream classroom;

- be taught in ways that take account of their varied life experiences, and needs, including their language needs;

- have their progress regularly monitored and evaluated;

- be held into the pace of learning through the setting of high expectations for all and the targeting of additional support so that they can access learning at an appropriate level;

- be supported so that any barriers to learning can be addressed and overcome.

Common issues

- The specific strengths and needs of groups of pupils may not be recognised or acted upon by schools.

- Teachers may lack the relevant information and data to be able to plan effectively for the needs of groups and individuals.

- Lesson content and structure of tasks may limit the involvement and thus achievement of some groups of pupils.

Resolving the issues

In order to resolve issues of inclusion, you need to plan and teach inclusively. This unit provides guidance and a series of supported tasks to help you to achieve this in your classroom.

Giving equal opportunity and access to pupils does *not* mean treating everyone the same: this will not act to minimise disadvantage or address underperformance. Equality of opportunity requires an understanding that some individuals and groups of pupils will need *more* support or additional provision in order to have an equal chance of access to success and achievement in the mainstream classroom.

All pupils, without exception, are able to make learning progress. However, if we are to ensure that this happens, we need to foster inclusive classrooms in inclusive schools.

1 Setting the context for inclusion

Inclusion: a statutory obligation

The National Curriculum 2000 gives statutory guidance on inclusion, requiring teachers to have due regard to three principles for planning and teaching:

- setting suitable learning challenges;
- responding to pupils' diverse learning needs;
- overcoming potential barriers to learning.

QtTs (who are qualifying to teach) and NQTs (newly qualified teachers) are also set standards with expectations that all beginner teachers must demonstrate their understanding of the principles of inclusion in order to gain Qualified Teacher status.

What do we mean by inclusive teaching?

Consider this useful definition of an inclusive school:

> *An educationally inclusive school is one in which the teaching and learning, achievements, attitudes and the well-being of every young person matter. This shows, not only in their performance, but also in the ethos and willingness to offer new opportunities to pupils who may have experienced previous difficulties. This does not mean treating all pupils in the same way, rather, it involves taking account of pupils' varied life experiences and needs.*

Extract from *Evaluating Educational Inclusion*, www.ofsted.gov.uk/ publications/index.cfm?fuseaction=pubs.displayfile&id=459&type=pdf.
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How would you know if a school was truly 'inclusive'? What might the indicators be that:

- there is a fair deal for all pupils;

- the school overcomes any barriers to learning for individual pupils and groups;

- the school's values are clearly reflected in day-to-day practice?

What would you expect to see in classrooms and around the school?

Knowing your pupils

The first step towards inclusive teaching is to find out about each individual. Groups of pupils who are at risk of underachieving may be those who:

- are Black boys of African Caribbean heritage;

- have identified special educational needs;

- are white working-class boys;

- are learning English as an additional language;

- are from Roma or traveller families;

- are from refugee or asylum-seeking families;

- have arrived at school after the normal point of entry for the phase;

- are girls who are in a minority in a class/group;

- are designated as gifted or talented pupils.

Although subject teachers can do a great deal to ensure the active involvement of all pupils, their impact can be limited unless it is part of a positive, active whole-school approach.

Task 1

What do you know about your pupils?   **45 minutes**

This task is best carried out with the support of a senior manager, the person responsible for inclusion or the SENCO.

Look again at the list of potentially underachieving pupil groups above and compare it with the population in your own school. To do this, you may need to ask a senior manager to provide you with a detailed picture of the pupil population.

Now analyse the information and note any significant pupil groups. Listed below are some factors that may be significant when you consider the data on your own school population:

- significant differences in the number of boys and girls overall;

- the proportions of minority ethnic groups (including travellers, looked-after pupils, refugees and faith groups represented);

- the proportion of children learning English as an additional language and the provision made for them;

- the number and range of pupils identified as having special educational needs and being supported through school action, action plus or a statement;

- the gender and ethnicity of pupils who have been formally excluded.

Finally, make sure you have details about the pupils you need to include within your own particular teaching groups, which you will need in order to complete further tasks in this unit.

Asking pupils themselves what helps them learn best can provide you with real insights. Watch video sequence 4a to see what one group thinks about boys learning. Consider how you could find out what your pupils think might help them learn. Unit 3, Lesson design for lower attainers might also provide some insights.

2 Lesson design – planning for inclusion

Principles that underpin inclusive teaching and learning

Effective inclusive teaching occurs when:

- **pupils are clear what they will be learning**, what they need to do and what the criteria are to judge when the learning has been achieved;

- **links are made to learning elsewhere** in the curriculum or in intervention groups, helping pupils transfer their knowledge and understanding in different contexts;

- **lesson starters and introductory activities create links** with prior knowledge and understanding, are active and enjoyable and create success;

- **there are frequent opportunities for purposeful talk**, for learning through use of talk partners or structured small-group tasks with supportive peers;

- **pupils are encouraged to ask questions** to clarify understanding;

- **pupils have personal targets** which they own and are working towards in the lesson;

- **the teacher models the process**, explaining what they are doing, thinking and questioning aloud;

- **homework or pre-learning is referred to and used** to move pupils forward within the lesson;

- **strategies for active engagement** through a range of different styles are used at various points throughout lessons;

- **lessons conclude with plenaries** that support pupils in reflecting openly on what they've learned and how this fits with what is coming next.

It is not possible, nor necessary, to attempt to employ all of these strategies all of the time, but it is essential to know what needs to be done to accommodate the learning of all pupils within each class. This decision will depend upon the profile and needs of the class.

Now look at an example of a lesson which exemplifies some of the above principles and features in action.

Task 2

| **Observing an inclusive lesson** | **30 minutes** |

Watch video sequence 4b of a Year 9 science lesson that exemplifies an effective inclusive lesson.

The lesson was filmed at an inner-city girls' school in London. It shows a Year 9 middle set revising respiration. As you watch the video, consider how the teacher includes the wide range of pupils in his lesson by doing the following:

- setting clear expectations;

- actively engaging all pupils;

- using a range of teaching strategies;

- seating pupils with a 'buddy';

- pitching questions;

- grouping pupils for specific learning purposes;

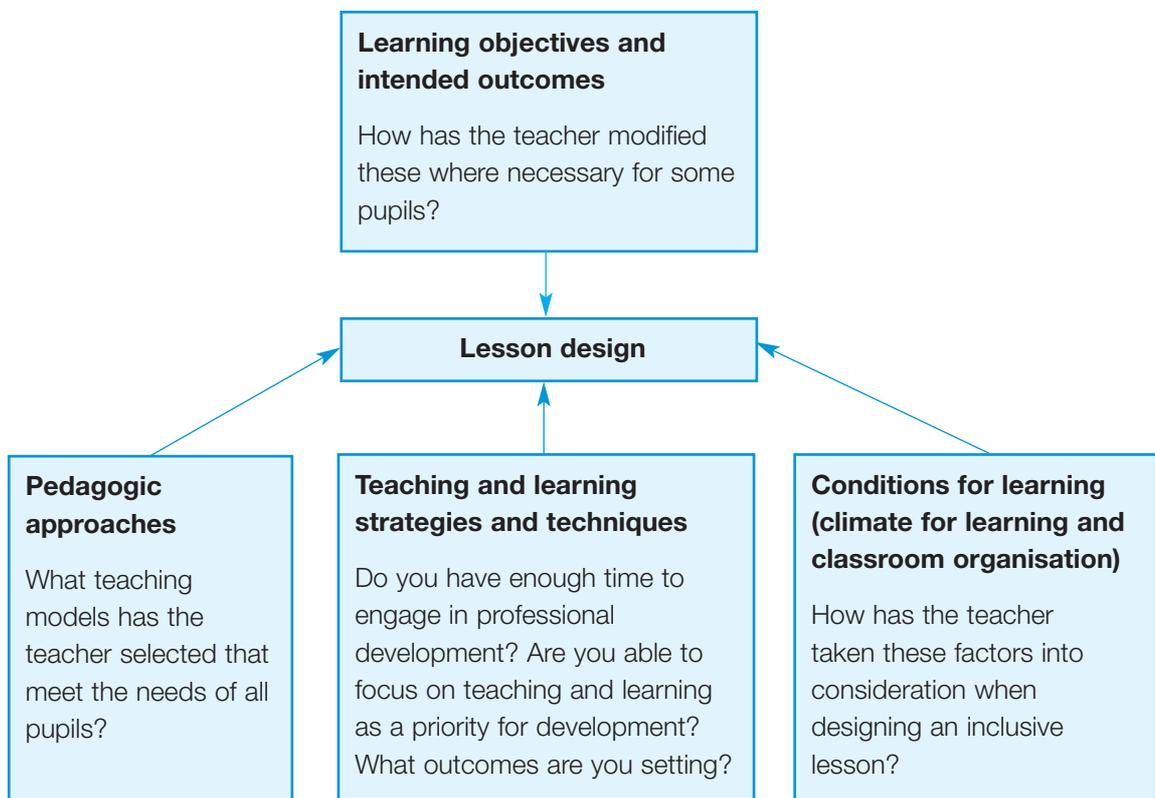- following up the learning outcomes in the plenary.

Note any specific techniques and tactics that the teacher uses that you could employ in your own teaching. These notes will be useful later in this unit as you start to plan a short series of lessons.

At this stage you may also like to watch video sequence 20a about how teachers can deal with different pupils and, in particular, how to deal with praise.

How can we plan to include all of our pupils?

Inclusive classrooms can be achieved through careful lesson design. We are now going to consider the steps involved in designing inclusive lessons. In the science lesson that you have just seen, the teacher designed the lesson carefully, considering a number of important factors. These are shown in the model on the next page.
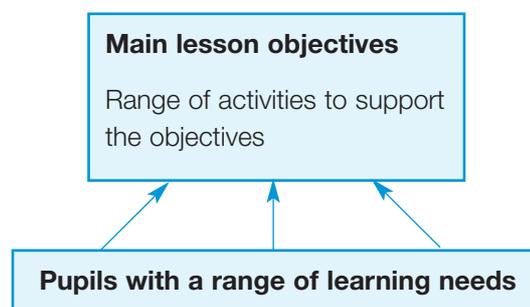
Factors affecting lesson design

Learning objectives and intended outcomes

How has the teacher modified these where necessary for some pupils?

Lesson design

Pedagogic approaches

What teaching models has the teacher selected that meet the needs of all pupils?

Teaching and learning strategies and techniques

Do you have enough time to engage in professional development? Are you able to focus on teaching and learning as a priority for development? What outcomes are you setting?

Conditions for learning (climate for learning and classroom organisation)

How has the teacher taken these factors into consideration when designing an inclusive lesson?

Holding pupils into the pace of learning

Care must be taken to ensure that groups of pupils are not simply following a parallel curriculum or being rendered dependent by a lack of opportunity or ineffective support. The principles of inclusion within the Strategy are integral to lesson design. This enables all pupils to be held within the pace of learning through the setting of high expectations for all and by targeting additional support so that all pupils are able to access the main body of the lesson at an appropriate level.

This can be represented diagrammatically as follows:

Main lesson objectives

Range of activities to support the objectives

Pupils with a range of learning needs

Consider these specific examples of how this can be done:

Before the lesson

- **Set up some pre-teaching**

This ensures that, where appropriate, pupils have the opportunity to receive extra teaching *before* their peers, so that they can seek clarification or practise key skills.

You can:

- set a specific homework task for a group of pupils that provides them with work to do that will be covered in whole-class teaching in the next lesson;

- deploy a teaching assistant to work with a group to pre-teach a concept, support their reading of a text, or discuss key information in the lesson before it is taught with the whole class.

During the lesson

- **Target the support of other adults**

Develop a short-term plan that shows what additional adults are required to do and which pupils they should focus on. This can significantly enhance the quality of support that pupils receive.

You can include:

- key information to be secured;

- specific language support to be offered – key vocabulary, phrases or sentence structures;

- guidance on which groups to support at specific stages of the lesson.

- **Set clear expectations and learning outcomes for individual pupils or groups**

This supports the learning of all pupils, but some pupils and groups will benefit from regular and explicit reinforcement so that they can see where they are making progress and experience a sense of achievement in small steps.

You can:

- refer explicitly to learning objectives at key moments in the lesson through the use of 'mini-plenaries' so that pupils are regularly reminded of the purpose and point of what they are doing;

- ensure that learning objectives are visible in the classroom;

- ask pupils to think and talk about not just *what* they are working on but *how* they are thinking and learning.

- **Actively engage all pupils**

Use resources and materials that enable pupils to join in at their level of challenge. The aim is to ensure that pupils can achieve the lesson objective rather than provide work that keeps them busy but is unchallenging.

You can:

- provide modified tasks;

- provide additional support ('scaffolding') so that pupils can complete tasks, for example writing and speaking frames; vocabulary or phrase and sentence starters; wall posters that remind pupils of the steps they can take if they are 'stuck'.

- **Use specific teaching strategies and techniques**

Select a range of teaching strategies to meet the range of learning styles and needs of pupils in your class (task 5 deals with the issue of 'learning styles' in more detail).

In lesson starters:

- seat pupils with a 'buddy' or talk partner;

- pitch questions appropriately so that every pupil is able to respond, and encourage pupils to explain their reasoning;

- vary activities so that pupils are able to work using their preferred learning styles and train pupils in the ground rules of each learning style so that they are able to extend their repertoire.

In the main development of the lesson:

- plan where and how you will group and seat pupils for specific learning purposes;

- plan opportunities to teach pupils in guided groups where you will be more able to offer specific support and teaching at the individual level of need.

In the plenary:

- follow up on the learning outcomes you established at the start for individual pupils as well as for groups.

After the lesson:

- provide opportunities for over-learning. Set up opportunities for some pupils to repeat and secure the learning that they received in a lesson; this can be done through homework and/or extra classes.

Now, select a class and a small focus group of approximately four pupils who may need additional consideration to be fully included in your lessons. This group will be your focus group for all the tasks and activities in the rest of this unit. Use photocopies of the form in appendix 1 to list the focus group and their particular learning needs. Later in this unit, you can add the strategies and techniques you will use to enhance their learning.

Next, refer back to the diagram showing the factors affecting lesson design and make some notes about what you already know about how each of the pupils responds positively to learning under the following four headings:

- learning objectives and intended outcomes;

- pedagogic approaches (teaching models);

- teaching and learning strategies and techniques;

- conditions for learning.

Groups of pupils	Strategies to consider that may help include pupils *Many of these approaches will be suitable for alternative groups*
White working-class boys	• Seat students in mixed pairs, allowing different strengths of boys and girls to complement each other, e.g. to develop boys' reflective skills while working in pairs asked to consider questions. • Focus on teaching and learning strategies, e.g. by developing questioning techniques to ensure a gender balance in participation; setting short, sharply focused tasks with tight deadlines; maintaining a brisk pace; using a variety of activities in lessons and adopting lively interactive activities. • Focus on literacy across the curriculum, e.g. by using writing frames to encourage more detailed record keeping, analysis and reflection by boys; developing departmental literacy action plans focused on boys; using diagnosis and corrective reading recovery programmes for those with poor literacy skills (often boys). • In English, identify texts to appeal particularly to boys. • Encourage pupils to plan and record their ideas using a variety of diagrams and charts.
Black boys of African Caribbean heritage	• Be clear with groups about the learning objectives of the lesson and reiterate at key points. • Have high academic and social expectations underpinned by clear setting of targets with individual pupils. • Actively involve the boys' parents in target setting and progress reviews, wherever possible. • Maintain a consistent approach to work and behaviour.

	• Use resources which include positive representation of Black Caribbean individuals and groups, and texts which have particular appeal.
Pupils from Roma or traveller families	• Use resources which pupils can relate to, e.g. in English and PSHE. use texts that raise awareness of traveller culture and lifestyle.
	• Pair pupils with others in the classroom who will offer peer support for curriculum access if needed.
	• When families have relatively predictable patterns of movement, use school-based distance learning, differentiated for individuals, to minimise the effects of discontinuity.
	• Choose knowledge, skills and understanding from earlier or later key stages, so that individual pupils can make progress and show what they can achieve.
	• Provide resources and homework that can be completed at home.
	• Provide pupils with clear information about what has been covered and what is planned to be covered.
	• Group new arrivals with 'buddies' who can support and recap previous work.
	• Revisit progress of pupils more frequently, and ask them how current work fits into previous work.
	• Use tailored homework activities designed to prepare pupils who have missed parts of a course.
Pupils who have arrived at school after the normal point of entry	• Assess pupils' prior attainment and curriculum coverage as soon as possible, even when records and samples of work are available.
	• Provide pupils with clear information about what has been covered and what is planned to be covered.
	• Group new arrivals with 'buddies' who can support and recap previous work.
	• Revisit progress of pupils frequently, and ask them how current work fits into previous work.
	• Set up pre-teaching so that pupils have knowledge of what is to be covered in a particular lesson.
	• Use tailored homework activities designed to prepare pupils who have missed parts of a course.
Pupils from refugee or asylum-seeking families	• Assess pupils' prior attainment and curriculum coverage as soon as possible, preferably in their first language.
	• Use resources which pupils can relate to, e.g. in English and PSHE use texts that raise awareness of cultural issues.

	• Group new arrivals with 'buddies' from a similar background who can support and recap previous work.
Girls who are in a minority in a class or group	• Group girls together in smaller groups so that boys are not in a majority. • Set girls collaborative activities and involve them in discussion work. • Target questions in a class at particular pupils, so that boys aren't allowed to dominate.
Pupils designated as gifted or talented	• Increase the pace of learning, e.g. by expecting pupils in an English class to read the novel they are studying for themselves, or that pupils in a mathematics class will not need to repeat standard calculations. • Increase the breadth of learning, e.g. by engaging pupils in a geography lesson in exploring an issue in a range of regional contexts, rather than simply in one. • Increase the depth of learning, e.g. by considering in a science lesson how tests of effects work in different circumstances. • Devise projects and tasks which are exciting and intrinsically worthwhile. • Model more advanced ways of thinking through talking aloud while working through a problem, so that pupils can appreciate how to solve it. • Plan opportunities for pupils to work in different groups, explain their ideas and listen to others for a purpose. • Show pupils how to tackle complex tasks, using their knowledge and experience to approach a new activity. • Keep alive pupils' belief in their own capabilities.

Task 4

Designing inclusion into your lessons　　　　**45 minutes**

Use your current subject scheme of work to make changes in the lesson design (short-term planning) for your focus-group pupils, over three or four lessons. Use the following checklist to help you to consider how pupils will *access and be included in the learning, rather than what pupils will do.*

Groupings

- How will you arrange the classroom?
- How will you seat and group all pupils, and in particular your focus group? For what purpose?

Additional adults

- How will you plan to use the additional adults available?

Learning objectives

- How do you intend to share the overview of the learning, the objectives and the learning outcomes of the lessons?

Learning climate

- What will be the most effective way to teach what you intend?
- How will you maximise and build on prior knowledge?
- How will you appeal to the range of pupils' learning styles?
- What resources and displays will you utilise?

Teaching strategies and techniques

- What strategies will you use to actively engage pupils?
- How will you pace and time these strategies and activities to suit all?
- What kinds of questions will you use and how will you direct these for individual pupils?

Plenary

- How will you help pupils to reflect on what they have learned?

To explore the issue of pupils' learning styles further, refer to unit 19 Learning styles.

Now read and consider the following case study which describes how an art teacher effectively included a range of pupils in her lesson.

Year 7 art – lesson design

Context

A mixed-ability Year 7 class is having a double lesson in art. The class includes two pupils with SEN working at P level 4 with a teaching assistant and three pupils identified as 'gifted and talented' pupils for art. The lesson is an 'investigating and making' one from a unit based on printed designs.

Groupings

Pupils are seated in groups of five. The teacher has planned for the teaching assistant to work with the pupils who have SEN in a group with three other pupils. The TA has been told in advance about the lesson objectives and expected outcomes, as well as the kinds of question that can prompt pupils' thinking.

Starter

The teacher recaps on prior learning objectives, using the drawings of halved fruit made by pupils from observation during the previous lesson. For homework, pupils have collected samples of repeat-pattern printed

papers and fabrics. They come forward to pin their samples to a display board, indicating where the pattern is repeated and how the fabric might be used.

Objectives:
- to make a design block from the fruit drawing, creating relief through pressing into a polystyrene tile;

- to investigate at least three different ways the block can be used to create repeat patterns in one colour on lengths of lining paper.

Development – modelling

The teacher models the process of inking and printing directly from the halved fruit and from a block she has cut prior to the lesson. She demonstrates the printing process, referring to the raised and indented parts in linking key vocabulary, and talks the class through the decisions she is making regarding the half-drop repeat she has chosen to try. She emphasises the differences between repeat patterns and random designs. She asks pupils to suggest other ways in which she could have used the block for repeat patterns. She uses a 'no hands' rule that allows her to direct the specific questions she has planned to individual pupils. Sometimes she asks pupils to think and to talk through responses with a partner before she takes answers. She asks pupils to think about criteria for a successful repeat pattern and writes these on a flipchart.

The teaching assistant has a similar finished block for the pupils who have SEN, to enable them to feel the relief of the raised and incised parts. She also has some prints already made with the block on paper. She asks the pupils to indicate which part of the block makes the mark on the paper. The teacher sets clear assessment focuses for the two pupils:

> 'Marcus will be able to show us which part of the block is the raised area – relief – that prints. Fawsia will show us where her pattern repeats.'

Application and investigation

Pupils then begin work in groups of five. The teacher has planned to work with one table, guiding two pupils who she thinks will need greater support when applying ink, and sets an expectation that the three gifted and talented pupils try to work together at the same table:

> 'Create a series of overlapping images using your drawings to impress parts of the design onto three tiles. Use three tones of the single colour to create a single image. Think about how the blocks can be used in different ways to create repeated patterns on printed paper or fabric.'

The teaching assistant will work with the two pupils who have SEN within a group. She will monitor their learning about relief printing and repeat patterns using fruit halves and blocks on which she guides them to draw, press and indent.

Plenary

In groups, pupils are asked to assess their own work against the criteria, to explain the most successful features of their pattern repeats and to

suggest what medium the design might lend itself to, for example wallpaper, carpet, fashion clothing, curtaining, upholstery, bed linen, etc. The teacher asks some pupils with whom she has not worked directly, for example those who have SEN, to share their assessments and to show the finished prints with the class. She helps them consider how they will use what they have learned in the next lesson when they will be considering the effect of colour in printed designs.

Reflection

How does the planning for this lesson compare with the planning you did for your subject and focus pupils in task 4? Reflect upon and note the following:

- What is similar?

- What is different?

- What could have been improved?

Keep a record of your reflections.

Now consider how the English teacher adapted a medium-term plan to meet the needs of his group in the following case study.

Case study 2

Year 8 English

Having found the medium-term plan for *Holes* by Louis Sachar on the Key Stage 3 website, the teacher read the text and decided that it would be suitable for his Year 8 group. He thought it would be particularly suitable as his group contained a number of boys who were underattaining, partly because of lack of engagement, and also some able Black African girls who had expressed a wish to discuss some issues of race that had been troubling them.

Having studied the medium-term plan, he decided that although the plan and the text would address the issue of engagement for his underattaining boys, he would need to make some minor adjustments in order to meet the declared needs of his Black African girls. As a result, he planned to amend and extend lesson 5 in the sequence to last two lessons, in order to provide the opportunity to discuss Zero's role in the text in more depth, and to explore some related issues about race. His adaptations are recorded in the italic annotations to the original lesson plan:

Stage 2: text investigations 2: lesson 5

Key question: How does Sachar develop his characters?

Note: The class needs to have read chapters 5–12 before this activity. This could be done in class, for example by the teacher or in guided reading groups, set for homework or partially narrated by the teacher, depending upon the class.

Starter

What's in a name? Pupils (and teacher) contribute nicknames of friends or family.

Class discuss how the nickname originated and developed.

The teacher relates this to the nicknames of the 'campers' and uses it as a method to introduce the key question. *This is key in relation to 'Zero' … his name carries many connotations.*

Introduction

The teacher rereads chapter 5, focusing upon character development. He discusses how characters are developed through action/ narration/ dialogue/ description, *focusing on Zero and how the other characters treat him and, more importantly, how he reacts.*

The teacher marks examples of the methods on OHT and summarises, using quotations on a flipchart. Particular emphasis is placed upon paragraphs and sentence groupings, to reflect this new objective (which is shared with the class).

Review of key question.

Development: character investigations

Each guided ability group has a specific character or characters to investigate. They are following the key question for their character, using the flipchart to guide them. The investigations range from one chapter to the whole text so far.

The level of difficulty of the investigation will depend upon the ability of the group.

The teacher supports two specific groups of boys. (He has decided to group the underattaining boys in two single-sex groups, so that he can focus work closely with them.)

Plenary

Groups share one finding adding, if possible, whether this was revealed through narration, description, dialogue or action. *The teacher places a particular emphasis on the group working on Zero.* Any new methods are added to the flipchart outlining Sachar's methods.

The teacher summarises the findings so far and reviews the key question.

Homework

The teacher displays the following quote on an OHT:

'I'm not stupid,' Zero said, 'I know everybody thinks I am. I just don't like answering their questions.' (page 99)

Pupils were then asked to reflect upon the following questions in relation to Zero:

How does he react to the way other characters treat him?

What would you do if you were in his shoes?

As a result, what advice would you give him?

Lesson 6

Introduction.

Detailed feedback on questions considered for homework.

In-depth discussion about the answers to question 3.

Development: class debate

Class debate focusing on 'why the other characters in the text considered Zero to be stupid'.

The teacher divides the class into the same groups as those for lesson 5 and asks them to consider the question from the point of view of their character. He asks them to select evidence from the text to support their views. (*Again, he works with the two groups of boys, particularly focusing on their speaking and listening skills*.) Each group is also asked to select a spokesperson who will present their case during the debate.

After twenty minutes, the class is reconvened and three or four of the most able speakers are invited to chair the debate.

Each group is then asked to present their case, followed by an opportunity for questions/debate.

Finally, the group chairing the discussion sum up the main points of the discussion and the class, as a whole, frame an answer to the initial question.

As you will now be aware, one of the aspects of the climate for learning you will need to consider for your focus pupils is that of their preferred learning style.

In your planning, you will need to consider ways of accessing and developing the full range of learning styles for pupils so that they may:

- convert learning tasks to a method that will help them to learn more readily;

- endeavour to extend their learning repertoire over time.

| Task 5 | **Considering learning styles** | **1 hour** |

Consider what you know about the preferred learning styles of your pupils.

Which pupils respond best to visual modes of learning, such as mapping? (visual)

Which pupils learn best when they physically move or manipulate materials? (kinaesthetic)

Which pupils learn best by listening? (auditory)

(To find out more about this aspect of lesson design, refer to unit 19 Learning styles.)

Look at the planning that you have done for lessons with your target groups of pupils. Identify where you have designed opportunities to engage each of the different groups of learners, or add into your planning where you might have designed too narrow a range of learning opportunities to appeal to a range of preferred learning styles.

Considering learning styles
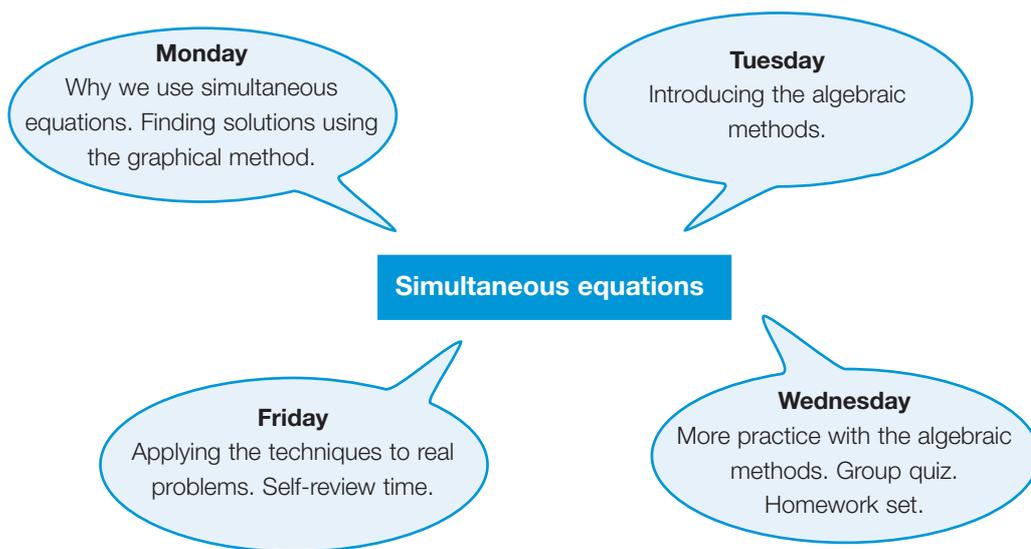
Helping pupils see 'the bigger picture'

As teachers, we are acutely aware of where we are leading pupils and the intended end result of our teaching, but how often do we convey these intentions to our pupils? This understanding of the 'bigger picture' is important for all pupils, but is especially important for those who enter the school after standard admission to the key stage. It can also help to include those who are frequently absent.

It is helpful for pupils to be able to see 'the big picture' into which their current learning fits and to be able to locate their current lesson in the scheme of work. Consider the following case study.

Case study 3

Year 10 mathematics

This idea comes from a mathematics teacher in a school which is trying to support the learning and improve the attendance of some pupils whose attainment is weak as a result of poor attendance. Helen is using a visual map of the week (but it could be the term or the topic) to show pupils what they will get from attending the lessons and to hold them into the learning when they are absent from some lessons in the week. The teacher refers to the map at the beginning and end of the lesson and also appends sticky-note reminders related to attendance such as: *Sophia absent, to sit with Jake on Tuesday*; *Jerry and Ahmed – request extra support on Wednesday*.

Monday
Why we use simultaneous equations. Finding solutions using the graphical method.

Tuesday
Introducing the algebraic methods.

Simultaneous equations

Friday
Applying the techniques to real problems. Self-review time.

Wednesday
More practice with the algebraic methods. Group quiz. Homework set.

This approach supports all pupils, but especially those who have regular absences or who have joined the school after the beginning of the unit. This transparent communication of planning is also extremely useful to teaching assistants and other support staff: understanding how the lesson fits into the overall scheme of work will enable them to support their pupils far more successfully.

Summary of research

Extract from *Evaluating educational inclusion: guidance for inspectors and schools* (2000) Ofsted.

Educational inclusion is more than a concern about any one group of pupils such as those pupils who have been or are likely to be excluded from school. Its scope is broad. It is about equal opportunities for all pupils, whatever their age, gender, ethnicity, attainment and background. It pays particular attention to the provision made for and the achievement of different groups of pupils within a school. Throughout this guidance, whenever we use the term different groups it could apply to any or all of the following:

- girls and boys;

- minority ethnic and faith groups, Travellers, asylum seekers and refugees;

- pupils who need support to learn English as an additional language (EAL);

- pupils with special educational needs;

- gifted and talented pupils;

- children 'looked after' by the local authority;

- other children, such as sick children, young carers, those children from families under stress, pregnant school girls and teenage mothers;

- any pupils who are at risk of disaffection and exclusion.

Educationally inclusive schools

An educationally inclusive school is one in which the teaching and learning, achievements, attitudes and well-being of every young person matter. Effective schools are educationally inclusive schools. This shows, not only in their performance, but also in their ethos and their willingness to offer new opportunities to pupils who may have experienced previous difficulties. This does not mean treating all pupils in the same way. Rather it involves taking account of pupils' varied life experiences and needs.

The most effective schools do not take educational inclusion for granted. They constantly monitor and evaluate the progress each pupil makes. They identify any pupils who may be missing out, difficult to engage, or feeling in some way to be apart from what the school seeks to provide. They take practical steps – in the classroom and beyond – to meet pupils' needs effectively and they promote tolerance and understanding in a diverse society. For special schools, there is an additional dimension because their policies on inclusion must now include planning for a changing role alongside increasingly inclusive mainstream schools.

Extract from *Evaluating Educational Inclusion*, www.ofsted.gov.uk/ publications/index.cfm?fuseaction=pubs.displayfile&id=459&type=pdf.
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Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- ask an LEA consultant, EMA or SEN specialist to work with you and demonstrate some of the strategies outlined earlier in the unit;

- identify a class that has a wide range of pupils that could be considered to fall into the different groups identified on page 3. Test out your own ideas for including them all in a specific part of the lesson, e.g. the plenary. Assess which ideas are more effective and why;

- visit the Key Stage 3 website: www.standards.dfes.gov.uk/keystage3 to look for publications and latest research on inclusive teaching (some of which are listed below);

- visit teachernet.gov.uk and search on 'inclusion' to find case study materials and further ideas.

For further reading, the following publications are recommended:

Key Stage 3 National Strategy materials:

- *Unlocking potential: raising ethnic minority attainment at Key Stage 3.* Ref: 0579/2002.

- *Targeting for success: raising the attainment of minority ethnic pupils and pupils learning English as an additional language.* Ref: 0763/2003.

- *The assessment of pupils learning English as an additional language.* Available to download only from the Key Stage 3 website: http://www.standards.dfes.gov.uk/keystage3/respub/en_assess_eal

- *Access and engagement* – a series of publications published in 2002 to provide teachers with strategies for teaching pupils learning English as an additional language.

- *Accessing the national curriculum for mathematics.* Ref: 0292/2002.

- *Big books for special schools.* Ref: 0516/2002.

SEN: training materials for the foundation subjects:

- Training materials for the foundation subjects video. Ref: DfES 0137/2003.

- Training materials for the foundation subjects folder inserts. Ref: DfES 0138/2003.

Ofsted publications:

- *Managing pupil mobility.* Ref: HMI 403.

- *Special Educational Needs in the mainstream*. Ref: HMI 551 (web only).

- *Raising the attainment of minority ethnic pupils: school and LEA responses.* Ref: HMI 170.

Other interesting reading

- Booth, T. and Ainscow, M. (2002) *The Index for Inclusion*. Centre for Studies on Inclusive Education, Lambeth Research and Statistics Unit. ISBN: 0954551907.

- Campbell, C. (ed) (2002) *Developing inclusive schooling: perspectives, policies and practices*. Institution of Education. ISBN: 0854736484.

- McKenley, J., Power, C., Ifhani, L. and Demie, F. (2003*) Raising Achievement of* Black *Caribbean Pupils: Good Practice in Lambeth Schools*. Lambeth Education. ISBN: 0954551907.

- Salend, Spencer J. (2000) *Creating inclusive classrooms: effective and reflective practices*. Prentice Hall. ISBN: 013019073X.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   40 minutes

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

Appendix 1

Lesson design for inclusion: self-reflection and proposals

To decide your next steps in making your classroom more inclusive and to raise the attainment of all pupils, you will need to:

- identify the focus group of pupils who are currently underperforming;

- know exactly who the individual pupils are, which classes and year groups they are in and how many pupils are involved;

- know what their learning needs are in your subject;

- acquaint yourself with existing systems of support available within your classes and the department;

- be aware of the whole-school Key Stage 3 intervention audit and the range of interventions provided.

Use copies of the following table to list the focus group you have chosen as part of task 3 and to identify their particular learning needs and the strategies and techniques you will use to enhance their learning.

Focus group (pupil and class)

Pupil's name/class: _____

Learning needs: _____

Planning

Selecting strategies and techniques

Assessment issues

Reading

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department for
education and skills
creating opportunity, releasing potential, achieving excellence

Raising
Standards
Standards and Effectiveness Unit

INVESTOR IN PEOPLE

*Pedagogy and Practice:
Teaching and Learning in
Secondary Schools*

**Unit 3: Lesson design for
lower attainers**

Designing lessons

How to use this study guide

This study unit offers some practical strategies that teachers use to plan lessons for lower attainers. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to working with pupils who make slower progress. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 3, Lesson design for lower attainers, when working through this unit.

Lesson design for lower attainers

Contents

Introduction

Effective teaching of pupils who make slow progress

Pupils who make slow progress may continue to do so because they need to acquire the skills they have missed in order to access the curriculum fully. Typically, when pupils secure these skills, they:

- are able to fully develop their understanding of an idea because they now have the basic skills needed to access the necessary concepts;

- have appropriately high expectations of themselves;

- have gained basic literacy skills and are able to use them effectively;

- have developed the necessary numeracy skills for the subject being taught;

- have sound recall;

- make good progress.

Common issues

Pupils who make slow progress are often easily distracted and can also demonstrate off-task behaviour. They may have low self-esteem. They may find it difficult to learn new concepts and many struggle to understand what is expected of them. If they are taught in lower sets, they will not have models of high achievement in their peers and will consequently have lower expectations of themselves.

Because these pupils lack the skills they need to access the curriculum, they make little or no progress in most subjects. This effect is compounded as the lack of progress in any given subject results in further lowering of their self-esteem. In order to halt the downward spiral of low self-esteem and lack of achievement, work must be designed specifically for these pupils.

Resolving the issues

Planning to teach groups that include low attainers requires preparation. Attention needs to be paid to the development of literacy and numeracy skills in every subject, every lesson. It is important to highlight the aspects of each subject that need consistent attention in order to lift performance and ensure progression. For example, to move from level 3 to 4, pupils need to use precise subject terminology, be able to generalise and use the conventions of the subject. As pupils move from primary education to secondary, they are required to use more abstract ideas. These need to be presented to the pupils in small steps, building on the concrete examples with which they have become familiar.

What can you do to make the learning for these pupils more effective?

- Concentrate on the key concepts or ideas (e.g. the key objectives for English and mathematics, the yearly teaching objectives for science and ICT in Key Stage 3 and the key concepts for the subject at GCSE).

- Pay attention to the big picture and show how ideas fit together.

- Pay attention to developing the key skills of literacy and numeracy every lesson.

- Ensure the curriculum relates to the life experiences of pupils.

- Use a high proportion of interactive teaching in all lessons, including:

  – clear presentations and demonstrations;

  – modelling;

  – questioning;

  – appropriate challenge.

- Use 'assessment for learning' to help pupils understand what they are aiming for and what a high-quality response looks like.

- Use a structured approach to lesson design, planning lessons as a series of episodes. Lower-attaining pupils will generally benefit from having lots of starters and plenaries that review learning at regular intervals within each lesson.

1   Lifting performance within subjects

Looking at what pupils think helps them to learn

Pupils classed as 'lower attaining' are often the most difficult to keep motivated. It is therefore important to understand what motivates lower-attaining pupils to learn and what techniques you can employ in order to create motivation. As well as pupils' own motivation, there are other factors that help them make progress. See the summary of research on pages 19–21 for more on motivation and effective teaching strategies for lower-attaining pupils.

Pupils have their own ideas about what helps them to learn.

| **Task 1** | **What pupils say helps them learn** | **15 minutes** |

Increasingly schools and individual teachers are asking pupils what helps them learn. One department that did this through a questionnaire found that lower-attaining pupils gave different responses from higher-attaining pupils. Lower-attaining pupils were less confident and wanted more opportunities to be shown how to do something, through either demonstration or modelling. Higher-attaining pupils, on the other hand, preferred to be set assignments and then be given more opportunities to discuss their findings.

Watch video sequence 3a, which shows two groups of mixed-ability pupils (Year 8 and Year 10) talking about teaching and learning. Notice how they value personal relationships, interesting lessons, variety and structure. Talk matters to them, and the way in which a teacher interacts with individuals is seen as important.

You may think that much of what is said is predictable. Nevertheless, if questions are structured in the right way, such exercises can provide useful insights into what helps pupils learn. You might also like to watch video sequence 1c, which shows a teacher talking about structuring learning. It starts with some comments from the Year 10 pupils shown in video sequence 3a.

The following techniques have also been identified as helpful by lower-attaining pupils:

- having key words for the lesson on their desks or on the wall;

- saying new words out loud then having the opportunity to practise writing them in a sentence;

- analysing text together with the teacher;

- repeating a newly learned skill until they have mastered it;

- having a small part of the lesson that reviews work;

- being shown how what they are learning links explicitly with other work;

- being shown the big picture;

- having opportunities to visualise abstract ideas using model and analogy;

- getting immediate feedback on their work and praise for success;

- having the chance and time to improve their work and correct mistakes;

- working with a partner;

- making sure that much of the learning is related to real life;

- using writing frames to structure writing;

- using games and competitions to inject a 'fun' element;

- frequently setting tasks which guarantee success for pupils.

What else have you noticed about the way lower-attaining pupils learn best? Discuss the list above with colleagues. Are there techniques you would add?

Involving your own pupils in exploring the factors that help them learn can provide you with useful information that will enable you to tailor and target your teaching. You could ask pupils in a lesson, in a small group or through a questionnaire. You could try out some different ways of teaching an aspect of your subject and then have a class discussion on which they preferred and why. An example of a questionnaire that one school used to gain such an insight is reproduced in appendix 1.

Task 2	**Classroom assignment: investigate your pupils' views on learning**	**30 minutes**

Choose a class you feel comfortable with and investigate their views. You could adapt the questionnaire in appendix 1, design your own or plan some questions for a class discussion.

Analyse the responses and consider what you need to change in order to improve learning. Make a note of the points here.

When planning lessons, include:

More	**Fewer**
e.g. opportunities for pupils to discuss in pairs	e.g. long teacher explanations at the beginning of lessons

Planning to lift performance

When planning how to deliver the curriculum for lower-attaining pupils, it is important to know what needs to be taught in order to move them on. Understanding clearly the differences between levels and GCSE grades is important. You will be familiar with the National Curriculum level descriptions for your subject, and most teachers share these with pupils to help them understand what they are aiming for. The GCSE grade criteria for Grades A, C and F found in GCSE syllabuses can be used in a similar way. The research on 'assessment for learning' indicates that lower-attaining pupils benefit the most from being shown what they are aiming for (see unit 12 Assessment for learning).

At both Key Stage 3 and Key Stage 4, the level descriptions and GCSE grade criteria expect an increase in pupils' ability to describe, generalise, use subject conventions, use precise terminology, explain ideas which may be increasingly abstract, and apply, analyse and synthesise information. The progress expected in

subjects as pupils move through each key stage broadly matches Bloom's taxonomy, a theory that describes levels of thinking. Using a hierarchy of thinking levels, such as the one below derived from Bloom's taxonomy, can help in planning for these pupils.

Cognitive objective	What pupils need to do
Knowledge	define, recall, describe, label, identify, match
Comprehension	explain, translate, illustrate, summarise, extend
Application	apply to a new context, demonstrate, predict, employ, solve, use
Analysis	analyse, infer, relate, support, break down, differentiate, explore
Synthesis	design, create, compose, reorganise, combine
Evaluation	assess, evaluate, appraise, defend, justify

Higher-order thinking skills

Case study 1

Two teachers who were sharing the teaching of a bottom-set Year 8 group realised that pupils were not making as much progress as expected. They looked at the techniques that they were using to motivate their pupils and decided that this was not the issue because the pupils were motivated and generally well behaved. They then examined their medium-term planning and compared their teaching objectives with the thinking-levels chart above.

This made them realise that their planning did not allow pupils to access the higher-order thinking skills. They had given the pupils many opportunities to observe and describe events, using teaching objectives such as 'Pupils will be able to describe how …'. The pupils had not, however, been given the opportunity to explain any of the events they had described.

The teachers added further teaching objectives to their planning, for example 'Pupils will be able to explain …'. They then planned a series of activities designed to teach the pupils how to turn a description into an explanation.

Task 3

Planning review   **1 hour**

Pick out the medium-term plan for a unit of work that you will teach soon. Compare your suggested teaching objectives with the thinking-levels chart and judge whether pupils are being given the opportunity to access the next thinking level within your subject. Design two activities for the class that will help them move to the next thinking level.

You could discuss your planning with another teacher, either in your department or who teaches this class.

The big concepts

In all subjects from Key Stage 3 onwards, pupils are required to begin using more abstract ideas. Pupils who are lower attaining find the jump from using concrete examples to the abstract difficult. They need help in order to make this jump. Learning sequences that use small steps while still allowing pupils to see the big picture have been found to be very effective.

It is useful to know what the 'big concepts' are in a given subject. These are mapped out in the Frameworks for mathematics and English and in the yearly teaching objectives for science and ICT at Key Stage 3 and in GCSE syllabuses. To plan how to move pupils on to the next level, you should have a good idea of what the big concepts are in your subject area, and how they develop. The following task will help you to map this out, year by year.

Task 4	Map out the big picture	45 minutes

Take the programme of study for your curriculum area and any schemes of work that have been produced. Look across the years to see how the big concepts in your area are developed. Record the sequence of development as shown in the example for energy, one of five big ideas in science in Key Stage 3.

You will find it easier to lay the grid out in landscape format.

Year 7	Year 8	Year 9	GCSE
Use a simple model of energy transfer to explain that the Sun is the ultimate source of most energy on the Earth, e.g. pupils can use food chains as an example of energy transfer.	Describe how energy is transferred through conduction, convection and radiation. (No knowledge of particles is needed.)	Recognise the idea of energy conservation as a useful scientific accounting system when energy is transferred using concrete models.	Begin to understand that there is a relationship between energy transfer and other measurable factors, e.g. between kinetic energy, and mass and velocity.

These 'big ideas' need to be shared with pupils. One technique that can work well is to construct a concept map with pupils at the beginning of a new unit of work, showing how the unit will develop. This is then referred to at the beginning of each lesson, with the teacher pointing out on the map which part they are going to cover in that lesson and how it fits into the whole. Linking ideas together is often difficult for lower attainers; paying attention to this can move learning on significantly. This also has the advantage of providing a 'quick check' to see if pupils can remember what they learned last lesson.

2 Incorporating the teaching of literacy skills

Literacy skills are important in all subjects. Lower-attaining pupils often exhibit poor literacy skills, which means they are disadvantaged in accessing the curriculum. Subject departments need to incorporate basic literacy skills into their planning for these pupils. The following characteristics are typical of lower-attaining pupils:

- reluctance to write – and ploys for avoiding writing tasks;

- poor handwriting to disguise weak spelling;

- difficulties in understanding the language of written instructions and questions;

- problems with reading non-fiction texts, and with inference and deduction;

- inability to adapt writing styles to different audiences and purposes.

However, it is important to remember that not all pupils will have all these characteristics, and many will have some strengths, particularly in expressing ideas orally and through drama activities.

What's in it for departments?

Literacy is important in all subjects for many reasons.

- Through language we make and revise meaning.

- Reading enables us to learn from sources beyond our immediate experience.

- Writing helps us to sustain and order thought.

- Literacy supports learning. Pupils need vocabulary, expression and organisational control to cope with the cognitive demands of the subject.

- Responding to higher-order written questions encourages the development of thinking skills and enquiry.

- Better literacy leads to improved self-esteem, motivation and behaviour. It allows pupils to learn independently. It is empowering.

It can be very easy to address literacy skills at the same time as teaching subject content. For all subjects, a focus on both word level and text level is important. For each subject there is a set of specific technical vocabulary that it is important to grasp, and for each subject there are specific text types that pupils need to learn to read and to write for themselves. Short activities can be incorporated into lessons in order to develop literacy at both these levels.

Word level

Many classrooms have displays of key words around the room. This may make for colourful decoration, but for lower-attaining pupils it can cause confusion. The problem is that they do not know which words relate to their particular topic or unit. There are a number of techniques that can be used to promote a more active use of these words. All of the following ideas can be used as starter or plenary activities.

- Write the words on pieces of card. Each lesson, select the three most relevant words for that lesson and move them from the 'word bank' to be displayed next to the board or in some other prominent place in the classroom. Indicate to the class whenever the word is used in the context of the lesson.

- When using a worksheet or help sheet, always highlight the selected key words in bold and reinforce their use in the text.

- Give pupils personal workbooks in which they record new key words when they encounter them. The workbooks can then be used for practice. For example, ask the class to turn to the 's' page, then ask one pupil to pick a word from that page and another pupil to give you the meaning. A third pupil could be asked to make up a sentence with the word in context.

- Ask one pupil to select a word from the word bank and talk about it for 30 seconds without repeating themselves. The other pupils judge whether the talk is an accurate account of what the word means and how it is used. (This activity is best done towards the end of a topic or unit.)

- Ask one pupil to select a word and talk about it without saying what the word is. The other pupils have to guess what the word is from the description. You will need to model this technique first.

- Ask pupils to make up their own mnemonics for subject-specific terms.

- Play Blockbusters. Pick two teams, then ask Blockbuster-style questions using subject-specific vocabulary, for example in history: 'What D means a 10-year period?' This can be useful part-way through a lesson to help you gauge how much pupils have learned.
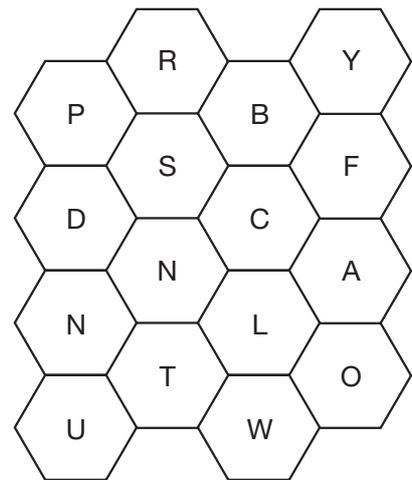
Loop card games have been found to be hugely motivational for lower-attaining pupils. For the teacher they give a quick check on progress and for pupils they help with word recognition and understanding of vocabulary. The trick is using them quite frequently throughout a topic, setting time targets to beat next time.

| Task 5 | Using loop card games | 15 minutes |

Watch video sequence 3b, which shows a group of Year 8 pupils playing a loop card game. The lesson is science and the subject of the game is 'cells'.

When you have looked at the video, discuss with another teacher the advantages of using loop card games. Consider also the following questions:

- How often would I use them?
- Should they come at the beginning or end of a lesson or both?
- How much competition should I encourage?
- How do I help those pupils who struggle to read the words and definitions?

Text level

Lower-attaining pupils are likely to struggle with texts, in both reading and writing specific text types. Activities can be incorporated in lessons to support both.

Developing reading

These pupils often lack the skills of scanning and skimming, which can be explicitly taught within the context of the subject.

In addition, Directed Activities Related to Text (DARTs) provide a very motivating and accessible means of developing reading skills. They fall into two types: analysis, such as highlighting activities on complete text, or construction activities involving sequencing and synthesis of text parts (see unit 13 Developing reading).

Developing writing

Lower-attaining pupils have weaker writing skills than they do reading skills. There are two main approaches to developing writing that can be effectively incorporated into subject lessons that benefit understanding of the subject. First, however, as a teacher you need to be clear about which text types are important for your subject. Main text types include: instruction, recount, explanation, information, persuasion, discursive, analysis and evaluation, but there are others, such as writing a conclusion in science (see unit 14 Developing writing).

Modelling

This is the most effective method of introducing pupils to the conventions of text. Here a teacher shows how to construct a new text type, expressing their thinking out loud as they proceed, making the decisions explicit. It is also useful to use good and poor examples to tease out the conventions (see unit 6 Modelling).

Writing frames

These are attempts to scaffold pupils' first attempts at writing a particular text type and can help pupils structure their writing. For example, when supporting pupils' attempts to write explanations of 'how' and 'why', you might provide them with the following frames:

- explaining how: First, next, then, after, finally;

- explaining why: I want to explain why, because, however, in conclusion (see unit 14 Developing writing).

Case study 2

A Year 8 geography group was studying the effects of severe flooding in Bangladesh. The teacher realised that the pupils she was teaching had difficulty in engaging with the issues involved. So rather than ask the group to take notes from their textbooks, she asked them to prepare a 3-minute national TV news report describing the flood's cause and its effects on the local people. The pupils were very motivated by the task and set about researching all the information they would need. The resulting 'broadcasts' contained all the key messages the teacher wanted the pupils to learn. As well as providing the necessary motivation, the task also developed their skills of text searching and note taking.

A task on the teaching of literacy skills is incorporated into the classroom assignment at the end of the next section.

3 Developing numeracy skills

Lower-attaining pupils often have difficulty in processing data or describing patterns because of poorly developed numeracy skills. They do not easily transfer these skills from mathematics lessons and do not make links between the numeracy skills used, for example, in PE to those used in geography. Numeracy pervades all subject areas. The following evidence is taken from the *National Child Development Study on the impact of poor numeracy on adult life* (Basic Skills Agency 1997).

Is numeracy a problem?

The following points are taken from the section of the report, *Does numeracy matter?*

- Against expectation, the groups showing the lowest levels of full-time labour market participation among men and women were those with poor numeracy rather than poor literacy. (p. 10)

- As we might expect, those people in the poor numeracy + poor literacy group were most likely to be found in manual occupations. [But] … they were followed closely, not [by those] with poor literacy + competent numeracy but [by those] with competent literacy and poor numeracy. (p. 13)

- People without numeracy skills suffered worse disadvantage in employment than those with poor literacy skills alone. They left school early, frequently without qualifications, and had more difficulty in getting and maintaining full-time employment. (p. 27)

Reproduced with permission from the Basic Skills Agency.

Task 6	Numeracy in school subjects	15 minutes

Reflect on what the Basic Skills Agency found in their survey and choose one of the lower-attaining classes that you teach to focus on. Discuss with another teacher the characteristics of the class and their numeracy skills.

Identify three barriers that pupils may face in your lessons as a result of poor numeracy skills, for example poor number recognition or inability to represent data in different forms.

Defining numeracy

The *Framework for teaching mathematics: Years 7, 8 and 9* defines numeracy in this way:

> *Numeracy is a proficiency which is developed mainly in mathematics but also in other subjects. It is more than an ability to do basic arithmetic. It involves developing confidence and competence with numbers and measures. It requires understanding of the number system, a repertoire of mathematical techniques, and an inclination and ability to solve quantitative or spatial problems in a range of contexts. Numeracy also demands understanding of the ways in which data are gathered by counting and measuring, and presented in graphs, diagrams, charts and tables. Handling data is of particular relevance to all subjects.*

(Section 1, page 9 – DfEE 2001)

Task 7

Identify numeracy skills in your subject   30 minutes

Note the definition of numeracy on the previous page, and obtain a copy of *Numeracy across the curriculum* from the numeracy coordinator. Use these to help you identify the numeracy skills you expect pupils to use in the next unit of work. Make a list, and for each skill ask yourself these questions.

- How confident are you that pupils have the skill?

- What opportunities can you build in to your teaching to develop these explicitly?

Task 8

Using numeracy skills   20 minutes

The ability to read and interpret data and graphs is an important skill across all subjects. It is an area in which lower-attaining pupils often struggle, so it is particularly important to teach these skills explicitly.

In video sequence 3c, the teacher has planned a lesson in which she will ask pupils to collect data and then use them to plot a line graph. She takes the opportunity in the lesson starter to develop pupils' ability to understand the 'story of the graph' so that they will better understand the graph they plot.

Watch the video sequence and notice how the teacher uses real-life experiences to develop pupils' understanding. Note down two or three other real-life examples that you might use in this way.

For the next few weeks, the teacher shown in the video began each lesson by showing the class a different line graph, such as the graphs below. She then asked pupils to tell 'the story of the graph'.
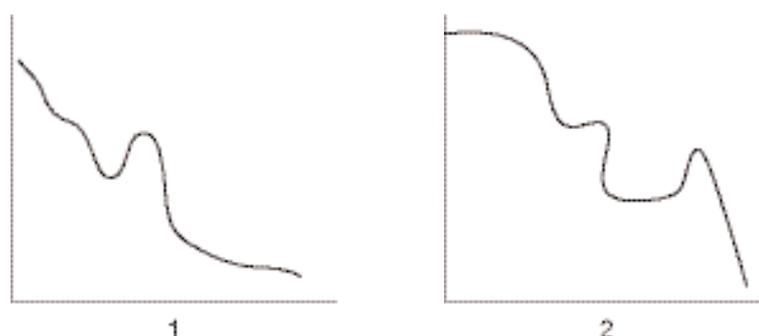
Pupils were allowed to be as imaginative as they liked, providing other pupils could not see a flaw in their 'story'. For example, graph number 2 could illustrate a pupil eating an ice-cream choc bar. The horizontal axis represents the time taken to eat the choc bar; the vertical axis represents the length of the choc bar. The bar has an unexpected increase in length – which is explained by the fact that the pupil sucked the ice-cream bar, making it longer.

By the end of the topic, pupils were more confident in constructing line graphs and explaining what they represented.

Plan to integrate numeracy skills   45 minutes

Look back at the list you created in task 7.

Work with another teacher and plan how you can integrate the numeracy skills needed for the topic into your short-term planning. Refer to the *Framework for teaching mathematics* for examples of activities.

Prepare support material   1 hour

Take at least one of the literacy ideas from section 2 and one numeracy idea from task 9. Prepare some materials for use in your lessons to support pupils' literacy and numeracy skills in your subject. For example, these could take the form of:

- a loop card game;

- key words and their meanings in the form of dominoes;

- a prepared graphical axis for pupils to tell you the 'story of the graph';

- data in tables for pupils to practise graphical representation.

Practical tip

It is important to incorporate literacy and numeracy skills into every lesson that you teach with lower-attaining pupils. Even a two-minute discussion on the meaning of a word will reinforce the importance of using the correct vocabulary in a subject context.

4 Techniques to aid recall

Lower-attaining pupils often have great difficulty in recalling facts. This puts them at a disadvantage when sitting tests. More importantly, perhaps, it makes it difficult for them to apply one piece of learning to the next. When pupils are required to apply learning to a new context, the problem is compounded if they cannot recall what has gone before.

In order for recall to be effective, it is necessary to review learning on a regular basis. Reviewing the content of every lesson is unmanageable, but in order for pupils to begin to process the information and thus commit it to long-term memory, starters and plenaries are vital. One way to get pupils to review a lesson is by making a diagrammatic representation of the key points. They can then turn to a neighbour and explain the key points using their diagram as a memory aid. The starter for the next lesson could use the diagram from this review, with pupils making the key points a different colour or turning the key words into a mnemonic or acronym.

What can be done within a lesson?

There is also much that can be done to make lessons memorable in the first place.

Create context: In lessons where pupils receive a lecture from the teacher then take lots of notes or complete comprehension exercises, the content of the lesson is soon forgotten. Pupils forget these lessons quickly because they are not actively involved. The brain remembers context much better than content. Put the content in an interesting context where pupils are actively engaged and it will be remembered much more readily.

Use starters and plenaries: Pupils remember more from the beginning and end of a learning experience than they do from the middle. Plan lessons with several different episodes, thus creating lots of 'beginnings' in order to improve learning and recall. Starters and plenaries do not have to occur only at the beginning and end of lessons.

Make it different: Boring and mundane experiences are easily forgotten. Conversely, pupils will remember the dramatic and the unusual. One science teacher tells of attempting to teach lower-attaining Year 9 pupils the reactivity series of metals. At a difficult moment during the lesson, she accidentally tripped over the hem of her lab coat and fell backwards. The pupils were rather shocked by this, but later in the lesson when asked to recall the first five elements in the series, all the pupils had no difficulty. When she asked them what had helped them to remember, they replied, 'seeing you lying on the floor'. There are less bruising ways of creating novel learning experiences for pupils and not every lesson can be different. Nevertheless, if you can find some different ways to put across key messages from the lesson, it will aid pupils' recall significantly.

Make time to think: Memory and understanding are two separate things. Pupils will remember information more easily if they understand it properly first. It is therefore worth investing the time and effort to make sure that pupils truly understand. In order to do this, the learning should be structured to ensure that the pupils are fully engaged and have time to think about what is being asked of them. They should also be allowed time to make personal meaning of new ideas, preferably with the opportunity to talk to each other about how they came to their understanding. Being able to explain *how* new learning was constructed is as important as *what* has been learned.

For more on starters and plenaries, see unit 5. For more on how to engage pupils in learning, see unit 11 Active engagement techniques.

5 Using assessment for learning to lift performance

Assessment for learning is clearly important for all pupils, but lower attainers can benefit significantly from knowing what they are aiming for because they are less likely to be able to 'leap ahead' and visualise outcomes in the way that many able pupils can.

It is generally accepted that teaching is much more efficient and effective when:

- the purpose of learning (lesson objectives) and the expectations (learning outcomes) are shared effectively with pupils at the start of lessons, and when tasks are introduced in episodes in a manner that they can readily understand;

- assessment to inform learning is embedded in the structure of the lesson;

- teachers check on pupil understanding at various points in lessons rather than assuming that they have absorbed the learning (traffic-lighting is one way of doing this, another is using ICT to 'vote');

- teachers adjust their teaching to take account of pupils' misconceptions and misunderstandings at the time rather than dealing with these issues later in order to 'cover the syllabus';

- time is devoted in lessons to clear demonstrations of the standards pupils are aiming for, showing examples (good and bad), discussing merits, modelling techniques and discussing what is expected (e.g. 'What I am looking for?');

- opportunities are provided within normal lesson time for pupils to use success criteria to generate their own work, to peer-assess and self-assess against criteria;

- teachers provide feedback (oral or written) that shows pupils when criteria have been met and what they still need to do to improve. Time spent in marking work can be reduced by providing pupils with the criteria in advance, and by making specific reference to them. Some teachers create comment slips explaining common mistakes to put into pupils work as appropriate;

- teachers provide time for pupils to reflect on how they are being assessed, e.g. by giving pupils Key Stage 3 mark schemes and test papers, and asking them to consider why a mark scheme will allow some responses but not others;

- teachers do not only provide written feedback in terms of grades or marks, which can be demotivating, time-consuming and confusing;

- teachers involve pupils in considering what assessment data tells them, e.g. deciding what is meant by a 'level 5' or a 'grade C at GCSE' and what they must do to achieve specific grades.

How do I measure up?   30 minutes

Make and fill in a grid like the one below, reflecting on the assessment procedures that you use with your lower-attaining pupils.

For Year 9	Time spent
Marking and recording marks for one class set of books	
Marking and recording marks for one class set of tests	
Assessing what pupils know during the start of each lesson for one class during one week	
Marking work with individual pupils during one lesson	
Working with groups of pupils on task during one lesson	
Setting targets for pupils based on the previous key stage data	
Going through the answers to the 'mock' end-of-key-stage test paper for one class	
Writing reports for one class	

Communicating objectives and learning outcomes

Sharing the purposes of lessons and making the learning outcomes explicit are important for all pupils, but there are particular benefits for lower attainers. However, simply writing an objective on the board and asking pupils to copy this down achieves little unless pupils understand clearly what it means. The objective should set the scene for the lesson and explain what the pupils will learn. Stems such as *know that …*, *develop …*, *be able to …*, *understand that …*, *explore …* are helpful. We can categorise learning objectives into five types (see unit 1 Structuring learning). These are:

acquiring knowledge (*know that …*)

acquiring concepts (*understand how/why …*)

acquiring new behaviours, learning skills and procedures (*be able to …*, *how to …*)

exploring attitudes, values and perspectives on a problem (*develop, be aware of …*)

developing creativity, personal growth (*explore and refine strategies for …*).

However, it is more important for lower attainers to be specific about the learning outcome you want from a particular task or activity. These outcomes need to include some notion of quality, in other words what is needed to produce a good result. This means sharing the criteria for success with pupils, perhaps using

phrases such as *it needs to include …*, *it will have three parts …*, *there will be a clear introduction that … .*

Shirley Clarke (2001) suggested that using the following structures and stems may help organise thinking:

Objectives: WALT   *We are learning to …*

Outcomes: WILF   *What I'm looking for …*

               TIBS   *This is because … .*

So, given the following objective:

Identify regional differences that exist within a country.

you might say to pupils:

'What I'm looking for is that you correctly name and locate major regions within the country and give a detailed description of two regions, identifying the key human and physical features of each. This is because focusing on key human and physical features will give us a way of comparing regions in any country.'

- At the end of the lesson ask, 'What have you learned today?' and refer pupils back to the objectives.

Extract from *Unlocking formative assessment: practical strategies for enhancing pupils' learning in the primary classroom*, Clarke, S. (2001) Hodder Arnold H&S. © Hodder Headline. Used with permission of the publisher.

Case study 3

The teacher of lower-attaining Year 11 group realised that although when marking work she was continually providing explanations of how to record information effectively, few pupils were actually improving. Her solution was to copy the grade F and grade C criteria from the examination specification. She gave the pupils a copy of the grade F description, then every time she asked for a new piece of work she drew their attention to what the criteria said. She then involved the class in modelling an answer to the problem by referring to the criteria. Pupils were encouraged to be critical of the text and to point out when the teacher was recording an answer that did not meet the criteria. She then asked them to compare their 'class answer' to the grade C criteria and look for the kinds of response that would move from one level to the next. Sharing the criteria for the exam specification and modelling an answer became a regular feature of her lessons. This resulted in more focused responses from the pupils because they realised exactly what was required of them.

Involving pupils in self-assessment and peer assessment

If lower-attaining pupils are to learn, they need help in identifying gaps in their performance. Other pupils can be quite good at helping to find out why gaps in learning occur and finding strategies to help close the gaps. For this to work effectively, pupils must be comfortable about admitting mistakes. This requires an open classroom ethos as many lower-attaining pupils worry about the quality of their work.

Task 12	**Using criteria and peer assessment** 30 minutes

Providing pupils with criteria will help them understand what standard is expected.

Video sequences 3d, 3e and 3f show three examples (En, Sc and ICT) of pupils involved in peer assessment.

In the first example an English teacher provides pupils with a series of prompts to help them analyse each other's work. In the second, a science teacher has provided pupils with GCSE grade criteria for C and A, then asked them to use this to write an explanation of photosynthesis for homework. In both cases it was expected that following the peer review pupils would redraft and improve their work. In the ICT example, the teacher describes the criteria at the start of the lesson and helps pupils to consider how to improve during the lesson.

Other techniques that could be used include the following.

- Show pupils how assessment criteria have been met in examples of work from anonymous pupils.

- Ask pupils in pairs to review an anonymous piece of work against a set of criteria (e.g. level descriptions). Then conduct a class discussion on the standard reached and what feedback should be provided to help the pupil improve.

- Ask pupils to generate criteria for a piece of written work they are about to do: 'What do we need to include for top marks?'

- Ask pupils in pairs to mark a test (e.g. an end-of-Key-Stage-3 test) using the mark scheme and to discuss why an examiner could give full marks for some answers but not others.

- Following class work, provide pupils with a 'model answer' and ask them to assess themselves against it.

Select one or two of the techniques above or from the lists of self- and peer assessment ideas in the summary of research on pages 19–21. Try them out in the next unit of work you teach.

6 Putting it all together – structuring the learning

In this unit we have discussed the challenges of teaching a lower-attaining class. The following classroom assignment requires you to bring together a selection of techniques and produce a short-term plan that includes all the essential elements.

Task 13	**Classroom assignment: putting it all together**	**40 minutes**
	Research suggests that lower attainers often benefit from lessons that are structured into a number of shorter episodes (see summary of research). These episodes will need distinct outcomes and may each require a mini-plenary. This classroom assignment will allow you to bring together a selection of the techniques outlined.	

Lesson title:	Time:
Objectives and learning outcomes *What learning objectives do you plan to meet and what specific learning outcomes are you looking for?*	
Developing skills *How will you plan to develop literacy and numeracy, and support recall?*	
Assessment *How will you plan to provide pupils with feedback about what they need to do to improve, and how can you involve pupils in peer and self-assessment?*	
Vocabulary *How will you introduce key words?*	
Resources *What is needed during the course of the lesson to help pupils work independently when appropriate?*	
Episode 1: Starter *What will this include: will it focus on literacy or numeracy?*	6 minutes
Episode 2: Introduction *How will you share your objectives and learning outcomes with pupils?*	2 minutes
Further episodes *How many episodes will you divide the activities into and how will you plan to revisit learning at regular intervals?*	40 minutes
Final episode: Plenary *How will you involve pupils in assessing and understanding what they have learned?*	

Summary of research

There is some divergence in research evidence about the most effective ways to teach pupils who make slower progress. There is a body of evidence about the impact of very direct and structured learning, which breaks learning down into small sections which need careful teaching, practice and feedback. There is also a body of evidence about more radical approaches that aim to transform the learning potential of the individual. These two approaches do not need to be seen as in opposition as both may be needed.

Programmes focusing on pupil learning potential

A review of learning skills interventions (Hattie, Biggs and Purdie 1996) which looked at 51 studies reached a somewhat disturbing conclusion. They found that the effect of the interventions, which could be considerable, was greatest for middle-achieving pupils and those classed as underachieving. These groups are regarded as the most likely to benefit from such instruction. The review concluded that 'low-ability' pupils were unable to benefit from interventions of most kinds. The exception was Feuerstein's Instrumental Enrichment (IE) programme (Feuerstein et al. 1985), which would be termed a complex and radical programme.

IE was designed for culturally deprived, low-achieving Israeli adolescents. Feuerstein believed that thinking is a cultural tool transmitted from one generation to the next through high-quality interaction (or mediation) between adults and children. In this analysis low-achieving teenagers had missed out on such interaction with parents and family. The materials are deliberately rather abstract-looking (visual symbols and patterns) so that they are not linked in the mind of the pupil with previous school failure. There are 14 increasingly complex 'instruments' to be covered over two years. These start with relatively straightforward focuses such as detecting pattern and orientation in space and proceed in later instruments to complex reasoning and problem solving. The teacher plays a crucial role in maintaining attention, reducing impulsiveness, discussing strategies and bridging to mainstream curriculum contexts.

Research has shown a significant effect on IE groups in Canada, Israel, the USA and Venezuela, including educationally disadvantaged and lower socio-economic groups. However, the measure commonly used to study impact focuses on non-verbal reasoning, and substantial teacher training is required. A detailed evaluation of a trial in England (Blagg 1991) showed no effect on attainment, but there was evidence of an improvement in attitude and behaviour. Many reviewers are critical of the control of the training materials and processes – it is expensive and intensive. Shayer and Beasley (1987), reviewing the US and Israeli evidence, argued that IE had the potential to transform the training and skills of the teachers of less able pupils.

Another example of such an approach is reciprocal teaching (Palincsar and Brown 1984). This programme was originally designed for low-achieving pupils struggling with text-based tasks, although it was later adapted for a wider range of subjects and tasks. Like IE it is inspired by the work of the Russian researcher Vygotsky. Pupils are taught to work in groups using four behaviours that are characteristic of higher-achieving pupils – questioning, clarifying, summarising and predicting.

Direct teaching

In the other approach, direct teaching, there is a focus instead on the content to be

taught. The lesson should have a clear structure, so pupils can easily understand the content of the lesson and how it relates to what they already know. Many researchers recommend starting the lesson with review and practice of what was learned during the previous lesson, for example by going over homework. This will allow the teacher to find out to what extent pupils have grasped the content of previous lessons, and therefore to what extent this content will need to be retaught.

The objectives of the lesson should be made clear to pupils from the outset, with examples such as 'today we are going to learn about …', or through writing the objectives on the board or on a flipchart. During the lesson the teacher needs to emphasise the key points of the lesson, which may otherwise get lost in the whole, and a certain amount of repetition is helpful. At the end of the lesson the main points should once again be summarised, either by the teacher, or preferably by the pupils themselves, for example through asking them what they have learned during the lesson. Subparts of the lesson can usefully be summarised in the same way during the course of the lesson. Teachers must also clearly signal transitions between lesson parts, such as the start of a new topic or practice of the previous topic. All this not only ensures that pupils will remember better what they have learned, but will help them to more easily understand the content as an integrated whole with recognition of the relationships between the parts.

It is also recommended that teachers build a certain amount of redundancy into the lesson, in the form of repeating and reviewing general rules and key concepts, in order to help pupils understand and retain the topic. This is particularly important for more demanding topics or rules. Teachers would also do well to explain such demanding topics using a variety of media and methods, in order to help pupils with different learning styles (Rosenshine and Stevens 1986; Brophy 1992; Borich 1996; Reynolds and Muijs 2001).

Within this overall structure, it is recommended that material should be presented in small steps pitched at the pupils' level, which are then practised before going on to the next step. This allows pupils to gain a sense of mastery over the content and will stop pupils getting bored or losing the thread of the lesson. Information should be presented with a high degree of clarity and enthusiasm. Teachers need to focus on one point at a time, avoid digressions and avoid ambiguous phrases or pronouns.

Rosenshine (1983) suggests that in as much as pupils are younger, slower and/or have little background knowledge:

- instruction is more effective if learning is structured;

- there is a brisk pace, but instruction proceeds in small sequential steps;

- detailed explanations are given;

- many concrete examples are provided;

- many questions are asked;

- opportunities for active pupil practice are included;

- feedback and corrections are provided;

- a successful rate of 80% or higher in initial learning tasks is ensured;

- practice is continued to the point where responses are automatic.

'Teaching functions in instructional programs', Rosenshine, B. from *Elementary School Journal*, Thomas L. Good (ed) 83, 335–351, published by the University of Chicago. Used with permission.

Conclusion

Given that there are such different models for tackling low attainment, how are they reconciled? Peterson (1979) concluded that direct instructional teaching produces better attainment on standardised tests. However, what he calls the open approach is regarded as better for promoting creativity and problem solving.

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Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Try varying the proportion of time you devote to supporting literacy, recall and assessment for learning in each lesson. Which has the most impact on your pupils? Is there an optimum?

- Explore the use of criteria and peer assessment, perhaps using different techniques across a range of classes over a sustained period, for example 6 weeks, and then review progress.

- Investigate further ideas about what your pupils think helps them learn. Ask them for some specific suggestions about what to include in a lesson, then plan these suggestions into a future lesson and involve them in evaluating the change.

- Investigate the impact of a sustained focus on developing writing skills on your pupils. You may wish to refer to unit 14 Developing writing.

For further reading, the following publications are recommended:

- Assessment Reform Group (1999) *Assessment for learning: beyond the black box.* University of Cambridge, Faculty of Education. ISBN: 0856030422.

- Assessment Reform Group (2002) *Working inside the black box: assessment for learning in the classroom*. King's College, London. ISBN: 1871984394.

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Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Task 14 | **Setting your targets**   **40 minutes**

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

Appendix 1

Questionnaire to investigate pupil views on learning

1 When do you think you learn best: at the beginning of a lesson, in the middle part or at the end?

2 Which of these help you learn best? *(Put a tick against those which are really helpful, and a cross against those which do not help you at all. You can leave any you are not sure about.)*
- Being told what to do
- Being shown what to do by the teacher
- Copying notes from the board
- Listening to the teacher explaining an idea
- Watching a demonstration
- Making models of things
- Acting something out
- Having to explain an idea to a partner
- Writing your own explanation
- Making notes from a textbook
- Making a diagram which shows how things link together
- Talking about ideas with others
- Answering questions in class

3 In which ways do you prefer to work? *(Put 1 against your favourite, and then 2, 3 and 4 for your other choices.)*
- On your own
- With a partner
- In a small group
- As a whole class

4 Which do you prefer when your work is marked?
- Just a mark or a grade
- A mark or a grade with a comment
- A comment which shows you how to improve

5 Think about the best lessons you have this year. What makes them better than the others?

6 What would your best classroom look like?

7 What advice would you give to a new teacher about teaching good lessons?

Thank you for completing this questionnaire.

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Raising
Standards
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INVESTOR IN PEOPLE

*Pedagogy and Practice:
Teaching and Learning in
Secondary Schools*

Unit 6: Modelling

Teaching repertoire

How to use this study guide

This study unit offers some practical strategies that teachers use to provide effective modelling. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

• Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

• Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to modelling. After three weeks compare notes. Discuss which strategies are the most effective and why.

• Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

• Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

• Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 6, Modelling, when working through this unit.

Modelling

Contents

Introduction

Effective modelling in lessons

When effective modelling is a regular feature of lessons:

- the work pupils produce is more likely to achieve the standard required by the teacher;

- teachers see work meeting reasonable standards and their expectations of pupils rise accordingly;

- pupils are able to make use of the processes, skills, conventions and procedures that have been developed and consolidated in previous years;

- pupils are generally on-task, engaged and motivated;

- pupils are better able to work independently of the teacher, being clear about the skills they need to use and what a good finished product should look like;

- pupils feel they have the knowledge and skills to accomplish tasks to a good standard;

- pupils feel they have succeeded and this results in improved confidence.

Common issues

When pupils are asked to produce a piece of work, they often lack:

- an understanding of the strategies required to plan and complete the task;

- the vocabulary needed to communicate the knowledge they have of the subject and to evaluate what they have produced;

- sufficient knowledge of the conventions and language features of the text they are asked to write;

- sufficient knowledge and experience of procedures they need to follow and how to decide the order in which they need to do things.

Many pupils may have the necessary subject knowledge, but lack both the experience of using process skills and the confidence to experiment and take risks when they are learning.

Pupils who are learning English as an additional language do not have sufficient experience in listening, talking, reading and writing in English and would benefit from hearing the appropriate style, tone and vocabulary of oral and written texts. These pupils will also benefit from 'seeing' processes and procedures modelled and from the use of more visual forms of communication. Pupils who have special educational needs also require this additional scaffold as it offers them a clear model of the process as well as the finished outcome.

Resolving the issues

Modelling can be used to address these issues. There are a number of strategies you can use to ensure your modelling is effective.

- **Prepare the lesson well**, particularly if you are demonstrating a new procedure or idea to pupils. For example, if you plan to model a new skill or technique for the first time, you might practise the skill and rehearse what you are going to say. (As you become more confident, you might still plan exactly what you want the pupils to know, but may not need to write out a script or practise the skill again.)

- **Take into account pupils' prior knowledge and experience**. Make links between what they've done before and the current work. When introducing new ideas and experiences allow sufficient time for pupils to become familiar with the conventions or features of the work.

- **Try to maintain a view of the class** while writing notes for them by using an OHP, a laptop or an interactive whiteboard; try to keep turning round to write on a board to a minimum.

- **Maintain the pace of the lesson** by using modelling for short periods only, especially when you are just beginning to employ the technique. Until pupils' listening skills have developed, model just a small part of the activity, for example the opening sentence of a conclusion in a science experiment, or how to use a soldering iron in D&T.

- **Repeat the modelling** of a particular process whenever necessary. It is important to remember that some skills are acquired only through repeated practice.

- **Establish rules for the session** and emphasise the importance of sticking to them. Explain to pupils that it will help them learn and make the most of the limited time you have together. This can be done quickly with the participation of pupils and the rules can be displayed on a classroom poster. They may include the following:
  - Don't call out.
  - Concentrate, listen and watch, and make sure you can see clearly.

- Wait until the teacher has finished speaking before you ask a question.
- Don't talk when the teacher or someone else is talking.

1 What is modelling and why is it effective?

What is modelling?

Many people say they have learned the basics of cookery by watching Delia Smith's programmes on television. They learn how to achieve the desired outcome by watching her demonstrate a technique and listening to her simultaneously describe and explain what she is doing.

When we are learning a new skill or preparing to undertake a challenging task, it helps if we can:

- see someone else do it first;

- hear them 'thinking aloud' about the decisions they are making;

- hear them explaining what they are doing at each stage;

- ask questions about the process as it is happening;

- identify problems as they arise and think aloud about how to solve them;

- slow the process down to look in detail at the most difficult part and ask for further clarification;

- see the process demonstrated visually, sometimes repeated more than once if it is difficult to grasp;

- be given time to discuss what has been done and predict next steps.

In other words, it helps if we have a model. Modelling is an effective teaching style used in all sorts of contexts outside the education system. It is used for training medical professionals, hairdressers and train drivers, to give just a few examples.

Modelling in the classroom

Also known as 'assisted performance' or 'teacher demonstration', modelling is recognised by teachers as an effective strategy for when pupils are attempting new or challenging tasks. Modelling is an active process, not merely the provision of an example. It involves the teacher as the 'expert', demonstrating *how* to do something and making explicit the thinking involved.

Through modelling, the teacher can:

- 'think aloud', making apparent and explicit those skills, decisions, processes and procedures that would otherwise be hidden or unclear;

- expose pupils to the possible pitfalls of the task in hand, showing how to avoid them;

- demonstrate to pupils that they can make alterations and corrections as part of the process;

- warn pupils about possible hazards involved in practical activities, how to avoid them or minimise the effects if they occur.

The benefits of good modelling

Modelling that involves demonstrating visually is particularly important for pupils who cannot visualise concepts without prompts or follow a set of instructions just by listening to them. It is also helpful for pupils with sensory impairment who may miss some experiences through lack of sight or hearing.

Good modelling:

- illustrates for pupils the standard they are aiming for and establishes high expectations in terms of skill as well as knowledge;

- helps pupils develop the confidence to use the processes for themselves;

- helps pupils accept that making mistakes is part of the learning cycle;

- helps pupils to take risks when learning;

- helps pupils with special educational needs, who benefit from having processes and skills demonstrated in a clear, concrete way;

- helps pupils learning English as an additional language, who benefit from the combination of a visual model and an oral explanation;

- appeals to a significant number of pupils whose preferred learning styles are visual and auditory;

- provides an effective approach for extending the experience of gifted and talented pupils.

Effective modelling ensures that pupils move from dependence on the teacher as the expert, to independence and being more expert themselves. Vygotsky identified the road to independence as one that leads from scaffolded support.

In effective modelling, the teacher:

- is specific about the task and what pupils will learn;

- does not expect pupils to listen or watch for extended periods of time;

- offers challenge but mediates that through providing pupils with the criteria for success;

- explains underlying principles so that pupils understand what is involved;

- shares the thinking so that the mental processes are explicit;

- involves pupils increasingly in the process by encouraging them to think about the task, ask questions, offer contributions and test ideas;

- provides opportunities for pupils to practise the new skill while it is fresh in their memory;

- supports first attempts with prompts, scaffolds and praise;

- enables pupils to become independent;

- enables pupils to see how they can learn from others.

Task 1

Modelling to develop analysis   30 minutes

Video sequence 6a shows a Year 9 geography lesson at an inner-city comprehensive. Pupils' attainment on entry to the school is slightly below average overall. This class is a mixed-ability group with a wide range of prior attainment, including those working above the level expected for their age as well as those working below it. They have been studying Brazil and the rainforest.

Watch the video and look carefully at the teacher's use of modelling. Use the following questions to help you with your analysis.

- What skills, processes or procedures were being modelled?

- How did the teacher make the decisions behind the task clear to the pupils?

- After modelling the activity, how did the teacher 'scaffold' the learning in order to move pupils towards independence?

- How did the pupils respond throughout the session?

Compare your notes with the analysis in appendix 1 on page 22.

Task 2

Classroom assignment: try the strategies   30 minutes

From your notes for task 1, identify two strategies that were new to you and that you thought worked particularly well.

Choose a class you feel confident with and a lesson where demonstrating a key skill or concept would be useful.

Plan to use either or both of the new strategies in this lesson. Remember to keep the modelling session short and focused.

Look at the pupils' outcomes from the lesson. Have pupils grasped the skill or concept that you modelled during the lesson? Which aspects of the modelling session could you improve next time?

Here are just a few examples of skills, processes and procedures in different subjects where modelling could help:

- writing an account in history;

- making notes in preparation for an essay in religious education;

- identifying key points or evidence from a range of sources in geography;

- reading an examination question in science and deciding what is required;

- constructing a concept map in science;

- considering options when receiving the ball in an invasion game, for example football or netball;

- evaluating a finished product in design and technology;

- presenting a piece of logical reasoning in mathematics;

- analysing an image in art;

- learning and using a rhythm in music;

- improving technique when throwing a javelin in athletics.

Identify opportunities for modelling   **20 minutes**

Make a list of opportunities for modelling in your subject. Think about the range of learning needs in the classes you teach, including those at Key Stage 4.

Some teachers are reluctant to undertake modelling for a number of reasons, even though they realise it is a very important teaching strategy. Identify three reasons why modelling is important in your subject and three areas of possible concern.

Why modelling is important

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Concerns

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Look back to the list of strategies for effective modelling in Resolving the issues on page 2. Are your concerns covered by any of the suggestions made there? Look out for further relevant suggestions as you work through the unit.

2 Modelling talk

The *Literacy across the curriculum* training materials stress the importance of modelling speaking and listening as well as reading and writing. **All subject specialists** have a vocabulary and ways of expressing themselves that are appropriate, and indeed important, for their subject. When you learn a foreign language, you need plenty of opportunities to hear it spoken. Through modelling talk, the teacher can demonstrate for pupils the particular features of the language of the subject.

By orally rehearsing ideas, teachers provide pupils with a good model for their talk and for their writing. In design and technology, for example, the teacher might model how to describe the taste of certain foods:

> 'This piquant sauce has a base of cider vinegar and sugar. If I wanted to alter the taste to make it sweeter, I would have to increase the ratio of sugar to vinegar.'

Similarly, an art teacher might model the evaluation of a painter's techniques:

> 'The first thing I notice about this painting of sunflowers by Van Gogh is the vibrancy of the colours and the strong brushstrokes. To produce this effect Van Gogh would load his brush with paint and create marks on the canvas very quickly. You can see this by the lack of modelling of the paint which achieves this quality of spontaneity.'

Task 4

Identify the features of your subject language   10 minutes

These are some of the features of geographers' talk. Users of this subject language:

- have specialist vocabulary;

- use semi-formal syntax;

- include factual explanations;

- employ phrases that indicate cause and effect, for example 'consequently', 'this results in', 'precipitating';

- have a committed enthusiasm and respect for knowledge of places and perspectives.

Now identify other features of talk that are required in your subject.

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What oral skills need to be developed?   *15 minutes*

Choose a class you teach. Make a list of the subject-specific oral skills these pupils need to develop. Refer back to the list of general features of subject talk in task 4 to help.

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Reflection

Look at the list you made in task 5. How do you currently make these skills explicit in your lessons?

What strategies are you using to teach pupils how to become effective speakers?

Look at your current scheme of work and planning. Have you made sufficient provision for teaching these skills?

Here is a teaching sequence that covers the main points to be considered in planning an effective modelling session.

Teaching sequence for modelling talk

1   Make the learning objectives explicit to the class.

2   Provide an example or model of the oral-language text type.

3   Identify the purpose, the outcomes and the 'ground rules'.

4   Define the speaking and listening conventions.

5   Set an activity or oral task that enables pupils to rehearse and explore language conventions in a supported context.

6   Reflect and review, refocusing on the speaking and listening objectives.

Task 6

Modelling talk   30 minutes

Video sequence 6b shows a mixed-ability Year 7 class. The class is doing a short unit of work based on the following objectives from the English framework:

- promote, justify or defend a point of view using supporting evidence, example and illustration which are linked back to the main argument;

- acknowledge other people's views, justifying or modifying their own views in the light of what others say.

The pupils had spent the previous lesson considering a series of 'outrageous' arguments. They then worked on defending or opposing them, using evidence to justify their views.

Watch the video sequence and use the following questions to help you identify the ways in which the teacher and the teaching assistant modelled the appropriate language to use when constructing a spoken argument.

- What role does the modelling sequence play in teaching pupils about how to construct an argument? What evidence is there in the video that pupils have understood the principles of constructing an argument?

- How has this approach helped pupils with EAL and special needs?

Task 7

Classroom assignment: modelling talk   1 hour

Identify an opportunity to model subject-specific talk in a lesson that you will teach soon. Plan a talk for that lesson, using the teaching sequence as a guide. Consider also the following questions.

- What are the objectives for the lesson?

- What are the subject-specific key words and phrases you want pupils to learn?

- How will you group pupils for the teacher demonstration?

- What resources will you need for this lesson that will support modelling?

- Who will help you in the lesson?

It is useful to make an audio recording of your lesson or have another teacher observe to help you reflect on it later. You could ask pupils how the modelling session helped them.

Practical tip

In preparing to use modelling as a technique, some teachers have found it useful to make an audio recording of their talks before delivering the lesson. They used the questions below to help analyse their work.

- Did you use your voice in a way that would engage pupils, varying it to maintain their interest?

- Did you make the learning objectives clear?

- Did you explain that, by listening to you, they would be able to produce good-quality work, and work safely where appropriate?

- Did you include subject-specific vocabulary and explain meanings?

- Was the talk long enough to provide pupils with the knowledge they needed for the task?

- Was the talk too long? Does it need modifying?

Remember, it is difficult for people to listen if they are uncomfortable or if the talk goes on for too long. Make sure that pupils are facing you and can see and hear you in comfort. Aim to talk for no more than **5 minutes** to begin with.

Task 8

Evaluation   15 minutes

Use some of the following questions to focus your evaluation of the lesson from task 7.

- What worked well? How effective were your modelling strategies?

- How did you help the pupils to apply the strategies you modelled?

- Which examples of subject-specific language and vocabulary that you modelled did you hear the pupils use?

- How well did the pupils' work match the expected outcomes?

- Were there any problems? If so, what could you do to overcome them next time?

- If you asked them, what did your pupils say?

3 Modelling writing

The knowledge and understanding pupils have acquired in **all subjects** over the key stages is assessed at some point through writing. Even reading skills are assessed through a written response. GCSE coursework makes particular demands on pupils, and subjects that previously did not require writing skills, such as drama, dance and PE, now involve a written examination.

However, pupils experience more problems with writing than they do with speaking or reading. Attainment measures at the end of all the key stages show that writing lags behind the other two language modes. The 2002 National Curriculum tests for English showed a 20 per cent differential between reading and writing for all pupils; the gap is wider for boys, who experience greater difficulty in mastering writing than do girls. The differential increases over Key Stage 3 and Key Stage 4.

Modelling is one of the most effective ways of helping both girls and boys to become confident writers, and it works especially well for boys. Modelling how to write an answer to an examination question is an excellent strategy to use in all year groups, but has particular relevance for Key Stage 4 pupils.

Below is a list of the main text types that pupils are expected to write across the curriculum and in examinations.

Text type	Examples
Instructions	Recipes, directions, plans for making
Recount	Stories, science experiment write-up
Explanation	The rain cycle, mathematical conclusions
Information	Food in Roman Britain, the properties of mercury, nutritional analysis
Persuasion	Advertisements, manifestos
Discursive writing	Magazine articles, discursive essays
Analysis	Literary criticism, analytical essays, data tables or charts
Evaluation	Critical reviews, reflection on outcomes

Task 9

Identify text types in your subject   10 minutes

From the list above, identify which text types pupils are asked to write in your subject.

Think about how you introduce writing tasks. What do you tell pupils about what is required when writing a specific text?

Each of these text types has a set of conventions at word, sentence and text level. If pupils are to become proficient at writing these texts, they need to have explicit teaching for each type. As writing is a skill that develops through continual practice and reinforcement, pupils will need repeated opportunities to learn about these features. Traditionally, teachers have set writing tasks and relied on marking to correct the errors, both factual and secretarial, expecting English teachers to teach the necessary writing skills. However, the programmes of study for all subjects emphasise the need for all teachers to be aware of the literacy demands of their subject and to make provision in their schemes of work for teaching pupils the skills they need to express their understanding and knowledge.

Explicit modelling of the features of the texts, showing pupils how to select and manipulate content, is a proven strategy for improving the outcome of writing tasks. It helps pupils to avoid many common errors and substantially reduces marking. It also raises pupils' confidence in their ability to undertake the task because they have a good model in their heads of what they need to produce. This is particularly important when pupils are preparing coursework assignments for GCSE.

Here is a set of generic conventions that can be applied to all texts.

Purpose

- What is the purpose?
- Who is it for?
- How will it be used?
- What kind of writing is appropriate?

Text level

- Layout
- Structure/organisation
- Sequence

Sentence level

- Viewpoint (first person, third person etc.)

- Prevailing tense

- Active/passive voice

- Typical sentence structure and length

- Typical cohesion devices

Word level

- Stock words and phrases

- Specialised or typical vocabulary

- Elaborate or plain vocabulary

Reflection

When you set writing tasks, do you make all these features clear to the pupils? How do you show them how to plan the content? How do you demonstrate how to write the opening paragraph or other sections of the text? Do you explain your selection of connectives, words and phrases as you write?

Here is a teaching sequence that covers the main points to be considered in planning an effective modelling session. This sequence could take place in one modelling session, or through modelling sessions over a series of lessons.

Teaching sequence for modelling writing

1 Establish clear aims.

2 Provide examples.

3 Explore the features of the text.

4 Define the conventions.

5 Demonstrate how it is written.

6 Compose together.

7 Scaffold pupils' first attempts.

8 Move pupils on to independent writing.

9 Draw out the key learning.

10 Use praise to motivate and encourage.

Video sequence 6c shows a history lesson with a Year 7 group. The teacher models and then demonstrates writing an explanation.

Watch the video and look at how the teacher's use of modelling compares to the first part of the teaching sequence. Make notes in the grid below on how the different elements are covered.

Establish clear aims	
Provide examples	
Explore the features of the text	
Define the conventions	
Demonstrate how it is written	

Task 11

Classroom assignment: modelling   1 hour

Identify an opportunity to model writing in a unit of work that you will teach soon.

Collect some good examples of the text type (including some written by pupils).

Plan how you will model the writing in the lessons, using the teaching sequence as a guide. For example, you may want to try modelling just the opening paragraph in the first lesson and build up to the whole text over a number of lessons. Write out your script for the first lesson and keep it short.

Decide whether you are going to use a whiteboard or an OHP.

If you can, make an audio recording of your lesson or have another teacher observe to help you reflect on it later.

Practical tip

Write out the script or some key points that you are going to use in the lesson and refer to it while you are modelling the text.

You can observe pupils' reactions and answer any questions most effectively if you can model this when facing the class.

Task 12

Evaluation   15 minutes

Use the following questions to evaluate the lesson from task 11.

- What worked well?

- Were there any problems? If so, what could you do to resolve them for next time?

Analyse the written outcomes from a previous lesson and from the modelled session. What are the differences between the two samples? Do these tell you anything you can act on next time?

4 Practical modelling

Successful practical modelling

Effective teachers of practical subjects are adept at using demonstration and modelling as strategies for introducing pupils to new or complex processes, skills or tasks.

Demonstration is an accepted strategy that is often used successfully in the teaching of practical subjects. Modelling should be seen as an extension of demonstration by not only showing how to do something but also thinking through the process aloud and making this thinking explicit to pupils. By thinking aloud the teacher shows and reinforces the importance of making decisions regarding:

- how to begin;

- how to select information or data which is relevant to the task or audience;

- how to organise information, data or ideas;

- the use of protocols relating to the presentation of information, data or ideas;

- how to end.

For example, in design and technology the approach of many pupils to designing is mechanistic, lacking any true understanding of the skills required for the process or the confidence to develop their own ideas fully. Modelling the unpacking of a design brief, and the thinking that takes place when designing, can help pupils to develop their skill and confidence in exploring, generating and developing their design ideas.

In mathematics, exercises on solving problems are widely used. Modelling the stages is important in short problems as well as in substantial or extended problems. Pupils often rush through the stages, hoping the teacher will confirm the correctness of their answer! Effective problem-solving habits need to be modelled and taught, not left to chance. A teaching strategy to develop these good habits is to take a small set of problems, and model working each through just the first two stages, then pausing to compare approaches. This may seem unnatural to the class at first, but once they can see the benefits, pupils begin to give more conscious attention to how they plan the solution.

In science pupils regularly engage in scientific enquiries and these comprise a wide range of processes and procedures that pupils have to learn. For example, they plan, obtain and present evidence, consider the evidence and evaluate their work. They also need to consider ideas and evidence, including how scientists worked in the past and how scientific ideas are presented. An effective way of teaching these processes and procedures is to model them for pupils. A teacher might, for example, use a scientific enquiry planning poster to model the process of controlling variables. The difference between talking it through and modelling it is that the teacher does it, talking it through while making decisions about which variable to control and why. The teacher shares the decision-making process with the pupils. This is just as effective for any aspect of scientific enquiry.

Modelling a design brief   **30 minutes**

Video sequence 6d shows a D&T teacher modelling the unpacking of a design brief to a Year 9 class.

Learning new skills is often difficult for pupils in any subject. The teacher in this case is modelling their thinking about how to go about the process.

Watch the video sequence and use the questions in the grid below to make notes and reflect on what you observe.

Questions	D&T lesson
How did the teacher focus the pupils on the skills, processes or procedures being modelled?	
How did the teacher's modelling keep the pupils' attention and make explicit the thinking and decisions needed during the task?	
How did the lesson organisation and the task allow pupils the opportunity to try out the new skill, process or procedure and develop independence?	

Reflection

The teacher in video sequence 6d shows how practical modelling helps their pupils' achievement and confidence, specifically in those aspects of their subject that pupils find most challenging.

Appendix 3 shows the reflections of some teachers who have used the questions in the table as a focus for watching this video sequence; they might be a useful starting point to compare your ideas against.

Remember, a key issue is to be clear about the differences between demonstrating and modelling – put simply, demonstrating is often just showing or telling *how* to do something, while modelling engages pupils in *thinking* as well as doing and allows them to develop the confidence and independence needed to progress.

Summary of research

In terms of research, modelling spans a number of different topics because it encompasses a variety of quite different approaches, from physical demonstration to unpacking complex mental procedures. What unifies this diversity is the fact that the pupils are offered an approach that supports their understanding.

Wider research

One of the reasons why modelling is important is that it can contribute to pupils developing a 'mental model' of a topic. Mental models are regarded as a cornerstone of understanding. Most psychologists view understanding as much more than bundles of unconnected facts. As Johnson-Laird (1985) described it:

> *The psychological core of understanding … consists of having a 'working model' of the phenomenon in your mind. If you understand inflation, a mathematical proof, the way a computer works, DNA or a divorce, then you have a mental representation that serves as a model of an entity.*

Extract from 'Mental models' by P. N. Johnson-Laird, in Aitkenhead and Slack (eds) (1985) *Issues in cognitive modelling*. Psychology Press. © Taylor & Francis Group plc. Used with permission of the publisher.

A mental model has components and relationships between those components. Thus you can have a mental model of a concept, a task or phenomenon. The vital characteristic of a mental model is that it allows you to predict and respond to unknown situations – it confers flexibility and the ability to transfer. This is illustrated by a number of experiments undertaken in Japan (Hatano and Inagaki 1992). For example, young children who had experience of looking after goldfish were found to have better understanding of how to look after other small animals. It is likely that they understood features such as feeding and cleaning, the health of the goldfish and the relationship between them. So when faced by an unknown situation of looking after another animal they were able to use the 'model' and transfer their knowledge from looking after goldfish. Thus they knew the importance of feeding the right amount of food, at regular intervals, and keeping the animal's living environment clean.

Stevens and Rosenshine (1981) synthesised 20 studies related to disadvantaged students and found that effective instruction was characterised by teacher demonstration of particular skills, student practice of the component parts with the teacher providing prompts and corrections, leading to independent practice. This is a very close parallel to guided work in the national strategies. Further work by Rosenshine (1983) indicates that, particularly with younger or low-achieving students, certain features will be important in modelling and demonstrating, such as teaching being well structured into small and sequential steps. Practice is again emphasised so that the skill or response becomes automatic.

Writing

There is some work in geography, done by a partnership between practising teachers and a university researcher, that shows the potential for teachers modelling processes for pupils. The university researcher analysed pupils' writing in the genres of describing and explaining, and developed a model to show the levels of performance. Through teacher modelling and peer and self-assessment, pupils' writing improved compared to comparison groups.

Metacognition

Modelling is likely to encourage pupils to use metacognitive thinking. It is recognised as a different type of thinking concerned with planning, monitoring and regulating actions in complex tasks. This is particularly the case where teachers 'think aloud', slow down to look at difficult parts of a process and encourage pupils to do the same. In a review of learning skills interventions, Hattie, Biggs and Purdie (1996) report that best results are obtained when strategy training was used metacognitively. Further, Wang, Haertel and Walberg (1993) conducted a review to identify the factors that explained successful learning, and metacognition was rated second out of 28 factors.

One of the best-known and well-researched programmes that uses metacognition as one of its central tenets, is reciprocal teaching (Palincsar and Brown 1984). Students working in groups are taught four behaviours that are characteristic of good problem solvers and they use them in, for example, understanding demanding texts and tackling science and mathematical problems. The four behaviours are summarising, questioning, clarifying and predicting. Students take it in turns to lead the group. This is a case, therefore, where very explicit modelling leads to students internalising a process, and which is then modelled in the group to the point where it becomes automatic.

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Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Identify a particular subject skill, process or procedure that you feel a particular class or group of pupils do not do well. Plan how to model it well; do this repeatedly over a period, perhaps of three lessons in different contexts, and then evaluate the impact on your pupils' performance. Does repetition make a difference? Is there an optimum number of times you need to model?

- Investigate the difference in pupils' understanding when modelling is used as opposed to demonstration with clear explanations.

- Involve pupils in modelling by inviting them to plan teaching others how to perform a particular process or procedure. Evaluate the impact of asking them to teach from their own understanding.

- If you have a teaching assistant or technician working with you, ask them to help you plan and deliver a modelling session. Does working with another improve your planning procedures?

For further reading, the following publications are recommended:

- Bransford, J. D., Brown, A. L. and Cocking, R. R. (eds) (1999) *How people learn: brain, mind, experience and school*. National Academy Press. ISBN: 0309070368.

- Davies, F. and Greene, T. (1984) *Reading for learning in the sciences*. Oliver and Boyd. ISBN: 0050037684.

- DfEE (2001) *Literacy across the curriculum.* Ref. DfEE 0235/2001.

- DfES (2002) *Training materials for the foundation subjects*. Ref. DfES 0350/2002.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   40 minutes

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

Appendix 1

Analysis of video sequence 6a

What skills, processes or procedures were being modelled?	Using questions in planning Analysing a picture
How did the teacher make the decisions behind the task clear to the pupils?	The teacher: explained how questions could be used in planning; slowed the process down by creating steps; involved pupils in the decision making; thought aloud about what he was doing at each stage; stressed the importance of using prior knowledge when undertaking a new task; was explicit about analysing and not describing the image; allowed pupils to practise the first stage before moving on to the second; increased pupil involvement once he was sure they were secure in what they had to do.
After modelling the activity, how did the teacher 'scaffold' the learning in order to move pupils towards independence?	The teacher: used pair work; differentiated the support to meet the needs of the pupils, e.g. provided prompts to help with writing questions for some pupils and sentence starters for others; split the task to allow for increased complexity; asked questions, offered guidance and gave feedback during the task; displayed pupils' work as an example.
How did the pupils respond throughout the session?	The pupils: listened attentively; participated in the activities; answered teacher's questions; demonstrated clear understanding of what they had to do.

Appendix 2

Analysing text types: Evaluation, including self-evaluation

Purpose

- What is its purpose?
- Who is it for?
- How will it be used?
- What kind of writing is therefore appropriate?

- To record the strengths and weaknesses of a performance/product
- Part of the plan-do-review cycle, which might have an effect on future task setting / performance / target setting
- Often used as part of assessment process, linked to objective-based teaching – i.e. *Did you meet your objectives for this particular piece of work?*
- Sometimes more long term – e.g. evaluation of performance over module of work / term

Text level

- Layout
- Structure/organisation
- Sequence

- Title contains value judgement – e.g. *How well did your construction work? How well are you progressing in this subject?*
- Sometimes in list form, including strengths and weaknesses, followed by a summary, followed by targets for the future
- Bullet points, numbered or lettered items
- Subheadings used to focus attention of writer – e.g. *How much did the materials cost? How long did it take you to make it? How successful was the testing period?*

Sentence level

- Viewpoint
- Prevailing tense
- Active/passive voice
- Typical sentence structure and length
- Typical cohesion devices

- First person; singular for individual evaluation; plural (first/third person, etc.) for group evaluation
- Past tense to reflect on performance; present to reflect on personal/group characteristics; future for target setting
- Active voice
- Connectives used to balance strengths and weaknesses – e.g. *although, however, still, on the other hand*
- Connectives used to indicate the use of evidence – e.g. *as in …, I know this because …, this shows that …*
- Connectives used to establish cause and effect – e.g. *because, since, therefore, so, as a result*
- Avoidance of meaningless evaluations and targets – e.g. *It didn't work very well*; *I will try harder with my spelling*

Word level

- Stock words and phrases
- Specialised or typical vocabulary
- Elaborate/plain vocabulary choices

- Technical vocabulary related to subject under review – e.g. in English, the spelling of unstressed vowels in polysyllabic words; in maths, the solving of simple quadratic equations
- Vocabulary of comment – e.g. *We all felt that …, Some people in the group thought that …*
- Vocabulary of constructive criticism – e.g. *John's suggestions, though inventive, were not generally accepted …, Perhaps at this point, I could have …*

Taken from *Literacy across the curriculum*, handout 2.4, page 8

Appendix 3

Analysis of video sequence 6d.

Questions	D&T lesson
How did the teacher focus the pupils on the skills, processes or procedures being modelled?	Used the OHP Identified key word and phrases with coloured pen Links to previous learning As well as 'what' to do, he went on to explain 'how' – list of steps to go through
How did the teacher's modelling keep the pupils' attention and make explicit the thinking and decisions needed during the task?	Used the whiteboard to model and record thinking and ideas – made links with arrows and colours Made it clear the thought processes he was going through and how this affected the decisions he was making Didn't really question pupils much during the modelling session, saved this for after the pupils had completed the task
How did the lesson organisation and the task allow pupils the opportunity to try out the new skill, process or procedure and develop independence?	The task was organised so that discussion and interaction within pairs is inevitable Pupils were asked to go through the same process as the one that was modelled Pupils had access to large paper, space to work and discussion time in which to explore and develop their ideas

Pedagogy and Practice: Teaching and Learning in Secondary Schools

Unit 7: Questioning

Teaching repertoire

department for
education and skills
creating opportunity, releasing potential, achieving excellence

How to use this study guide

This study unit offers some practical strategies that teachers use to engage pupils through questioning. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

• Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

• Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to questioning. After three weeks compare notes. Discuss which strategies are the most effective and why.

• Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

• Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

• Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 7, Questioning, when working through this unit.

Questioning

Contents

Introduction

Effective questioning

Questioning is fundamental to good teaching and learning. When effective questioning is a significant feature of lessons, pupils are more likely to:

- develop a fuller understanding of an idea because they have tried to explain it themselves;

- be clear about the key issues in a lesson;

- easily recall existing knowledge;

- be able to link the ideas in the lesson with their existing knowledge;

- tackle problems at a deep level and be able to extend their thinking;

- engage easily with a task because they are clear about what is expected;

- develop independence in the way they learn and think.

Common issues

Pupils' understanding of ideas is often not as fully developed as the teacher would wish and sometimes it is not clear what the stumbling blocks are. In addition, pupils can spend a significant amount of lesson time off-task. Pupils from highly disadvantaged backgrounds sometimes respond negatively to some forms of questioning because of their lack of self-esteem and their desire to appear 'cool' in front of peers. This is especially true of boys. Modifying the way questions are asked or considering where and when questioning will take place will improve the climate for learning.

Resolving the issues

Effective questioning is a skill that can be learned. All teachers intuitively question pupils for a variety of reasons, but to do it well requires planning and an understanding of how to engage and push pupils' thinking.

What can you do to become an effective questioner?

- Know how to plan questioning for a lesson.

- Understand how questions engage pupils and promote responses.

- Understand how questions develop pupils' cognitive abilities.

- Understand and be able to apply a taxonomy to questioning in your subject.

- Learn the classroom tactics you need to be an effective questioner.

- Know the pitfalls to avoid and how you can plan for alternatives to questions.

- Know how to respond to answers so that pupils are encouraged to participate.

1   Questioning

The interaction between teacher and learners is the most important feature of the classroom. Whether helping learners to acquire basic skills or a better understanding to solve problems, or to engage in higher-order thinking such as evaluation, questions are crucial. Of course, questions may be asked by pupils as well as teachers: they are essential tools for both teaching and learning.

For teachers, questioning is a key skill that anyone can learn to use well. Similarly, ways of helping pupils develop their own ability to raise and formulate questions can also be learned. Raising questions and knowing the right question to ask is an important learning skill that pupils need to be taught.

Research into questioning has given some clear pointers as to what works. These can provide the basis of improving classroom practice. A very common problem identified by the research is that pupils are frequently not provided with enough 'wait time' to consider an answer; another is that teachers tend to ask too many of the same type of questions. There is a summary of research into questioning at the end of this unit.

The purposes of questioning

Teachers ask questions for a number of reasons, the most common of which are:

- to interest, engage and challenge pupils;

- to check on prior knowledge and understanding;

- to stimulate recall, mobilising existing knowledge and experience in order to create new understanding and meaning;

- to focus pupils' thinking on key concepts and issues;

- to help pupils to extend their thinking from the concrete and factual to the analytical and evaluative;

- to lead pupils through a planned sequence which progressively establishes key understandings;

- to promote reasoning, problem solving, evaluation and the formulation of hypotheses;

- to promote pupils' thinking about the way they have learned.

The kind of question asked will depend on the reason for asking it. Questions are often referred to as 'open' or 'closed'.

Closed questions, which have one clear answer, are useful to check understanding during explanations and in recap sessions. If you want to check recall, then you are likely to ask a fairly closed question, for example 'What is the grid reference for Great Malvern?' or 'What do we call this type of text?'

On the other hand, if you want to help pupils develop higher-order thinking skills, you will need to ask more open questions that allow pupils to give a variety of acceptable responses. During class discussions and debriefings, it is useful to ask open questions, for example 'Which of these four sources were most useful in helping with this enquiry?', 'Given all the conflicting arguments, where would you build the new superstore?', 'What do you think might affect the size of the current in this circuit?'

Questioning is sometimes used to bring a pupil's attention back to the task in hand, for example 'What do you think about that, Peter?' or 'Do you agree?'

The practice of questioning

Questioning is an area characterised by a good deal of instinctive practice. The first task will help you reflect on your use of questioning.

Task 1	Questioning: a self-review		20 minutes
	For one lesson you teach, write down, as far as possible, all questions that you ask. To help capture them, you could make an audio recording of yourself or ask another teacher to observe you. (You could do the same for this colleague in return.) Now analyse the questions you have asked, using a grid like the one below. Refer to the list of the purposes of questioning above to help you with the fourth column.		
Question posed	**Open**	**Closed**	**Evaluation of pupils' responses** (impact on learning)
What do we call the process green plants use to make food?		3	Helped all pupils remember a key word
Explain the differences between the processes of photosynthesis and respiration.	3		Helped all pupils to process knowledge.

Considering the research   **20 minutes**

Read the summary of research on pages 18–20.

How does your use of questioning compare with the research findings? Look at the list of strategies in the section headed 'What is effective questioning?' Highlight those you think are part of your current practice and highlight in another colour those you think would be useful in helping to improve your practice.

Which points in the research confirmed your perceptions? Which points were new to you and which seemed especially interesting? Make a note below of the aspects of questioning that you wish to improve.

Key aspects of questioning to develop

-
-
-
-
-

2 Making a start with questioning – common pitfalls and possible solutions

Although questions are the most common form of interaction between teachers and pupils, it is fair to say that questions are not always well judged or productive for learning. This section identifies some common pitfalls of questioning and suggests some ways to avoid them.

Not being clear about why you are asking the question: You will need to reflect on the kind of lesson you are planning. Is it one where you are mainly focusing on facts, rules and sequences of actions? If that is the case, you will be more likely to ask closed questions which relate to knowledge. Or is it a lesson where you are focusing mainly on comprehension, concepts and abstractions? In that case you will be more likely to use open questions which relate to analysis, synthesis and evaluation.

Asking too many closed questions that need only a short answer: It helps if you plan open questions in advance. Another strategy is to establish an optimum length of response by saying something like 'I don't want an answer of less than 15 words.'

Asking too many questions at once: Asking about a complex issue can often lead to complex questions. Since these questions are oral rather than written, pupils may find it difficult to understand what is required and they become confused. When you are dealing with a complex subject, you need to tease out the issues for yourself first and focus each question on one idea only. It also helps to use direct, concrete language and as few words as possible.

Asking difficult questions without building up to them: This happens when there isn't a planned sequence of questions of increasing difficulty. Sequencing questions is necessary to help pupils to move to the higher levels of thinking.

Asking superficial questions: It is possible to ask lots of questions but not get to the centre of the issue. You can avoid this problem by planning probing questions in advance. They can often be built in as follow-up questions to extend an answer.

Asking a question then answering it yourself: What's the point? This pitfall is often linked to another problem: not giving pupils time to think before they answer. Build in 'wait time' to give pupils a chance to respond. You could say 'Think about your answer for 3 seconds, then I will ask.' You could also provide prompts to help.

Asking bogus 'guess what's in my head' questions: Sometimes teachers ask an open question but expect a closed response. If you have a very clear idea of the response you want, it is probably better to tell pupils by explaining it to them rather than trying to get there through this kind of questioning. Remember, if you ask open questions you must expect to get a range of answers. Acknowledge all responses. This can easily be done by saying 'thank you'.

Focusing on a small number of pupils and not involving the whole class: One way of avoiding this is to get the whole class to write their answers to closed questions and then show them to you together. Some teachers use small whiteboards for this. Another possibility, which may be more effective for more open questions, is to use the 'no-hands' strategy, where you pick the respondent rather than having them volunteer. One advantage of this is that you can ask pupils questions of appropriate levels of difficulty. This is a good way of differentiating to ensure inclusion.

Dealing ineffectively with wrong answers or misconceptions: Teachers sometimes worry that they risk damaging pupils' self-esteem by correcting them. There are ways of handling this positively, such as providing prompts and scaffolds to help pupils correct their mistakes. It is important that you correct errors sensitively or, better still, get other pupils to correct them.

Not treating pupils' answers seriously: Sometimes teachers simply ignore answers that are a bit off-beam. They can also fail to see the implications of these answers and miss opportunities to build on them. You could ask pupils why they have given that answer or if there is anything they would like to add. You could also ask other pupils to extend the answer. It is important not to cut pupils off and move on too quickly if they have given a wrong answer.

Practical tips

Be clear about why you are asking the questions. Make sure they will do what you want them to do.

Plan sequences of questions that make increasingly challenging cognitive demands on pupils.

Give pupils time to answer and provide prompts to help them if necessary.

Ask conscripts rather than volunteers to answer questions.

Reflection

Look again at the list of pitfalls and think about your own teaching. Which of these traps have you fallen into during recent lessons?

How might you have avoided them?

3   Engaging the whole class with questioning

When using questioning with the whole class, it is important that the questions are planned in advance and that you are clear about the purpose. It is also important that the questioning does not carry on for too long and that pupils know this. Questioning can involve and engage even those pupils who can be challenging, provided that it is well planned, of interest and makes them think; they need to see that they will learn something.

Task 3

Whole-class questioning   10 minutes

Watch video sequence 7a, which shows a teacher involving the whole class through questioning.

Note the following techniques as you see them:

- telling the class what to expect;

- providing wait time (two different techniques);

- providing a safe environment by allowing pupils to discuss answers with each other first;

- a 'no-hands' rule.

Task 4 — Classroom assignment: planning your own questions 1 hour

Use the four types of good practice shown on the video together with the list of pitfalls to plan a whole-class questioning session for the start of a lesson.

Aim to engage all pupils and think about the following issues:

- How will you tell them what to expect?
- What will be the first question?
- How will you provide wait time?
- How will you provide a safe environment for them to take risks?

Try out your plan in the classroom and evaluate the outcome using the grid below.

Aspect of questioning	Pupil response	What to try next time
Telling pupils what to expect		
Using a planned sequence		
Providing wait time		
Safe environment		
'No-hands' rule		

Planning questions in advance is important, and teachers often plan prompts to help them move through a sequence. It is also important to help pupils build on the ideas of others, and to extend both their answers and their thinking. Using questioning to promote higher-order thinking is dealt with in section 5.

4 Making questioning effective

The way questions are asked is central to their effectiveness. All pupils, including challenging ones, respond well to teachers who show an interest in them and in their opinions and ideas.

> 'It's all to do with respect … It's those who are more of a person … with some teachers you can have a conversation.' (Year 11 pupil, Croydon)

The way you ask a question or listen to a response is vital. Good questioners tend to show genuine curiosity in the way they ask questions, inviting pupils to think with them, for example 'I wonder why we can't compress liquids yet we can gases' or 'How could we find out if these figures are correct?' The way in which you respond to pupils' answers is also crucial.

Classroom tactics for effective questioning

Creating a climate where pupils feel safe to make mistakes: This is very important if pupils are going to build the confidence to speculate and take risks. Some teachers use small whiteboards for pupils' answers to simple questions. All pupils write the answer at the same time and hold it up so that the teacher can see. This avoids making pupils feel vulnerable. It is important that pupils' contributions are listened to and taken seriously by both the teacher and the class. You should model this by ensuring that you make appropriate responses to contributions and are not critical. It is also important that you do not allow the class to ridicule wrong answers. Boys in particular do not like to be shown to be wrong. You could also model making mistakes yourself to show that being wrong is acceptable.

Using a 'no-hands' rule: This tactic can contribute to creating a supportive classroom climate. It ensures that all pupils are likely to be asked for a response and makes the questioning process more inclusive. If you only ever ask people with their hands up, it limits who is included and can leave some pupils disengaged from the process. The 'no-hands' tactic also lets you direct questions where you want and to pitch a question at the appropriate level to extend the pupil you are asking. If you are asking conscripts rather than volunteers, you need to have a range of back-up strategies if the pupil is unable to answer. Such strategies could include allowing them to say 'pass' or to seek help from a friend.

Probing: When pupils respond to a question, probes are useful follow-ups and can be used to seek more information, to clarify responses or to get pupils to extend their answers. Questions such as 'Can you tell me more about that?' or 'What do you think the next step would be?' are probes that can move pupils' thinking on.

Telling pupils the big question in advance: This helps to reinforce the main ideas and concepts and gives pupils time to prepare for the question as they work through the lesson. You could also provide signals to help pupils recognise the range of possible responses to the question being asked and to help them to select the most appropriate one.

Building in wait time: Research suggests that if the teacher waits about 3 seconds, both before a pupil answers a question and also before speaking after the answer, there are substantial benefits in the classroom. It is likely to:

- encourage longer answers;

- encourage a greater number and variety of responses;

- encourage more confidence and 'risk taking';

- encourage pupils to ask questions in return.

Allowing time for collaboration before answering: Asking pairs of pupils to consider the question for a set period of time before seeking answers leads to more thoughtful and considered answers. It can also promote engagement by giving pupils a very immediate context for their work.

Placing a minimum requirement on the answer: Saying something like 'Do not answer this in less than 15 words' will begin to produce longer responses.

Dealing with answers

Dealing well with pupils' answers is a very important aspect of effective questioning. The overuse or inappropriate use of praise should be avoided and pupils should be made aware if their answer is not correct. This is particularly true if the answer reveals misconceptions.

If the answer is correct: You must acknowledge this but you should avoid effusive praise. If the answer is a particularly good one, you might indicate why it is so good or ask other pupils what they think. If the pupil is hesitant, they will need a greater degree of affirmation than someone who is confident in the answer.

If the answer is incorrect: If this is because of a lack of knowledge or understanding, you could simplify the question or provide a series of prompts to encourage the pupil to try a better answer. If this doesn't work, then you could try to clarify the underpinning knowledge or provide a partly correct answer for them to try completing. This can help to clarify misconceptions and can also involve other pupils in the discussion.

If the answer is partly correct: You should acknowledge the parts which are correct and then use prompts to deal with the incorrect parts.

If an answer is a result of speculation: You should accept all answers as being of equal worth. Then collaborate on finding which are more likely to be correct. The way you ask the question in the first place should indicate that all answers are acceptable at this stage. Asking, at the start of an investigation, 'What factors *might* affect the rate of photosynthesis?' is much better than 'What factors affect the rate of photosynthesis?'

Reflection

Which of these tactics could help you improve your own practice?

Alternatives to direct questions

Sometimes teachers use questioning when other teaching strategies, such as explanation, would be more appropriate. Below are some alternatives to questioning which could be used as additional tools to develop pupils' learning.

Explore a statement: Rather than asking pupils a direct question, give them a statement and invite them to discuss, perhaps first in pairs and then in fours, what it means. The statement could be correct or false or ambiguous, for example 'There is no gravity in space', 'Erosion is a process that is happening all the time', 'To be able to design hats you do not need a good understanding of materials.'

Paint the picture: This is particularly useful for exploring abstract ideas. Ask pupils to draw how they picture an idea they have in their minds. You might say, for example, 'So the energy in the battery is transferred around the circuit to the bulb and then to the air by light and heating. What is in your head? How do you picture this? Draw it.'

Invite pupils to elaborate: Phrases such as 'Would you say a little more about that?' or 'I'm not sure what you mean' are useful in getting pupils to expand and develop a comment.

Speculate about the subject under discussion: Saying things like 'I wonder what would happen if …' can help pupils to think around an issue.

Make a suggestion: You could offer alternative ways of carrying out a task. This may be more practical during small-group work than with a whole class.

Offer extra information: Providing extra information during a problem-solving activity can be useful in stimulating pupils' thinking.

Reinforce suggestions from pupils: Try developing a comment made by a pupil by saying something like 'I really liked … because …'.

Clarify ideas: Saying something like 'We can tell that this is the case because …' helps to reinforce learning by focusing sharply on the main issues under consideration.

Repeat comments and summarise: When you want to reinforce important points that have been made, it helps to restate or summarise them in a slightly different form.

Classroom assignment: putting it into practice   **30 minutes**

Choose two or three tactics from the list on pages 8–9. Try them out in a lesson and assess the response of the pupils. You may feel self-conscious until you become familiar with doing them. Pupils, too, may find the approaches unusual and will take time to get used to them.

Try to complete a lesson record as you try out each tactic. You can adapt the example below to meet your needs. It is useful to make an audio recording of your lesson or have another teacher observe you so you can reflect on it later.

Tactic	Pupils' response: first try	Pupils' response: second try	Pupils' response: third try	Pupils' response: fourth try	Pupils' response: fifth try
Using a 'no-hands' rule					
Building in wait time					
Giving the big question in advance					
Allowing pupils time for collaboration					
Placing a minimum requirement on the length of an answer					
Allowing all pupils to write an answer at the same time and show you together					
Using probes and prompts					

5 Planning sequences of questions to promote thinking

If you are going to use questioning to improve what and how pupils learn, you need to be able to formulate different kinds of question: both the closed, product type of question and the open, process type. As you begin to plan in this way, it is a good idea to write down the main questions that you will use in a lesson. The questions you plan will need to be in sequences of increasing difficulty. In addition, you will need to ask questions of different degrees of cognitive complexity in order to challenge pupils and help them to develop their thinking. You will need to consider your objectives for the lesson to ensure that this challenge is built in and that the questions you plan are closely linked to the objectives.

Bloom's taxonomy

Bloom's taxonomy (see the summary of research) is very useful both in planning objectives and in planning increasingly challenging questions. The taxonomy classifies educational objectives into groups according to the level of cognitive complexity involved and kind of thinking needed to meet the objectives.

Bloom assumed that the objectives could be placed in a hierarchical sequence, from knowledge (the least complex kind of objective) to evaluation (the most complex and the one that demands higher-order thinking).

In summary, Bloom's taxonomy suggests that people first need to acquire knowledge before they can understand the knowledge. They need to be able to understand the knowledge before they can apply it to different contexts. They need to be able to apply knowledge before they can analyse, question or infer from the knowledge. Only when they have done that can people combine different kinds of knowledge to create new knowledge. Finally, when a person is able to combine knowledge in this way, they are then able to evaluate. Moving between these stages demands increasingly complex thinking on the part of the learner.

You can use the steps in the taxonomy to help plan objectives for lessons over a period of time to ensure that lessons are making increasingly challenging cognitive demands on pupils. You can also use them to plan sequences of questions in a lesson. By sequencing questions in this way, you can help pupils to deepen their understanding, to develop their thinking skills and to become more effective learners.

The following chart links the steps in Bloom's taxonomy with the types of task pupils might be expected to do and the kinds of question that would help them in those tasks. There are many possible generic question stems; just a few examples are given for each objective.

Cognitive objective	What pupils need to do	Links to thinking	Possible question stems
Knowledge	Define Recall Describe Label Identify Match	Pupils are more likely to retain information if it is needed for a specific task and linked to other relevant information. Do your questions in this area allow pupils to link aspects of knowledge necessary for the task?	Describe what you see … What is the name for … What is the best one … Where in the book would you find … What are the types of graph … What are we looking for? Where is this set?
Comprehension	Explain Translate Illustrate Summarise Extend	Comprehension questions require the pupils to process the knowledge they already have in order to answer the question. They demand a higher level of thinking and information processing than do knowledge questions.	How do you think … Why do you think … What might this mean … Explain what a spreadsheet does … What are the key features … Explain your model … What is shown about … What happens when … What word represents …
Application	Apply to a new context Demonstrate Predict Employ Solve Use	Questions in this area require pupils to use their existing knowledge and understanding to solve a new problem or to make sense of a new context. They demand more complex thinking. Pupils are more likely to be able to apply knowledge to a new context if it is not too far removed from the context with which they are familiar.	What shape of graph are you expecting? What do you think will happen? … Why? Where else might this be useful? How can you use a spread-sheet to …? Can you apply what you now know to solve …? What does this suggest to you? How does the writer do this? What would the next line of my modelled answer be?
Analysis	Analyse Infer Relate Support Break down Differentiate Explore	Analysis questions require pupils to break down what they know and reassemble it to help them solve a problem. These questions are linked to more abstract, conceptual thought which is central to the process of enquiry.	Separate … (e.g. fact from opinion) What is the function of … What assumptions are being made … What is the evidence … State the point of view … Make a distinction … What is this really saying? What does this symbolise? So, what is the poet saying to us?

Synthesis	Design Create Compose Reorganise Combine	Synthesis questions demand that pupils combine and select from available knowledge to respond to unfamiliar situations or solve new problems. There is likely to be a great diversity of responses.	Propose an alternative … What conclusion can you draw … How else would you … State a rule … How do the writers differ in their response to … What happens at the beginning of the poem and how does it change?
Evaluation	Assess Evaluate Appraise Defend Justify	Evaluation questions expect pupils to use their knowledge to form judgements and defend the positions they take up. They demand very complex thinking and reasoning.	Which is more important/moral/logical … What inconsistencies are there in … What errors are there … Why is … valid … How can you defend … Why is the order important? Why does it change?

Task 6

Which category?   10 minutes

You could try this task by yourself or do it with another teacher.

Look at the list of questions and question stems below and decide which objective in Bloom's taxonomy each relates to. Write the question numbers under the headings in the first column of the grid above.

1   Which of these three tools would do that most effectively and why?

2   What name did we give to ...?

3   Why do you think the indigenous peoples of what is now South America had no word for 'season'?

4   Why do you think the indigenous peoples of what is now South America might have no word for 'season' in their native languages?

5   What does this style of painting remind you of?

6   What do you think is the main point the writer is making in the second paragraph?

7   Which of these four sources might be most reliable in helping us to …?

8   Now, the difficult bit. Given all the conflicting arguments, where would you build the new refinery?

9   What would happen if you mixed ...?

10   What choices did Harold have when faced with that situation?

11   Which words in this sentence do you already know?

Task continues

12 Given all of the sources we have looked at, where would you now expect these people to have moved to?

13 If we are unsure, how could we set about translating …?

14 Why did the Normans invade ...?

15 What similarities can you spot between the two ...?

16 If this verb looks like this when it follows 'il', what would you expect of these verbs?

17 What repeating pattern can you see in the events …?

18 How will you set about remembering what you have learned?

You will find some suggested answers on page 24.

As you will realise, the questions that are asked in relation to the cognitive objectives in Bloom's taxonomy can be put into two main categories:

- **Those which are mainly about factual knowledge and its understanding and application:** These questions demand mainly concrete thinking and fall into the first three areas of the taxonomy. Questions in this category will have a limited number of possible answers. They are sometimes called 'convergent questions'.

- **Those which are mainly about problem solving and the manipulation of knowledge:** These questions demand mainly abstract thought and require understanding and use of concepts as well as the ability to see patterns and processes. They fall into the last three areas of the taxonomy. Questions in this category are likely to produce a wide diversity of responses and possible answers. They are sometimes called 'divergent questions'.

Task 7

Planning a questioning sequence to promote thinking   1 hour

First watch video sequence 7b, which shows an English teacher working with a Year 10 mixed-ability group. Watch how she increases the demand, moving from concrete questions to abstract ones. Notice also how she increases and reduces demand in response to individual pupils, changing from abstract to concrete if a pupil struggles to respond.

Note down some of the questions she uses and then use the grid on pages 13–14 to work out which of Bloom's cognitive objectives each one matches.

Now use Bloom's taxonomy to plan a sequence of questioning you can use in a lesson that you will teach soon. You might like to plan the sequence with someone in your own department and then both try it out.

Evaluate how effective it was and consider what you might do next time to improve the sequence. You might find it helpful to reflect on the pitfalls to questioning on pages 4–5.

Once you have tried this a few times, it is a good idea to build banks of questions into your schemes of work.

6 Helping pupils develop the ability to raise their own questions

Being able to raise questions to explore a problem or to find an answer is a key learning skill. You can help pupils develop their ability to raise questions by giving them explicit teaching on how to do this.

Model the process: Talk through with pupils the process of formulating questions to ask in order to explore or investigate an idea, thus making explicit your thought processes. For example, a teacher might say:

> 'I want to find out the best metal to use for connecting wires in an electrical circuit. I need to think first about what I mean by "best", because I can't investigate that to find an answer. The best metal will conduct electricity well and be flexible enough when it's in a wire form. So maybe the questions I need to ask are: "What are the conductivities of these metals?" and "How easily do they bend?"'

Pupils can be taken step by step through the process of reformulating a question into a form that can be investigated.

Generate questions together: Start with a problem and discuss with pupils what questions are needed to find an answer. For example, a teacher might say:

> 'If we want to find out what happened to Thomas à Becket, what questions do we need to ask? Discuss this in pairs; you have 3 minutes and then I will take some of your questions.'

You could then gather a number of questions on the board, grouping types appropriately and discussing which are most likely to provide information and why. This could be followed by discussion on where you would look to find answers.

Use generic questions: Point out that there are many effective generic open-ended questions such as 'What do you notice?', 'What would happen if …?', 'Is there a quicker way of doing this?' You could suggest that pupils use some of these questions to explore an object or event. You could use Bloom's taxonomy to generate a list. It is best to employ only a few at any one time.

Play 20 questions: Allocate pupils to small groups (e.g. three) and provide each group with different information on something they are studying – for example, in history, they could be given the differing views of the king, the church and parliament on a particular issue. Then ask them to form big groups, each comprising three of the small groups. Two of the small groups have to ask questions of the other to get their information. The pair that 'wins' is the one that asks the fewest questions. The groups swap round so they all get a turn at being questioned.

Explore a new topic: Tell pupils what the new topic is about and ask them to identify what they already know. Make a note of these points and then ask pupils, perhaps working in groups at first, to generate a number of questions about the topic they would like to explore further. You could use some question stems from the grid on pages 13–14 to use as prompts.

KWL grids

A KWL grid is a useful way for pupils to identify what they already know, generate questions and record answers.

What I know	What I want to know	What I have learned
People over 18 can vote in elections in Britain.	Are there any people over 18 who are not allowed to vote?	These people can't vote in elections: • Members of the House of Lords • prisoners • patients in mental hospitals • people who have committed corrupt actions in elections in the last 5 years • people who are citizens of the European Union or other countries (except for citizens of the Republic of Ireland and Commonwealth countries resident in Britain) • people who can't make a reasoned judgement

Task 8	Classroom assignment: generating questions	1 hour

Choose an area of work where it would be appropriate for pupils to generate their own questions. Try out one of the suggestions above and evaluate its effectiveness.

Try to complete a lesson record as you try out each tactic. You can adapt the example below to meet your needs. It is useful to make an audio recording of your lesson or have another teacher observe you so you can reflect on it later.

Tactic	Pupils' response: first try	Pupils' response: second try	Pupils' response: third try	Pupils' response: fourth try	Pupils' response: fifth try
Modelling the process					
Generating questions together					
Using generic questions					
Playing 20 questions					
Exploring a new topic					

Summary of research

Effective questioning

Research evidence suggests that effective teachers use a greater number of open questions than less effective teachers. The mix of open and closed questions will, of course, depend on what is being taught and the objectives of the lesson. However, teachers who ask no open questions in a lesson may be providing insufficient cognitive challenges for pupils.

Questioning is one of the most extensively researched areas of teaching and learning. This is because of its central importance in the teaching and learning process. The research falls into three broad categories:

- What is effective questioning?
- How do questions engage pupils and promote responses?
- How do questions develop pupils' cognitive abilities?

What is effective questioning?

Questioning is effective when it allows pupils to engage with the learning process by actively composing responses. Research (Borich 1996; Muijs and Reynolds 2001; Morgan and Saxton 1994; Wragg and Brown 2001) suggests that lessons where questioning is effective are likely to have the following characteristics:

- Questions are planned and closely linked to the objectives of the lesson.

- The learning of basic skills is enhanced by frequent questions following the exposition of new content that has been broken down into small steps. Each step should be followed by guided practice that provides opportunities for pupils to consolidate what they have learned and that allows teachers to check understanding.

- Closed questions are used to check factual understanding and recall.

- Open questions predominate.

- Sequences of questions are planned so that the cognitive level increases as the questions go on. This ensures that pupils are led to answer questions which demand increasingly higher-order thinking skills but are supported on the way by questions which require less sophisticated thinking skills.

- Pupils have opportunities to ask their own questions and seek their own answers. They are encouraged to provide feedback to each other.

- The classroom climate is one where pupils feel secure enough to take risks, be tentative and make mistakes.

The research emphasises the importance of using open, higher-level questions to develop pupils' higher-order thinking skills. Clearly there needs to be a balance between open and closed questions, depending on the topic and objectives for the lesson. A closed question, such as 'What is the next number in the sequence?', can be extended by a follow-up question, such as 'How did you work that out?'

Overall, the research shows that effective teachers use a greater number of higher-order questions and open questions than less effective teachers. However, the

research also demonstrates that most of the questions asked by both effective and less effective teachers are lower order and closed. It is estimated that 70–80 per cent of all learning-focused questions require a simple factual response, whereas only 20–30 per cent lead pupils to explain, clarify, expand, generalise or infer. In other words, only a minority of questions demand that pupils use higher-order thinking skills.

How do questions engage pupils and promote responses?

It doesn't matter how good and well structured your questions are if your pupils do not respond. This can be a problem with shy pupils or older pupils who are not used to highly interactive teaching. It can also be a problem with pupils who are not very interested in school or engaged with learning. The research identifies a number of strategies which are helpful in encouraging pupil response. (See Borich 1996; Muijs and Reynolds 2001; Morgan and Saxton 1994; Wragg and Brown 2001; Rowe 1986; Black and Harrison 2001; Black et al. 2002.)

Pupil response is enhanced where:

- there is a classroom climate in which pupils feel safe and know they will not be criticised or ridiculed if they give a wrong answer;

- prompts are provided to give pupils confidence to try an answer;

- there is a 'no-hands' approach to answering, where you choose the respondent rather than have them volunteer;

- 'wait time' is provided before an answer is required. The research suggests that 3 seconds is about right for most questions, with the proviso that more complex questions may need a longer wait time. Research shows that the average wait time in classrooms is about 1 second (Rowe 1986; Borich 1996).

How do questions develop pupils' cognitive abilities?

Lower-level questions usually demand factual, descriptive answers that are relatively easy to give. Higher-level questions require more sophisticated thinking from pupils; they are more complex and more difficult to answer. Higher-level questions are central to pupils' cognitive development, and research evidence suggests that pupils' levels of achievement can be increased by regular access to higher-order thinking. (See Borich 1996; Muijs and Reynolds 2001; Morgan and Saxton 1994; Wragg and Brown 2001; Black and Harrison 2001.)

When you are planning higher-level questions, you will find it useful to use Bloom's taxonomy of educational objectives (Bloom and Krathwohl 1956) to help structure questions which will require higher-level thinking. Bloom's taxonomy is a classification of levels of intellectual behaviour important in learning. The taxonomy classifies cognitive learning into six levels of complexity and abstraction:

1 Knowledge – pupils should: describe; identify; recall.

2 Comprehension – pupils should: translate; review; report; restate.

3 Application – pupils should: interpret; predict; show how; solve; try in a new context.

4 Analysis – pupils should: explain; infer; analyse; question; test; criticise.

5   Synthesis – pupils should: design; create; arrange; organise; construct.

6   Evaluation – pupils should: assess; compare and contrast; appraise; argue; select.

On this scale, knowledge is the lowest-order thinking skill and evaluation is the highest. It is worth pointing out that, in most cases, pupils will need to be able to analyse, synthesise and evaluate if they are to attain level 5 and above in the National Curriculum and Grade C and above at GCSE.

Bloom researched thousands of questions routinely asked by teachers and categorised them. His research, and that of others, suggests that most learning-focused questions asked in classrooms fall into the first two categories, with few questions falling into the other categories which relate to higher-order thinking skills.

References

- Black, P. and Harrison, C. (2001) 'Feedback in questioning and marking: the science teacher's role in formative assessment'. *School Science Review* 82 (June) 43–49.

- Black, P. et al. (2002) *Working inside the black box: assessment for learning in the classroom.* King's College, London. ISBN: 1871984394.

- Bloom, B. S. and Krathwohl, D. (1956) *Taxonomy of educational objectives: the classification of educational goals*. Handbook 1: *Cognitive domain.* Addison Wesley. ISBN: 0582323878.

- Borich, G. D. (1996) *Effective teaching methods* (esp. ch. 8, Questioning strategies). Prentice Hall. ISBN: 002312461X.

- Morgan, N. and Saxton, J. (1994) *Asking better questions: models, techniques and classroom activities for engaging students in learning*. Pembroke. ISBN: 1551380455.

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- Wragg, E. C. and Brown, G. (2001) *Questioning in the secondary school.* Routledge. ISBN: 014524952X.

Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Work with other teachers to develop a question bank for your subject using Bloom's taxonomy, and add it to the scheme of work. First, check the main objectives for each unit of work. Do they focus mainly on the first three of Bloom's cognitive objectives – knowledge, comprehension and application? If they do, how can you build in objectives which relate to the last three of Bloom's objectives – analysis, synthesis and evaluation? Now, take a small section of the scheme, such as might be taught in two or three lessons, and talk about the kinds of learning and thinking that are needed to meet the objectives. Then start to plan the types of question which would allow this to happen.

- Following a whole-class episode, pupils are often expected to work in groups or individually, after having been given some instructions. Whilst appearing to, pupils may not understand as well as you would wish. Circulating and asking three focusing questions of each group/individual can help. These are:

  - What are you trying to find out / do?
  - What do you think the answer is likely to be / will happen?
  - Why?

  Investigate the impact of these three questions on pupils' understanding in a range of different classes. Does this help?

- Using a grid such as in task 1, investigate whether your questioning changes with the maturity of the pupils. To help complete the grid some teachers used a teacher assistant, whilst others used three pupils in a class to separately record the number and type. Does the nature of questioning change between Key Stages 3 and 4? Are they sufficiently challenging at all ages?

- Explore further how you might help pupils raise their own questions. Work with a colleague to explore what methods other than those in task 8 you could use. How will you evaluate the impact?

For further reading, the following publications are recommended:

- Assessment Reform Group (1999) *Assessment for learning: beyond the black box*. University of Cambridge, Faculty of Education. ISBN: 0856030422.

- Black, P. and Harrison, C. (2001) 'Feedback in questioning and marking: the science teacher's role in formative assessment'. *School Science Review* 82 (June) 43–49.

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- Borich, G. D. (1996) *Effective teaching methods* (esp. ch. 8, Questioning strategies). Prentice Hall. ISBN: 002312461X.

- DfES Key Stage 3 Strategy training materials:
  - *Assessment in science*, session 4, Developing effective teacher questioning.
  - *Misconceptions in Key Stage 3 science*, session 3, Particles.
  - *Training materials for the foundation subjects*, module 4, Questioning.

- Morgan, N. and Saxton, J. (1994) *Asking better questions: models, techniques and classroom activities for engaging students in learning*. Pembroke. ISBN: 1551380455.

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Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   40 minutes

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

Suggested answers for task 6

Below is a set of possible answers for task 6; it can be argued that some of the questions could be categorised differently.

Bloom's taxonomy	Questions
Knowledge	2, 3, 11
Comprehension	10, 14, 15
Application	5, 9, 13, 16, 18
Analysis	4, 17
Synthesis	6, 12
Evaluation	1, 7, 8

Pedagogy and Practice: Teaching and Learning in Secondary Schools

Unit 5: Starters and plenaries

Designing lessons

department for
education and skills
creating opportunity, releasing potential, achieving excellence

How to use this study guide

This study unit offers some practical strategies that teachers use during interactive whole-class teaching sessions, particularly during starters and plenaries. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to starter and plenary sessions. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 5, Starters and plenaries, when working through this unit.

Starters and plenaries

Contents

Introduction

Successful interactive starters and plenaries

During successful interactive starters:

- pupils engage fully in learning from the outset;

- they gain an understanding of the objectives and purposes of the lesson;

- there is a sense of pace;

- pupils spend most of their time on-task and focused on learning;

- there is an appropriate level of challenge that enables pupils to make good progress in their learning.

During successful plenaries:

- pupils are actively engaged;

- they are given opportunities to extend and deepen learning;

- they are required to reflect on and articulate how they learned;

- the teacher rounds off and summarises the lesson, assessing what has been accomplished in order to inform planning for future lessons.

Fundamental to managing pupil behaviour during starters and plenaries are rigorous planning and the appropriate use of a range of interactive teaching strategies.

Common issues

Many teachers rely on a relatively narrow range of teaching techniques. Some teachers are reluctant to use approaches which promote whole-class interactive involvement because of the risk of its leading to misbehaviour.

In relation to the starts and ends of lessons, these restrictions have a detrimental effect that is often compounded by poor planning. Ofsted has found that plenaries, especially, are not allocated enough time and are often the weakest part of the lesson.

Resolving the issues

Teachers can ensure their lessons include effective starters and plenaries by:

- planning effectively, deciding the specific purposes of the starter and plenary in relation to either lesson objectives or longer-term learning objectives;

- using a repertoire of interactive teaching strategies and techniques to inject pace and ensure activities are engaging and challenging;

- being aware of the techniques required to teach the lesson as planned as well as those which are useful to have 'at your fingertips' to shape and develop the learning as the lesson progresses.

Within this unit, starters and plenaries are used as a context for the development and refinement of whole-class direct interactive teaching.

1 Starters and plenaries in the context of interactive teaching

Effective teachers make good use of starters and plenaries in the context of interactive whole-class teaching to engage all pupils in constructive deep learning.

When pupils are merely reproducing or memorising given facts and information; accepting ideas and information passively; not being required to look for principles or patterns or to reflect on goals and progress – then they are only engaged in surface learning.

Pupils are engaged in deep learning when:

- they are trying to understand and make sense of material;

- they are relating ideas and information to previous knowledge and experience;

- they are not accepting new information uncritically;

- they are using organising principles to integrate ideas;

- they are relating evidence to conclusions;

- they are examining the logic of arguments.

Planned effective starters, as part of a series of episodes of learning, provide opportunities to engage pupils immediately with the learning objectives.

Features of effective starters and plenaries   30 minutes

Read the summary of research on pages 18–20.

Highlight the text that identifies characteristics of starters and plenaries, including aspects of whole-class interactive teaching which might contribute to their success. Use one colour for starters and a second for plenaries.

On an A4 sheet of paper, draw a large Venn diagram: two circles with a large area of overlap. Label one circle 'starters' and one 'plenaries'. In the area of overlap, list the characteristics that are common to both. This section is likely to include many aspects of whole-class interactive teaching. In the starters circle, list the characteristics that are exclusive to effective starters and likewise for the plenaries circle.

As you construct the diagram, try to make clear in your own mind any differences between starters and plenaries.

Evaluating your current practice   30 minutes

Using coloured pens or highlighters on the Venn diagram, 'traffic-light' the characteristics you have identified in relation to your current practice:

- red – aspects that you wish to improve or do not use often in your teaching;

- amber – aspects you know little about or have a particular interest in developing;

- green – aspects that have been identified as effective by someone observing you teach, or that you have focused on developing recently.

(Note: even if you do not currently use starters and plenaries, many aspects of their effective delivery will already form part of your planning and teaching repertoire.)

This activity should help you to set the agenda for your professional development in the use of interactive starters and plenaries.

Identify three or four professional development priorities from those you have traffic-lighted red and amber. Try to choose things which will have the greatest impact on the quality of the learning in your lessons. Keep these priorities in mind as you work through this unit.

Announcing the plenary activity for this unit

One way to make a plenary more effective and engaging is to give pupils forewarning about it. With this in mind, here is some advance notice: at the end of this unit you will be asked to repeat this traffic-lighting exercise in order to determine the progress you have made.

2 What makes an effective starter?

Starters exploit the prime learning time at the beginning of lessons when pupils are often at their most receptive and concentration levels are high. Effective starters are about purposeful, whole-class, interactive teaching involving all pupils. Teachers find starter activities particularly effective when they become part of the agreed routine of each lesson. Pupils arrive at the lesson expecting to begin work immediately, and the stress created by discipline issues (such as late arrivals and homework not being handed in) is reduced.

A well-balanced starter allows pupils to work without intervention from the teacher for some of the time, but also includes direct and specific teacher input. This involves directing the learning and moving it on, differentiating the level of challenge and ensuring that the main teaching points are conveyed clearly.

Successful starters:

- are planned as a discrete element of a lesson but will often contribute to the achievement of the lesson's objectives;

- have a clear purpose.

Starter activities tend to be most effective when they:

- engage all pupils;

- establish pace;

- provide challenge.

Informed judgements about engagement, pace and challenge call for the consideration of many aspects of teaching and learning.

Engagement

The challenge with starter activities is to get *all* pupils on-task quickly. Pupils' motivation and involvement in learning are influenced by several different factors. Engagement is more likely to happen if:

- the task does not outlast the concentration span of pupils;

- the task is immediately accessible to all or most pupils: starters that involve complex instructions or extended reading or writing activities are less likely to engage all pupils quickly;

- the task 'hooks' pupils' interest; this can be done by incorporating an element of mystery, curiosity, novelty or particular relevance;

- expectations are made clear, for example 'Each group should come up with at least five suggestions in the next 3 minutes';

- the teacher intervenes, where necessary, to help maintain engagement.

Pupils' ability to engage in learning is also influenced by their emotional state. Engagement is maximised in high-challenge, low-stress situations. This means that certain activities, for example handing in homework, are better deferred to later in the lesson.

Pace

Pace does not mean simply moving quickly through the lesson. It is about moving the lesson forward purposefully with the minimum number of distractions and amount of off-task time. Many of the points made in relation to engagement also help to maintain pace. Of particular relevance are:

• making tasks quickly accessible to all or most learners as soon as they arrive in the classroom;

• setting and adhering to clear expectations within given time frames;

• intervening, where necessary, to move the lesson forward.

The pace at which a starter activity proceeds can sometimes be improved if the teacher quickly demonstrates or models what is required.

Challenge

Starter activities that demand active engagement and high-level thinking provide pupils with a mental 'warm-up' for the lesson. Bloom's taxonomy provides a useful model for building challenge into lessons (see appendix 1 for further details). The six levels in his model fall into two broad categories:

• activities and questions that involve remembering, checking on understanding and applying knowledge – Bloom calls these *knowledge*, *comprehension* and *application*;

• activities and questions that involve higher-order critical and creative thinking – Bloom refers to these as *analysis*, *synthesis* and *evaluation*.

More challenging starter activities will require pupils to apply, analyse, synthesise or evaluate information or ideas.

The relationship between challenge and engagement is an important one. If the learning activity is too easy, pupils become bored; if it is too hard, frustration reduces motivation.

Planning the starter activity

When planning the starter activity, consider first its purpose and then the devices you will use to engage and challenge pupils and to establish pace.

Starters can have a variety of different purposes.

They can enable you to:

• find out what pupils already know and understand, can do (skills) or are aware of (values and attitudes);

• mobilise what pupils already know for the benefit of others.

They can enable pupils to:

• connect with prior learning, either to build on what has been learned in previous lessons or to assimilate a new topic or idea;

• 'get to grips' with new learning, relating it to some or all of the lesson objectives;

• practise or apply subject or generic skills on a little-and-often basis;

- build knowledge, understanding and skills over a series of lessons.

As you develop your use of starter activities, you might find it helpful to use the following planning sequence.

1 Plan the task itself carefully.

2 Consider management and organisation so that the activity runs smoothly in the classroom.

3 Reflect on the interactive teaching skills necessary to maximise the learning.

The first two steps clearly need to be undertaken before teaching a starter. The third may seem less easy to plan in advance: you need to be responsive to the pupils and, to some degree, to be flexible in the techniques you use. However, it is helpful to consider before the lesson which specific teaching skills (such as questioning) you might use.

The tasks in this section follow this sequence of development for planning starter activities.

Task 3	**Observe and analyse effective starters 1**	**20 minutes**

Watch video sequences 5a and 5b, which show starter activities from different subject areas. First there is a Year 9 geography lesson, then a Year 8 mathematics lesson.

For each example, consider why the teacher chose that particular starter for the lesson and class. Refer to the list of suggested purposes above.

Now watch the video sequences again and think about the task design. Identify the features of each starter activity that contribute to the aspects of engagement, pace and challenge. You could construct a grid like the one below.

Starter	Aspect: engagement, pace or challenge	Task feature
Geography	Engagement – 'hooking' pupils' interest	Showed an intriguing photo
Mathematics		

Many different types of activity are suitable as starters; a list of suggestions can be found in appendix 2. It is, however, important that the activity you select closely matches your identified purposes for the starter and can be related to your learning objectives and to your pupils' needs.

<table>
<tr><td>Task 4</td><td>Plan some starters</td><td>25 minutes</td></tr>
</table>

Use resource 1 (inside back cover). Plan two or three contrasting starter activities for use with different classes. If possible, do this in collaboration with another teacher. At this point, focus your efforts on the design of the activity itself in terms of purpose, engagement, pace and challenge.

Once you have planned your starters, go back to the information about engagement, pace and challenge on pages 4–5 and refine the activities if necessary.

You will do further work on these starters in task 5.

Managing and organising the starter

In planning the delivery of the starter activity, you will need to consider the organisation and management of the classroom, teaching resources and pupils. Below are some questions to use as prompts as you consider these aspects, along with some practical tips.

Organising and managing the …	Considerations
Classroom	What type of layout will best suit the starter and the class? You might consider:
	• space around desks, allowing for group or paired work;
	• seating in a circle, a line, groups or pairs;
	• standing in a circle, a line, groups or pairs.
	Practical tips
	It is important to arrange the classroom in a way that allows you to interact with all pupils and to monitor their levels of participation.
	Neat and well-organised classrooms allow you and the pupils to move around more easily so as not to cause distractions.
	The arrangement of the classroom has a significant effect on the way a lesson proceeds; the benefits of a pacy and engaging starter will be lost if you have to begin by rearranging the furniture.

Teaching resources	What is the best location for the starter activity resources and/or instructions? You could have them: • on the OHP or whiteboard; • on the pupils' desks; • collected from the teacher by conscripts or volunteers. **Practical tips** Presenting and labelling the materials carefully will make them easier for pupils to use and so help the activity to run smoothly. For example, you might: • number resources handled by the pupils for easy reference; • print sets of sorting cards onto different colours so that they do not get mixed up. Having spent time on creating your starter activity, you may want to extend the life of the resources by, for example, printing them on card or laminating. Remember, however, that you might want to adapt and amend the activity once you have tried it, so consider trialling a 'low cost' version first. Check in advance the availability of necessary equipment, for example OHP, mini whiteboards, video and television set.
Pupils	How should pupils be organised to maximise the learning from the starter activity? You might want to arrange them so that: • they can work interpersonally in groups or pairs, or intrapersonally through self-reflection on a task; • pupils who might not readily access the task are supported in their learning by other pupils or a teaching assistant; • pupils who arrive late are absorbed easily into the task. **Practical tips** Collaborative activities are often more productive if the teacher selects the groupings or pairs. This is best done before the lesson begins by, for example, placing pupils' names on desks or on a plan of the classroom shown on an OHT. (See unit 10 Group work for the effects of different pupil groupings.) Give thought to your deployment of support staff. They will need to know about the purposes of the task and ways in which they might give discreet help to pupils who need support. Starters are most effective when they become part of the agreed routine of each lesson because pupils arrive expecting to begin work immediately. Establish them at the start of the year across the whole department for the maximum benefit to pupils' behaviour. Starters can easily be 'derailed' by late arrivals or disputes about pupil groupings; this can usually be prevented by careful planning.

Consider management and organisation   30 minutes

Taking the starter activities you designed in task 4, on resource 1, plan the management and organisation of the lessons in which you will teach them. Consider:

- the prompts and points in the grid above;

- ideas you picked up from the three lesson observations in task 3. You might like to watch the video sequences again.

If possible, work with another teacher who teaches the same unit of work, and compare notes.

Developing whole-class direct interactive teaching skills

High-quality interactive teaching is oral, collaborative and lively. It is a two-way process in which pupils are expected to play an active part by answering questions, working together at appropriate times, contributing points to discussions, and explaining and demonstrating their methods, conclusions and solutions to others in the class.

You can achieve effective interactive teaching and active learning by drawing on a range of strategies and techniques, and incorporating them into the planning of a lesson as a series of planned learning episodes.

Directing and telling: Ensure that pupils know what to do; draw attention to points where they should take particular care.

Demonstrating: Give clear, well-structured demonstrations; use appropriate resources and visual displays.

Explaining and illustrating: Give accurate, well-paced explanations and refer to previous work or methods.

Questioning and discussing: Use open as well as closed questions that are planned to ensure the involvement of girls and boys of all abilities; give pupils time to think before inviting an answer; respond constructively to their answers.

Exploring and investigating: Ask pupils to pose problems, suggest a line of enquiry to investigate for themselves, or identify anomalous results; equip pupils with the skills required to plan and carry out tasks independently.

Consolidating and embedding: Provide varied opportunities to practise and develop newly learned skills; ask pupils to talk through processes.

Reflecting and evaluating: Discuss pupils' justifications of the choices they have made; identify errors, using them as positive teaching points and talking about any misconceptions that led to them.

Summarising and reminding: Review what has been taught and what pupils have learned; identify and correct misunderstandings; invite pupils to present their work.

These teaching strategies and techniques are equally applicable to all parts of a lesson though some may be more relevant to starters and some to plenaries.

Task 6

Observe and analyse effective starters 2   20 minutes

Video sequences 5c, 5d and 5e show three further starter activities from different subject areas: a Year 7 science lesson, a Year 9 history lesson, a Year 7 English lesson.

Watch the video sequences and identify exactly how the teacher injects engagement, pace and challenge into each starter activity. Write down each approach on a separate sticky note. (You can use the list of interactive teaching skills on page 9 as prompts.)

Which approaches occurred most often? Which did you think were most effective? Sort approaches by arranging the sticky notes in a line, starting with the most effective.

Use this information, together with the areas you identified as your professional development needs in task 2, to decide on a teaching-skills focus for the classroom-based assignment that follows. You will teach the starters you planned earlier, giving specific attention to improving the teaching skills you have identified.

Task 7

Classroom assignment: teach your starters   1 hour

Look at the planning for starters you did in tasks 4 and 5 on the completed resource 1.

Think about how you can build the use of whole-class interactive teaching skills into the plan. For example, your use of questioning is likely to have a significant impact on the pace and levels of engagement and challenge in the lesson, so carefully plan some 'key' questions and their use.

Teach the planned lessons with the starter activities. If possible, make an audio recording of your lesson or have another teacher observe you so you can reflect on it later.

Reflect on how the lessons went and consider how well your pupils responded. List at least five things that:

- went particularly well and that you will build into your future practice;

- you want to change or improve, and suggest how you can do this.

Try to include aspects of task design, your management of the activity and the interactive teaching skills you used.

Practical tip — Evaluating your teaching

It is difficult to analyse and evaluate your own teaching and the impact it has on learning by simply reflecting on 'how a lesson went'. Consider either making a video or audio recording of your lesson or asking a colleague to observe and then to provide some focused, constructive feedback.

Practical tips — Troubleshooting

The following list of questions and answers may help you pinpoint the source of any problems and find possible solutions.

Q Was the starter too long or did it take over the whole lesson?

A Be rigorous in sticking to your timings, even if you and the pupils are really enjoying the starter activity. If it helps, use a pupil as a timekeeper.

Q Did it lose pace or direction?

A Make sure you establish a definite focus and be clear about what you want the pupils to achieve. Deal decisively with distractions.

Q Was there a lack of clear learning outcomes?

A This usually results from lack of clarity over the purpose and specific objectives of the activity. Careful planning should overcome this.

Q Were pupils' oral answers fairly short or low-level responses?

A Skilful teacher questioning coupled with insistence on thinking time can make a significant difference.

Q Was it difficult to provide for pupils' different levels of ability?

A Again, skilful questioning can enable you to support the less able and extend the more able. Target the support of a teaching assistant if you have one. You can also experiment with pupil groupings by sitting more able pupils next to those who might find the activity difficult. Alternatively, add extra challenge for some pupils by increasing the complexity or sophistication of the activity.

Q Was the activity 'derailed' by practical problems such as the arrival of latecomers?

A Use activities and routines which latecomers can quickly assimilate and join (e.g. the initial task in the starter could be explained briefly on a card which can be picked up and read by each pupil as they enter the classroom, even if they arrive late).

Q Are you concerned that starters may become a boring routine?

A A lot of different approaches lend themselves to starter activities. Appendix 2 suggests a few. Make sure you plan for variety and that you make them active.

3 What makes an effective plenary?

Plenaries, whether they happen during the lesson or at the end, should:

- occur at a strategic moment in the teaching sequence;

- draw together the learning of the whole group and the individual;

- summarise and take stock of learning so far;

- consolidate and extend learning;

- direct pupils to the next phase of learning;

- highlight not only *what* has been learned but also *how* it has been learned;

- help determine the next steps in learning.

Plenaries need to be planned as part of the planned learning episodes (spontaneous plenaries tend to be less effective). They should link carefully to the objectives, outcomes and success criteria of the lesson as a whole.

As with starters, active, engaging, challenging and well-paced learning can be achieved in plenaries through:

- carefully planned tasks;

- planned management and organisation of the classroom;

- use of appropriate interactive teaching skills.

Again, the tasks in this section follow this sequence of development for planning and teaching plenary activities.

Planning the plenary activity

When planning the plenary activity, first consider its purposes – there are likely to be several in any one lesson. Then choose a task that will involve all pupils in actively processing any relevant information from the lesson. Finally, consider the interactive teaching skills you need 'at your fingertips' in order to shape and develop a successful plenary.

As with starters, plenaries can be used for a range of different purposes.

They can enable you to:

- review the lesson's objectives – taking stock of what the class has covered in a task or a sequence;

- be diagnostic – assessing both individual and collective learning as well as progress, in order to plan accordingly;

- recognise and value the achievements of individuals and the class;

- stimulate interest, curiosity and anticipation about the next phase of learning.

They can enable your pupils to:

- remember what has been learned;

- crystallise their thoughts about what has been learned;

- deepen and extend their learning;

- see the 'big picture', putting what has been learned in the context of past and future learning;

- articulate and communicate their learning;

- gain a sense of achievement in the successful completion of a task(s);

- understand the progress made and revise or set new personal targets;

- consider *how* they have learned and the learning strategies they used – in terms of both individual and group thinking processes;

- develop a language for discussing thinking and learning and form a habit of reflection about learning;

- consider how thinking and learning can be 'transferred' to other contexts;

- perceive themselves as learners.

Although many of these purposes are concerned with what pupils do, their achievement depends on your planning and orchestration of the plenary.

Task 8

Observe and analyse effective plenaries 1 **30 minutes**

Video sequences 5f, 5g and 5h show three plenaries from different subject areas, including an art teacher reflecting on her use of plenaries. First there is a Year 7 art lesson, then a Year 9 history lesson, and finally a Year 7 science lesson showing two plenaries.

Before watching the video sequences, you may find it helpful to revisit your work on starters and recap on the ideas about task design, management and organisation and whole-class interactive teaching skills.

Watch the video sequences and for each plenary identify the purposes, for both the teacher and the pupils, using the list above to help. In each case, ask yourself: Why did this teacher plan this plenary, for this lesson and for this class? In the first example, the teacher discusses her use of the plenary and, in doing so, models how a teacher might reflect on their practice.

Now watch the video sequences again. This time:

- note what strategies each teacher uses to fulfil the identified purposes for the plenary – be clear about whether they relate to task design, to the management and organisation of the classroom, resources and pupils or to the teaching approaches used;

- analyse how each teacher gains evidence of the effect of the lesson on pupils' learning.

Some of the plenaries shown in the video sequences centre on tasks and in some the teacher leads the learning from the front. When beginning to develop the use of plenaries, teachers sometimes find it helpful to start by building the plenary around a task. This might be because they lack confidence in using whole-class interactive teaching skills or because the pupils lack the skills needed to engage in this type of learning. This section therefore offers one idea for a task-based plenary, but the emphasis is on developing the skills needed to lead plenaries from the front.

Many different types of activity lend themselves to the various purposes for plenaries and to meeting lesson objectives. Here are three examples that can be used in any subject.

Golden rules: In pairs, pupils construct five 'golden rules' for the activity they have carried out during the lesson. Each golden rule is written on a separate card or sticky note. The activity then proceeds by 'snowballing': each pair joins another to make a group of four. The group put their golden rules together and decide on which five (or other number) are the most important. If time allows they can snowball again into groups of eight. Finally, the teacher takes whole-class feedback from one nominated spokesperson from each group.

This activity helps pupils remember and crystallise what has been learned, whilst encouraging them to see the 'big picture'. It also allows pupils to articulate and reflect on what and how they have learned. By observing the group work and taking feedback, the teacher can assess the quality of individual and collective learning against the learning objectives and can then plan accordingly. 'Golden rules' is most suitable for skills-focused or process-focused learning objectives.

Traffic lights: The teacher refers to the lesson objectives and then asks pupils:

- what they understand or can do well (pupils hold up green cards);

- what they are not 100 per cent sure of (amber cards);

- what needs further explanation or attention (red cards).

In this activity, pupils review the lesson's objectives and take stock of what the class has achieved within a task or a sequence. It can be used during a lesson or at the end and is a good way to inform planning. It is suitable for knowledge-based and skills-based objectives but is less useful for objectives that relate to more complex understanding or to values and attitudes. For this type of objective, more detailed success criteria are needed to enable pupils to evaluate their level of success.

Phone a friend: In pairs, pupils write down three questions they would like to ask as a result of what they have learned in the lesson. At least two must relate to the objectives of the lesson. Pupils are then selected by the teacher to 'phone a friend' in the class who then attempts to answer the question. Alternatively, the teacher may choose to 'take' some of the more challenging questions or to 'log' them (on an OHT or flipchart) for a future lesson.

This activity encourages pupils to evaluate their success or progress against the lesson objectives. They also have the opportunity to communicate and possibly extend or deepen their learning. It allows the teacher to be diagnostic, to assess the quality of what has been learned and to identify misconceptions or areas of weakness. The teacher can also build anticipation for the next phase of learning.

Task 9

Plan a plenary   30 minutes

Design a plenary for one of your lessons. The activity could be task-based or involve whole-class teaching. If possible, work with another teacher who teaches the same unit of work.

Try to use one of the approaches described above or shown in video sequences 5f, 5g and 5h. Use the following prompts to help.

- What are the key aspects of learning you wish to identify?

- What would be an appropriate activity? Choose one that enables your pupils to demonstrate the outcomes of their learning and allows you to note the progress made. What whole-class interactive teaching skills will you use to bring the learning of individuals and groups to the attention of the whole class?

- What is the purpose and the link to the lesson objectives?

- When will it take place in the lesson and how long should it take?

- What specific preparations do you need to make for the organisation and management of your classroom, for the preparation of teaching resources and for pupil grouping?

Teach the lesson with the planned plenary. Reflect on how it went and evaluate the pupil response. If you planned the work in collaboration with another teacher, compare your evaluations.

Developing whole-class interactive teaching skills

The following whole-class interactive teaching approaches facilitate the effective organisation of plenary activities and help to ensure they achieve their purposes:

- questioning and discussing;

- consolidating and embedding;

- summarising and reminding;

- reflecting and evaluating.

Refer back to page 9 for more detail on each of these.

Task 10

Observe and analyse effective plenaries 2   20 minutes

Video sequence 5i shows a Year 8 geography lesson.

The teacher uses the plenary to debrief the class following the use of a thinking-skills strategy called 'maps from memory'. Pupils have worked in groups to build up a map from an original one that the teacher has shown them. Each pupil from the group has seen the original in turn and at least once, but for only 10 seconds on each occasion.

Task continues

The strategy encourages pupils to cooperate with each other by being systematic in their use of time and in their method of quickly reading the visual information on the map. Although the main part of the lesson is based on this specific task, the plenary itself is being led from the front by the teacher. She focuses on how the pupils have learned, including the strategies they used both as individuals and as part of a group.

Watch the video sequence and make notes on:

- the information the teacher has collected from the main activity to inform and direct the learning in the plenary (how might she have collected this information?);

- her whole-class interactive teaching approaches, particularly where and how she:

  – uses questions;

  – manages the discussion;

  – consolidates and embeds the learning;

  – summarises and reminds;

  – encourages pupils to reflect on how they've learned (metacognition);

- her use of the whiteboard as well as what she says to the class;

- how she makes connections with prior learning and encourages the transfer of learning by considering future uses for the skills pupils have acquired;

- the purpose and value of the homework activity.

Notice that the teacher uses the plenary to help pupils identify not only what they learned but also how they have learned it (metacognition). She also explores the link between the learning in this lesson and learning in other contexts by encouraging the pupils to apply what and how they have learned to a new situation (transfer).

Task 11

Classroom assignment: teach a plenary　　　**50 minutes**

Design a plenary for another lesson. This time, aim to plan and teach a plenary which is predominantly led by you and in which you will use a variety of whole-class interactive teaching skills. Use the following prompts to guide your planning.

- On what key aspects of learning will the plenary focus?

- What is its purpose and how does it link to the lesson objectives?

- When will it occur in the lesson and how long will it take?

- What specific preparations are needed for the organisation and management of your classroom, for teaching resources and for pupil grouping?

Task continues

- Which whole-class interactive teaching skills will be the best to use? How will you use questioning and manage the whole-class discussion? How will you consolidate and embed the learning; summarise and remind; encourage pupils to reflect on and evaluate what (and, if you wish, how) they have learned?

- How will you use the whiteboard, OHT or flipchart?

- What prepared questions do you need?

After you have taught the lesson, reflect on how the plenary went and consider how well your pupils responded. List at least five things that:

- worked particularly well and that you will build into your future practice;

- you want to change or improve, and suggest how you can do this.

Try to consider aspects of task design, your management of the activity and the interactive teaching skills you used.

Practical tip	Give advance warning

Tell pupils at the beginning of the lesson what the plenary activity will involve so that they have time to think about their responses. Be clear about what you expect to see or hear. Remind them of this as the lesson progresses.

Practical tips	Troubleshooting

The following list of questions and answers may help you pinpoint the source of any problems you have had in teaching plenaries and identify possible solutions.

Q Did you run out of time?

A Is it a case of allowing more time for the plenary in the future and not allowing the main section of the lesson to over-run? You could use a pupil as a timekeeper.

Q Did the pupils take the plenary seriously?

A Did you signal the importance of the plenary at the beginning of the lesson? You could forewarn a few of the pupils and tell them that they are involved in or have charge of the plenary. In any case, this aspect is likely to improve as plenaries feature more regularly in your lessons and pupils come to accept what is expected.

Q Was it difficult to get their attention?

A Consider using a more attention-grabbing strategy in order to re-engage them. You also need to be assertive in signalling the purpose of the plenary so that pupils value it as an essential part of the lesson.

Q Did the 'show and tell' sessions result in low-level exchanges?

A Be explicit and demanding – share the criteria for high-quality feedback. Make use of more probing questioning. Demonstrate high-quality responses early on so that pupils know what a 'good' response looks like.

Q Did the learning remain implicit, not being clearly expressed?

A You may need to be more explicit, asking questions such as 'What have we learned today?' Try to get pupils to articulate the main things they did to meet the lesson objectives.

Q Did you still manage to say too much?

A If pupils are used to you doing all the work, they'll be happy to let you carry on! Try giving them part of the answer (say only the key points) and then ask them to take the ideas further, for example giving more explanation or applying the ideas in another context. Ask different groups of pupils to comment on different aspects of the lesson.

Task 12

The plenary   10 minutes

Go back to the Venn diagram you constructed in task 1. Write in the appropriate part of the diagram any additional characteristics of starters and plenaries that you have become aware of as a result of working through this unit.

Now repeat the traffic-lighting activity that you undertook in task 2. This will help you to reflect on the progress you have made.

Which aspects that you originally coloured red would you now class as amber or even green? Which of those you classed as amber are now green? Which aspects do you think you should develop next?

Summary of research

Structuring learning

Research studies frequently refer to the vital importance of structuring learning. Mortimore et al. (1988) concluded that the key classroom factors contributing to effective outcomes were structured sessions, intellectually challenging teaching, a work-orientated environment, communication between teacher and pupils and a limited focus within the sessions.

Interactive whole-class teaching

Research evidence suggests that interactive whole-class teaching makes highly effective use of teacher time. In whole-class teaching, teachers tend to ask more challenging questions and pupils are usually more actively engaged and attentive.

Starters and plenaries

Starters

Research findings and practical experience tell us about the importance of lesson starts. They are recognised as having significant and direct impact on the quality of the learning both within the starter itself and in the rest of the lesson.

The use of the start of the lesson to 'hook the learner' is developed in Phillips (2001). He explores the 'tight' relationship between the initial activity and the ensuing lesson and enquiry. Phillips describes the use of a wide range of initial stimulus materials (ISMs) such as visual sources, text and stories, and music. The initial activity can not only arouse pupils' interest at the start of the lesson but can also act as a 'connector' with other episodes and lessons.

Starters also play a very important role in 'connecting the learning'. This is an essential aspect of planning since, in simple terms, we learn largely, though not exclusively, through what we already know. This is summarised by Alistair Smith (1998).

Finally, Muijs and Reynolds (2001) comment on the importance of management techniques for lesson starts: 'Research suggests that teachers can keep disruption to a minimum by instituting a number of set procedures for dealing with lesson starts. For example, write instructions on the board before the pupils come in so they can get started with the lesson immediately, train pupils to take the roll and read instructions, have certain activities that students can start doing as soon as they come into the classroom.'

Plenaries

Plenaries provide an opportunity to draw together, summarise and direct learning, so that pupils focus on what is important, what they have learned, the progress they have made and their next steps. Plenaries can occur part-way through a lesson but should always feature at the end of a lesson. Debriefing is a very important part of a plenary as it encourages pupils to explore and extend their learning. It is where what has been learned is embedded.

Fisher (2002) identifies three main intentions for the debrief:

* pupils are asked to give answers and explain how they arrived at them and the skills they needed to use;

* in the process of explaining, pupils have to develop and use appropriate language;

* they can then be encouraged to see how these processes can be used in other areas.

Adapted from Fisher, P. (2002) *Thinking through history*. Chris Kington Publishing. 27 Rathmore Road Cambridge CB1 7AB. Tel. 01223 412260. Reproduced by kind permission of the publisher.

One important aspect of the plenary is 'bridging', when the teacher makes a link between the learning in that lesson and learning in another or to the everyday real world. Mayer and Wittrock (1996) refer to the process by which pupils apply what they have learned and the way they learned it to a new situation: in short, teachers plan for bridging so that pupils may transfer what they have learned. Fisher (2002) develops the link between discussion, language and transfer, seeing the

opportunity for pupil discussion, from planning through strategy to evaluation, as crucial for pupils' development of the appropriate language.

Planning for the plenary is very important, but not to the point where it becomes inflexible and thus limits the opportunities for the pupils to identify what they learned and, where applicable, how they learned it.

It is useful to note the comment of Muijs and Reynolds (2001) about planning and pupil behaviour: 'Effective teachers experience fewer problems with ending the lesson than less effective teachers, through methods such as planning and pacing the lesson to leave sufficient time for activities at the end.'

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Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Review your questioning techniques using unit 7 Questioning. Try capturing your questions and the pupils' responses on a video or audio recording to see whether you demand high levels of thinking. Plan a sequence of questions in response to your findings.

- Analyse your starters or plenaries to see whether the level of challenge could be higher. You could use Bloom's taxonomy (appendix 1) or the National Curriculum thinking skills (See unit 7 Questioning and unit 16 Leading in learning). Design a sequence of activities which moves the learning towards a more demanding outcome.

- Continue to plan your plenaries in more detail, giving high priority to being clear about their purposes. Also ensure that the activities you choose clearly serve those purposes.

- Consider the ways in which you can make more purposeful use of group-work strategies within your whole-class interactive teaching. (See unit 10 Group work.) Plan for and use one of the strategies as part of a starter or plenary activity.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   **40 minutes**

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

Appendix 1

Bloom's taxonomy

Knowledge: This is the most straightforward or basic level. Here pupils are simply asked to identify, recall, list or describe things to show what they have remembered.

Comprehension: This involves understanding information and making sense of ideas by making meaningful links between related concepts. Here pupils are required to explain and interpret what they know at a basic level, to distinguish between things and to summarise what they know. In order to complete tasks at this level, pupils must first know the information at the first level.

Application: This requires pupils to make use of what they know by applying their knowledge in a practical way. They can experiment, sketch, make a model or construct and apply rules, principles and formulae to a new problem. Pupils must first know and understand information before applying it.

Analysis: This involves pupils breaking what they know into component parts so that they can see the relationships between them. Here pupils may group or categorise information, compare and contrast, analyse, research or survey. They can distinguish between fact and opinion, a fact and an inference, an advantage and a disadvantage, a cause and an effect and a good reason and a poor reason. Pupils cannot analyse without having remembered, understood and applied information.

Synthesis: Synthesis and evaluation are equal levels of thinking. Synthesis involves pupils in thinking creatively, seeing new ways of doing things, linking concepts in unusual and flexible ways, or developing something that is original. Before creating something new, pupils must have and understand the information and have applied and analysed the component features of the idea, issue or topic.

Evaluation: This involves discriminating between ideas and making judgements about value, based on reasoned arguments. Evaluation requires pupils to think critically: to assess the quality, relevance, reliability, truth, accuracy and effectiveness of information or products. Before students can critically evaluate, they need a good knowledge and understanding of the content as well as experience in applying and analysing what they know.

From Benjamin S. Bloom et al. Taxonomy of Educational Objectives. © 1984. Published by Allyn & Bacon, Boston MA. Copyright © 1984 by Pearson Education. Adapted by permission of the publishers.

Appendix 2

Generic activities and routines for lesson starters

Show me: Pupils are provided with some means of showing the teacher their response to a series of questions, using pre-printed cards, hand-written cards or card fans that can be opened and displayed in different combinations. These visual prompts can be held up easily, and if laminated, can be used repeatedly. The pupils' choice is usually limited, for example to an either/or choice such as 's' or 'es' as the correct plural suffix for words the teacher says. This helps to maintain the pace. Show-me activities require pupils to make decisions quickly without picking up aural clues directly from those around them. For this reason, they are ideal opportunities for on-the-spot, speedy assessment: it will be evident which

pupils are making incorrect choices when they hold their cards up and the teacher can spot equally well those who are a little hesitant.

Time out: These activities provide pupils with a few moments to think, talk, write, read or work in some other way without teacher intervention. They provide useful opportunities for pupils to collaborate and support one another and can help to ensure that it is not only the most vocal pupils and the quickest thinkers who eventually contribute to whole-class discussion. Time out may last from just a minute's discussion time with a partner to several minutes for an activity requiring higher-order thinking such as evaluation, justification or analysis. Examples of time-out activities include hypothesise, summarise, draft/quickwrite, frame ideas or questions, gather or collate, discuss/decide.

Continuum: These activities involve pupils in establishing a sequence or continuum across the classroom, where the two ends of the line represent either extremes on a continuum or totally opposed points of view. The continuum could be based on individual pupils' points of view on a stimulus such as a short piece of text or photograph provided by the teacher or something generated by the pupils. They are invited to form a line and then to 'negotiate' their way up or down the continuum by talking to the pupil next to them. The teacher then debriefs the activity by asking pupils to justify their position on the continuum. Examples of continuum activities include:

- in English, science, geography or PSHE, a continuum based on pupils' views about the use of nuclear energy;

- in art, a continuum from 'abstract' to 'representational' or 'realistic', using examples of work by well-known artists or by the pupils themselves;

- in geography, a continuum from 'more developed' to 'less developed', using photographs or different development indicators such as birthrate;

- in mathematics, a number sequence where some numbers are expressed as fractions, some as decimals and others as symbols.

Odd-one-out: This activity encourages pupils to think about the characteristics of things and develops the skill of classification. Pupils are provided with a set of words, short phrases, numbers or images on separate numbered cards. The teacher lists three or four cards for the pupils to pull out from the others, then asks them to identify the odd-one-out and, more importantly, to justify their choice. Ideally, the odd-one-out in any three or four cards could differ according to the criteria being used to classify the cards. The activity continues, with the teacher questioning pupils about the reasons for their odd-one-out before going on to select different groups of cards from the set.

5Ws: This approach encourages pupils to ask their own questions and to consider the underlying logic of asking particular kinds of questions, in a particular way and in a particular order. It is not only about questioning. In framing the questions for themselves, pupils are already considering the answers they are looking for. Consequently it is an 'advance organiser' for information and ideas which may then be explored further in the main part of the lesson. Pupils are asked to come up with '5Ws' – five questions using the stems *who*, *what*, *when*, *where* and *why*, in response to a stimulus. You can use various types of stimulus – a quotation, a cartoon or graph, a mystery object or photograph, or content from a previous lesson. 5Ws is often most productive when pupils have the opportunity to take 'time out' in pairs or groups prior to feeding back their ideas to the whole class.

Resource 1: Task 4 Plan some starters / Task 5 Consider management and organisation

Managing and organising	Pupils			
	Teaching resources			
	Classroom			
Planning	Refined starter (purpose, engagement, pace and challenge)			
	Initial starter			

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Raising
Standards
Standards and Effectiveness Unit

INVESTOR IN PEOPLE

Creating conditions for learning

Pedagogy and Practice: Teaching and Learning in Secondary Schools

Unit 19: Learning styles

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How to use this study guide

This study unit offers some practical strategies that teachers use to accommodate pupils' preferred learning styles. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to learning styles. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 19, Learning styles, when working through this unit.

Learning styles

Contents

Introduction

The importance of understanding learning styles

Successful learning takes place when teachers play to pupils' strengths and build their capacity to learn in a range of styles. For this to happen, teachers need to:

- have an understanding of the different learning styles within the class;

- create learning opportunities through a variety of teaching strategies and techniques.

Pupils are then more likely to:

- access easily the activities presented to them;

- be enthusiastic and committed to the subject they are studying;

- remain on-task and focused during group or practical activities.

Common issues

Many teachers feel frustrated by pupils in their classes who fail to engage with the material presented and who appear to make little progress, no matter how hard they try. Some of these pupils 'opt out'; others become disruptive and troublesome. The frustration is sometimes compounded when teachers in other curriculum areas describe the same pupils as 'well motivated' and 'making good progress'. One explanation for this phenomenon is the match or mismatch between pupils' learning styles and their learning opportunities. Through an understanding of learning styles, teachers can exploit pupils' strengths and build their capacity to learn.

Resolving the issues

The inclusion statement in the revised National Curriculum charges all teachers with the responsibility to remove barriers to learning. One significant potential barrier is the mismatch between pupils' preferred learning styles and learning opportunities. To accommodate pupils' preferred learning styles, the teacher needs to:

- have a clear understanding of the preferred learning styles of the pupils within a class;

- provide, on a regular basis, learning opportunities that address the full range of preferred learning styles within a class;

- know how to create a match between the nature of the learning opportunity and the learning style of the pupil;

- take account of those pupils who have mainly one learning style, ensuring that they can access the learning but not letting them work only within this style;

- provide a choice of activities where appropriate and encourage pupils to choose the most suitable for them.

It is not realistic to provide equally for all learning styles within each lesson, but it should be possible to do so over a sequence of lessons.

Two teachers who addressed these issues commented:

> 'I have often neglected pupils who appeared to "opt out" because I did not realise why they did so. I now feel able to accommodate the various learning styles that pupils possess.'

> 'I now emphasise the learning styles that are being used so that pupils are much more aware. I have been able to encourage pupils to focus more when they know an activity is not their preferred learning style and shine out in class when it is something they enjoy.'

And a head of department said:

> 'I am aware that the staff in my department prefer a certain teaching strategy and I wanted to encourage them to use different strategies to engage all the pupils.'

1 Learning styles – considering the research

For over 30 years, researchers have questioned the idea that all learners learn in the same way. They have attempted to describe differences in the ways in which learners access and process new information and ideas. Many teachers have used these findings to shape their classroom practice and develop more inclusive classrooms. This unit draws on three influential bodies of research into learning styles, especially those which have had an impact on classroom practice in recent years. (These are outlined in the summary of research on pages 16–18.) Particular attention is given to the theory of visual, auditory and kinaesthetic learning styles in this unit.

What do we mean by learning styles?   **30 minutes**

Below is a list of techniques for helping pupils to learn key words. Put a tick by those you would favour using in your own teaching.

On the board: Key words are written up as they are used.

Personal workbooks: Pupils record words in their own workbooks as they are introduced.

Highlight: Key words in worksheets, notes and text are highlighted in colour.

Jigsaw cards: Pairs of pupils match key words with their definitions.

Hear and repeat: You speak a key word aloud and ask pupils to repeat.

Lucky dip: A pupil picks a word out of a box, then has to explain that word and what they know about it.

Group words/concepts: Each pupil in the class or group is given a different word. Pupils sort themselves into groups according to theme or concept.

Making sentences: Pupils use words on the board to make sentences that show their meanings.

Just a minute: A pupil selects a word from the board and talks about it for a minute.

Guess my word: A pupil picks a word out of a box and talks about it without saying the word. The rest of the group guess the word as quickly as possible.

Draw my word: A pupil picks a word out of a box and draws it for the rest of the group to guess in 30 seconds.

Word bingo: You read out definitions or examples and pupils cross the words off their bingo cards.

Calligram posters: Pupils produce posters with visual representations of words that reflect their meanings.

Anagrams: Pupils solve anagrams based on key words.

Cloze: Pupils work out subject-specific words deleted from a passage.

Wordsearches

Mnemonic rhymes or chants: Pupils make up ways to remember definitions of key words.

These techniques are adapted from *Literacy across the curriculum*.

Now turn to the part of the summary of research explaining about visual, auditory and kinaesthetic learners on pages 16-17. For each technique above, decide whether it is most suitable for pupils with visual, auditory or kinaesthetic learning preference, marking each one with V, A or K.

Look at the techniques you ticked as ones you would prefer to use. Is there a pattern in the approaches with which you feel more comfortable?

Reread the description of visual, auditory and kinaesthetic learners in the summary of research. Which do you think is your preferred style? Does your personal learning-style preference appear to be reflected in your choice of techniques?

Classroom assignment: matching techniques to learning styles **1 hour**

Look again at the list of activities in task 1. Choose six activities so that you have two that would be suitable for each learning style.

Choose a class that you feel comfortable with and use the activities to teach the meanings of some key words over one or two lessons.

When you have tried all six activities, ask pupils to say which approach they, as individuals, preferred and why.

Use the information gained from the discussion with pupils and your own observations of the outcomes (e.g. whether pupils understood the key words) to begin to identify the preferred learning styles of individual pupils within the class.

2 Identifying pupils' preferred learning styles

In the last task you probably found that pupils preferred to learn in a variety of different ways. In any one classroom there will be different groups of learners whose engagement and understanding will be supported by different sorts of learning opportunities. If you want to get the best out of all your pupils, it is important to have an understanding of their preferred learning styles. You can then use that understanding to make them aware of their own learning preferences as well as to plan and deliver appropriate learning activities.

Research indicates that in general 35 per cent of people are mainly visual learners, 40 per cent of people are mainly kinaesthetic and only 25 per cent are mainly auditory.

Many schools systematically compile information on pupils' preferred learning styles and use it to inform their lesson planning and classroom management. There are two main methods by which the data can be collected: questionnaires and teacher observation. Each has equal validity and you might choose the one you feel most comfortable with or use both to check results.

Questionnaires

Various questionnaires can be used to gather data on pupils' preferred learning styles. Questionnaires based on three theories can be found in the following publications.

Visual, auditory and kinaesthetic learning: *Accelerated learning in the classroom*, Alistair Smith.

Multiple intelligences: *Accelerated learning in the classroom*, Alistair Smith.

Gregorc's four thinking styles: *The learning revolution*, Dryden and Vos (this may need some mediation for younger learners) and *The teacher's toolkit*, Ginnis (a more pupil-friendly learning-styles questionnaire, based partly on the work of Gregorc).

Many interactive ICT resources can be accessed through the Internet, for example: www.glencoe.com/ps/peak/selfassess/learnstyle (VAK) or www.surfaquarium.com/MI/intelligences.htm

Whilst many schools use such questionnaires, others prefer to generate their own. A further example is provided in appendix 1.

Teacher observation

Observing and talking to learners will give you results as reliable as questionnaires. Some of the indicators of different learning styles include:

A visual learner:

- prefers to read, to see the words, illustrations and diagrams;

- talks quite fast, using lots of images;

- memorises by writing repeatedly;

- when inactive, looks around, doodles or watches something;

- when starting to understand something says, 'that looks right';

- is most distracted by untidiness.

An auditory learner:

- likes to be told, to listen to the teacher, to talk it out;

- talks fluently, in a logical order, and with few hesitations;

- memorises by repeating words aloud;

- when inactive, talks to self or others;

- when starting to understand something says, 'that sounds right';

- is most distracted by noises.

A kinaesthetic learner:

- likes to get involved, hands on, to try it out;

- uses lots of hand movements;

- talks about actions and feelings; speaks more slowly;

- memorises by doing something repeatedly;

- when inactive, fidgets, walks around;

- when starting to understand something says, 'that feels right';

- is most distracted by movement or physical disturbance.

Talking to pupils about their favourite learning activities and curriculum subjects can also help build this profile and can provide an insight into learning preferences, multiple intelligences and thinking styles (see summary of research).

Task 3

Collect information on preferred learning styles   80 minutes

Use your understanding of VAK learning styles to construct a questionnaire or interview schedule to profile the preferred learning styles of six students whom you have identified as underachieving. If you are short of time, or find this task difficult, try using or adapting the questionnaire in appendix 1.

There is some evidence that, when designing lessons, teachers are influenced by their own preferred learning styles, so it would be interesting to fill in the questionnaire yourself. This information will be needed for task 6.

Finally use the list above as an observation schedule to check your findings.

A teacher who shared the results of the questionnaire with her pupils commented:

> 'My pupils were very eager to know what kind of a learner they were and I found that it helped them to understand their own behaviour in the classroom.'

Task 4

Review the learning opportunities in your lessons   40 minutes

Refer to the grid on page 14, which relates tasks to the VAK learning styles. Take a recent unit of work you have taught, preferably one that spans between six and ten lessons, and use the grid to help you determine roughly how many tasks there were for each learning style in the visual, auditory and kinaesthetic categories.

Taking into account your findings from the questionnaire in task 3, to what extent did you accommodate the learning styles of the six pupils through the tasks you have included in this unit?

Were there any pupils who rarely had the opportunity to use their preferred learning style?

Case study 1

One school helped pupils identify their own preferred learning styles and 'SMARTS'. Watch video sequence 19a to hear what the pupils think and note that they recognise that, although they may have a preferred learning style, it is also important to use a range.

Pupils need to be given opportunities to learn in a range of ways and so extend their styles.

3 Principles for developing lessons that take account of learning-style preferences

In many classrooms there is a mismatch between the learning opportunities presented to pupils and their preferred learning styles. Research evidence suggests that the reasons for this include:

- lack of understanding of the range of learning styles within the classroom;

- the impossibility of providing sufficient learning opportunities to address the full range of preferred learning styles within any one classroom;

- the tendency for teachers to create learning opportunities in keeping with their own preferred learning styles, believing that if it works for them it should work for the majority of their pupils;

- unwillingness to provide a choice of outcomes because they are difficult to standardise;

- the likelihood of pupils making inappropriate choices from a range of tasks so that the mismatch persists;

- concern about behaviour management when using kinaesthetic activities;

- time constraints in producing resources.

Reflection

Consider the list of factors that limit the range of learning opportunities. Would any of these inhibit your attempts to accommodate a variety of learning styles? If so, which?

Having identified pupils' preferred learning styles, teachers face the challenge of planning lessons to accommodate them. It is clearly unrealistic to expect that every lesson will cater equally for visual, auditory and kinaesthetic learners. However, it is possible to ensure that each unit of work includes opportunities for all pupils to learn using their preferred learning style. Planning for a range over time is the key.

Task 5

Lesson planning for preferred learning styles   **20 minutes**

Look at the principles for planning for different learning styles below. You have reflected on factors that might inhibit you in accommodating differing learning styles in your planning. Which of the principles might help you to address those inhibiting factors?

Whilst all have their place, some might be more appropriate for you and your situation. Select from the range those that you can use to guide your planning. Make a list of these. (You may wish to add some of your own.)

Practical tips   Planning for different learning styles

- Research the range of learning styles in your classroom.

- Make sure that your pupils understand their own learning preferences. This will enable them to make informed choices when selecting from alternative tasks.

- Take account of the needs of learners who have a very strong preference for one learning style: for example, the visual-only learners.

- Make sure that you do not overlook planning for kinaesthetic learning opportunities. The needs of kinaesthetic learners are the most neglected, particularly in the secondary sector.

- Accept the fact that you cannot accommodate all learning styles every lesson. Make sure, however, that your schemes of work provide regular opportunities for all types of learners to use their preferred styles. A good rule of thumb is that no pupil should have to go through three consecutive lessons without some opportunity to use his or her preferred style. If the opportunity is not provided, there is a danger that you will lose that pupil.

- Don't allow pupils to work only within their preferred learning style. Providing opportunities to work in a variety of ways will help them to become more flexible learners. Research suggests that the most successful pupils are those who can access and process information in a variety of ways.

- Visual and kinaesthetic activities are often resource-dependent. Work collaboratively as a department to generate and share such resources to avoid duplication of effort.

- Provide a choice of activities and/or outcomes where possible so that pupils can opt to use their preferred learning styles.

- Prompt pupils to think about different ways of achieving the same outcome. Ask successful pupils to share with the whole class their approaches to the same task and avoid being prescriptive about a single approach. A particular approach might be helpful for some learners, but will not suit all.

- If you are concerned about the behaviour management of kinaesthetic activities, keep them brief, keep to tight timings, always explain how they relate to the lesson objectives and take account of group dynamics when pairing individuals.

- Use Gardner's multiple intelligence framework (see the summary of research) to plan choices of outcome in units of work. Coming up with a comprehensive selection can be challenging, but it is much easier to do collaboratively than on your own. We tend to think first of learning opportunities that match our own preferred styles, so plan in teams where there is a range of learning styles, where possible.

Tips continue

- Be conscious of your own preferred learning style and monitor your planning to ensure that it is not creating an unbalanced diet of learning opportunities for your pupils.

- Meet as a team to agree success criteria for different types of outcome and to standardise assessments.

- Plan to secure the engagement of pupils with multisensory starter activities in the first 5 minutes of a lesson.

4 Designing tasks to suit differing learning styles

Reflection

Think of the class from which you selected your six underachieving pupils. Think about the lessons that you have taught over the last week. Focus on the key learning activities.

Can you see any patterns in the activities you have set?

How did you decide on those activities?

To what degree did those activities match the preferred learning styles of those pupils?

Case study 2

Lesson 1 of 6, Algebra 1 from the Key Stage 3 Strategy sample medium-term plans. Pupils are familiar with simple number patterns in terms of counting on and back. The teacher knows that pupils have a wide range of preferred learning styles, with about 35% preferring kinaesthetic approaches.

Year 7 Lower-attaining mathematics lesson   60 minutes

Lesson objectives

- Generate and describe simple linear sequences.
- Generate terms of a simple sequence given a rule in words.

Episodes

1 Explain the purpose of the lesson, highlighting how the work done today will develop over the course of the unit on algebra. (2 min)

2 Play Factaerobics. Class to chant consecutive integers, 1–20 and put right hand up on all multiples of 2. Now repeat, raising the right hand on multiples of 2 and the left hand on multiples of 3. Repeat for a second time, this time asking class to raise right leg on multiples of 4. Ask class what the next number requiring them to raise all three limbs will be? What about the one after that? Ask class if they can see any pattern linking the numbers when all three limbs are raised. (10 min)

Case study continues

3   Explain that we are going to develop our understanding of patterns in number. Show a simple linear sequence on the board, where each term is covered with a card. Remove the card for the first term, using the key word 'term'. Ask pupils to predict the next term on show-me boards. Take feedback. Repeat for next two terms. Ask pupils to work in pairs to draft a rule that describes this sequence using fewer than 15 words. Take brief feedback. Now chant the first 10 terms of the sequence using a counting stick. (10 min)

4   Repeat activity 3 using a different linear sequence. Before chanting the first 10 terms using the counting stick, ask pupils to work in pairs to draft a rule using fewer than 10 words. Take brief feedback. (8 min)

5   Explain that we are going to practise describing sequences. In non-friendship pairs, pupils sit back-to-back. Give each pupil three cards with different sequences on. (Differentiate using different sequences.) Each pupil should describe their sequences to their partner, using no more than two words in the description. The second pupil should write the sequence down from their partner's description. Pupils alternate between being describer and writer. Bring class together and select pupils to report back on the most useful things when describing a sequence. (15 min)

6   Display a Venn diagram showing two overlapping sets, each labelled with a rule for a linear sequence. Pupils work in same pairs to put numbers into sets as appropriate, being careful with intersection. (5 min)

7   Display a Venn diagram showing two empty sets. Do not reveal the rules for each set. Ask pupils for different numbers and put the numbers in the relevant sets. Pupils to work out the rules for each set. (5 min)

8   Review learning – what are the most important things to remember when describing a sequence? (5 min)

Case study 3

A teacher of a low-attaining group of Year 8 pupils, having profiled the learning styles of his group, found that over 40 per cent of the group had a kinaesthetic preference and 35 per cent a visual preference. He planned and taught the following lesson.

Year 8 Lower-attaining English lesson   50 minutes

Lesson objectives

- At the end of the lesson pupils will understand how pictures communicate and how advertisers use pictures to persuade by layout, framing, cropping, anchoring the meaning and selecting appropriate visual images.

- They will understand and be able to use the terms: *framing*, *cropping*, *anchoring* and *connotation*.

Episodes

1   Explain the purpose of the lesson, how it links with the previous lesson on slogans and how learning today will contribute to the production of the advertising campaign. (3 min)

2   Begin lesson by establishing home pairs. Share slogans (see homework above). Decide upon and justify the best slogan. (8 min)

3   Explain that they are going to consider how pictures communicate, because the next stage in the production of the campaign materials will necessitate finding a visual image which will persuade. This means they will examine: the content of photographs; the technique of photographs; the way photographs work with text. (3 min)

4   In a space, in non-friendship pairs (away), ask them to imagine the frame is a viewfinder of a camera. Take it in turns to look at their partner kneeling down and looking upwards and then standing on a chair and looking downwards. Ask them to discuss and agree which subject looks more powerful, bigger, more important. (10 min)

5   In the same pairs ask them to look at the three charity adverts in front of them. Give class questions to consider: Where is the camera in relation to the face? What is the effect of this? Report back.
    No hands up. (10 min)

6   Now explain that often we don't have the full picture in an advert: the maker of the advert often cuts it down to make the message stronger. Ask pupils individually to take the pictures of the traveller family and use their frames to cut down the picture to make the picture as sympathetic as they can to the subjects. Now ask them to reposition the frame to make the picture unsympathetic. (5 min)

7   Explain that to make sure that we read the picture in the way the maker wants us to read it, they often include text alongside as we have seen. Ask pupils individually to write two captions: one for the sympathetic frame and one for the unsympathetic frame. (5 min)

8   Review learning – how can we make the viewer react to pictures in the way we want them to? (No hands up) (6 min)

Homework

Find one advert in black and white and one that uses colour. Look at the content of each and think about how it affects you. Think of five reasons why charity adverts often use black-and-white photographs rather than colour.

Planning for preferred learning styles   **20 minutes**

Case studies 2 and 3 are examples of teachers planning to accommodate a variety of learning styles. Analyse how they did this by categorising each episode in the lesson according to the learning style to which it appeals. Identify each episode with V, A or K, and where more than one learning style is used put the styles in order of significance.

You may like to try adapting this task according to your personal learning preference. For example, if you have a kinaesthetic preference, photocopy the lesson plan, cut it up into separate activities, then group the activities according to learning style.

Alternatively, if you have a visual preference, you might like to use coloured highlighter pens to differentiate the activities.

Or if you have an auditory preference, try discussing the activities with another teacher and annotate the text to show your decisions.

Case study 4

A teacher of a Year 7 class wanted to review and consolidate her pupils' understanding of formal and informal language. To secure their engagement she designed a multisensory starter activity for the first 10 minutes of the lesson.

To each pair in the class she gave two very different postcards and asked them to consider which card they would send to a close friend and which to a distant relation with whom they had little contact.

She then asked them to write an appropriate greeting for each card. Several pupils were invited to read out one of their greetings and the rest of the class identified the intended audience by holding up the appropriate card.

During this process the teacher reminded the class of the terms 'formal' and 'informal' and related these terms to the cards and the associated language.

The starter activity finished with the teacher allocating to pupils cards on which there were several different phrases: some formal, some informal. Pupils were asked to work in pairs to place each of the phrases on the postcard which represented the appropriate type of language.

Task 7

Making lessons multisensory   **10 minutes**

The teacher in case study 4 sought to engage learners early in the lesson by providing a multisensory experience. Within a tight time frame, she provided a variety of learning tasks that demanded auditory, visual and kinaesthetic responses.

Highlight or annotate the account of the starter activity to identify these different responses.

Refer to Gregorc's styles of thinking in the summary of research on pages 17 and 18, illustrated on page 14. Which style of thinking is favoured in this starter activity?

Task 8

Planning for preferred learning styles   **100 minutes**

This activity will ask you to apply what you have learned so far.

Take a scheme of work that you intend to deliver in the near future to the class from which you selected the six underachieving pupils for task 3. Choose one lesson plan from the scheme, if possible one that you have delivered in the past.

Review the lesson plan to determine how it caters for the learning styles of those six pupils.

If necessary, adjust the plan to accommodate their preferred learning styles. Refer to the grid below to help you plan suitable activities. Further support for designing tasks appropriate for different learning styles is available in the series of publications on learning styles and writing, available from the Key Stage 3 website.

Deliver the plan and monitor the response of your target pupils.

What did you find out? Were the outcomes of the lesson what you had expected? Compare pupils' outcomes with their previous work. What differences can you see?

One teacher described how much he learned from observing a colleague:

> 'I discussed the group with a colleague and observed her teaching them using strategies I have rarely employed. Consequently, I am now teaching the group using a broader range of strategies and, even after a short period of time, feel they are happier learners making more progress.'

Visual, auditory, kinaesthetic	Multiple intelligence	Four styles of thinking	Learning tasks
Visual	Visual–spatial		Diagrams, charts, videos, films, graphs, posters, concept maps, pamphlets, textbooks, drawing, visualisation (creating mental pictures), collages, colour highlighting
Auditory	Linguistic		Discussion, group work, pair work, debates, interviewing, expositions, presentations, improvisations, listening to guest speakers, mnemonics, writing notes and essays, poems, sketches, stories, reading
Kinaesthetic	Bodily–kinaesthetic		DART, role-play, dance, model making, simulations, 'show me' cards, freeze-frames, improvisation, associating ideas with movements, human graphs, human sentences or timelines, field trips, games, competitions
	Logical–mathematical	Abstract sequential	Puzzles, problem-solving tasks, predicting or hypothesising tasks, investigations, sequential tasks, summaries, pattern spotting
	Musical		Chants, rhymes, songs, mnemonics, raps, poems, musical interpretations
	Interpersonal		Collaborative group work, pair or team work, interviewing, teaching or coaching others
	Intrapersonal		Individual research, learning journals, reflecting on own learning, identifying own questions, self-evaluation, diaries
	Naturalistic		Multisensory experiences, collecting and classifying data, analogies with natural world, observation, experiments, investigations
		Abstract random	Open-ended tasks, improvisation, creative or imaginative responses, personal responses, narrative responses, brainstorming activities
		Concrete sequential	Sequential tasks, use of checklists, concept maps, overview of tasks, closed tasks, individualised learning programmes
		Concrete random	Specific outcomes to tasks, practical tasks, problem solving, investigations, open-ended tasks, experiments, trial-and-error opportunities, competitions

Extract from *Adult's guide to style* (1986), Gregorc Associates. Copyright © Gregorc Associates, Inc. Used by permission.

5 Creating environments to support a range of learning styles

Accommodating a range of learning styles not only affects lesson planning, but also has implications for classroom design and management. The checklist below can be used to audit your classroom to determine how well it supports a variety of learning styles.

- The seating arrangement is flexible, allowing for movement around the room and for a variety of working contexts such as pair work, group work, whole-class work and performance.

- Display supports learning through the use of charts, posters, key words etc.

- Pupils have ready access to a range of learning resources that support different learning styles, for example writing and reading resources, drawing and modelling equipment, simple musical equipment, ICT hardware and software, puzzles, games, reference materials, audio and video equipment, OHP, and rules for group work.

- Displays of pupils' work celebrate and validate a variety of outcomes, for example photographs showing work from kinaesthetic activities, models, drawings, and tape recordings of spoken or musical products.

- Displays model thinking processes, for example storyboards into writing, reading into tableaux, data into analysis, and discussion into key principles.

- Displays make explicit reference to learning and learning styles and encourage pupils to reflect on the 'how' of learning as well as on the 'what'.

- Classrooms are multisensory: they contain elements that stimulate all the senses, for example images and eye-catching displays, opportunities to hear appropriate music, plants and mobiles.

- Elements of the displays are frequently changed (at least once per half-term) to maintain the levels of stimulation.

Task 9

Accommodating preferred learning styles   90 minutes

Take a tour of your school. Look for examples of the characteristics listed above in other teachers' classrooms.

Use the checklist to audit the layout and appearance of your own classroom.

Finally, thinking of the class you planned for in task 8, decide on three actions you will take to modify the layout and appearance of the classroom to support their learning. Use a teaching assistant to help implement those actions.

Make a note in your diary to reflect in two weeks' time about how aspects of your lessons have changed since you modified your classroom.

Summary of research

There is a reasonable research consensus that information our brains receive is processed and stored in long-term memory in two forms: a word or linguistic form and a visual or imagery form (Paivio 1990). There is strong evidence that when students have to produce diagrams from text, or when texts contain diagrams, then they engage in 'dual processing'. This means that they use both their linguistic processing and visual processing powers and as a consequence the information is understood and recalled better. Furthermore, the creation of visual forms and representations is known to increase brain activity (Gerlic and Jausovec 1999). However, in the majority of classrooms new information is presented mainly in a verbal form.

Marzano, Pickering and Pollock (2001) have summarised the research on activities that enhance the creation of non-linguistic representations and therefore improve understanding:

- creating graphical representations (see for example Robinson and Kiewra 1996);

- making physical models (see for example Welch 1997);

- generating mental pictures (see for example Willoughby et al. 1997);

- drawing pictures and pictograms (see for example Newton 1995);

- engaging in kinaesthetic activity (Aubusson et al. 1997).

These non-linguistic representations help students elaborate their understanding because, as indicated earlier, information is being processed twice.

During the past 30 years, writers and researchers have constructed different models of learning styles which are purported to represent preferences in processing and representing information. Riding and Rayner (1998) have provided a valuable review of these frameworks and summarise the difficulties associated with these models, such as being based on self-report data. The review presents two dimensions – (i) holistic–analytical and (ii) verbal–imagery – as the best supported in research terms. A number of frameworks have become popular in encouraging teachers to think more critically about the mode in which they present information and the tasks they offer to pupils. Some of these frameworks are outlined below.

Learning style frameworks

Visual, auditory and kinaesthetic learners

From the moment we are born we make sense of the world through our five senses. However, neuro-linguistic programming (NLP) practitioners argue that those five senses may not contribute equally to that perception and that individuals may have a sensory preference for receiving and making sense of new information and ideas. They have identified three types of learner.

Visual learners: These people learn most effectively through the visual channel. They find it easier to receive information if it is in the form of diagrams, pictures, charts or demonstrations and to process information by converting it into a visual form, for example turning a description of a process into a flow chart or a narrative poem into a cartoon. Some visual learners also prefer to access information through the written word.

Auditory learners: These people learn most effectively through listening. Their preferred learning activities include teacher explanations, discussions and lectures. They prefer to process information by converting it into an aural form, for example thinking aloud, contributing to exploratory group discussion or giving an oral presentation.

Kinaesthetic learners: These people learn best when physically engaged in learning activities. They find it easier if they do something physical with the information they are receiving, for example role-play, simulations, practical experiments or model making.

Multiple intelligences

The work of Howard Gardner has challenged the traditional view of intelligence as a facility with language and logic only. He has argued that each individual has at least eight types of intelligence and that pupils may be intelligent in different ways. The balance of those intelligences will affect the way a learner prefers to learn. They are:

- linguistic intelligence;

- logical–mathematical intelligence;

- musical intelligence;

- visual–spatial intelligence;

- bodily–kinaesthetic intelligence;

- intrapersonal intelligence;

- interpersonal intelligence;

- naturalistic intelligence.

Gregorc's thinking styles

Anthony Gregorc provides a different account of the ways in which different learners access and organise information. He identifies four preferences.

Concrete sequential: These learners are more comfortable thinking in the concrete. They access new ideas through tangible examples and they like to be physically involved in their learning. They learn most effectively when learning is broken down into incremental steps and are content to follow instructions.

Concrete random: These learners also like to work with tangible examples, but are more disposed to an experiential approach to learning. They like to consider problems from different angles and create personal solutions or approaches. Their preferred learning tasks are open-ended, though they do like to have a specific, practical outcome at the end of a learning experience.

Abstract sequential: These learners are logical and linear in their thinking. They prefer to think in the abstract and follow a sequence of activities which enables them to explore the relationship between ideas or arrive at the underpinning principles or concepts. They enjoy activities which ask them to identify core ideas or the reasons for a specific phenomenon, but welcome a structure to their work provided by the teacher.

Abstract random: These learners like to be personally engaged in their learning. They learn most effectively when they are able to give their learning some personal significance. They process information holistically and then organise it through a process of reflection. They prefer learning opportunities which enable them to follow their personal inclinations and to explore those with others through group discussion. They will often want to explore their ideas through visual or kinaesthetic means.

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Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Work with other teachers to:
  - undertake an audit of the learning styles of the pupils you teach in a specific year group, or even key stage;
  - review the schemes of work in the light of that audit to determine how well they accommodate the range of learning styles that you have identified (you could audit the schemes of work from the perspective of a chosen theory, either VAK, multiple intelligences or Gregorc's four styles of thinking);
  - work collaboratively to modify those schemes of work to take account of your findings, providing both range and choice in learning opportunities and outcomes.

- With another teacher, create an observation schedule which focuses on the way in which the lesson accommodates different learning preferences and the impact of this upon the pupils' learning. Use this schedule with one or more of each other's lessons and give feedback.

- Investigate the impact on motivation of changes in teaching to accommodate different learning styles. How will you assess improvements in motivation? Prepare a report of your findings for distribution to colleagues.

For further reading, the following publications are recommended:

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- Gardner, H. (1993) *Frames of mind: the theory of multiple intelligence*. Fontana. ISBN: 000686290X.

- Ginnis, P. (2002) *The teacher's toolkit: raise classroom achievement with strategies for every learner.* Crown House Publishing. ISBN: 1899836764.

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Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   **40 minutes**

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

- How will you track progress over the year?

- How will you know whether you have been successful or not?

Appendix 1

Which sense do you prefer to learn with?

Situation: When you …	Your preferred course of action: Do you …		
	Visual	**Auditory**	**Physical**
Spell a word	Try to visualise it (Does it look right?)	Sound it out (Does it sound right?)	Write it down (Does it feel right?)
Are concentrating	Get most distracted by untidiness	Get most distracted by noises	Get most distracted by movement, or physical disturbance
Choose a favourite art form	Prefer paintings	Prefer music	Prefer dance/sculpture
Reward someone	Tend to write praise on their work in a note	Tend to give them oral praise	Tend to give them a pat on the back
Talk	Talk quite fast, but keep idle conversation limited. Use lots of images, e.g. 'It's like a needle in a haystack'.	Talk fluently with an even pace, in a logical order and with few hesitations. Enunciate clearly	Use lots of hand movements, talk about actions and feelings. Speak more slowly with longer pauses
Meet people	Remember mostly how they looked / the surroundings	Remember mostly what was said / remember their names	Remember mostly what you did with them / remember their emotions
See a movie, watch TV or read a novel	Remember best what the scenes / what the people looked like	Remember best what was said – and how the music sounded	Remember best what happened / the character's emotions
Relax	Generally prefer reading / TV	Generally prefer music	Generally prefer games, sports
Try to interpret someone's mood	Mainly note their facial expression	Listen to their tone of voice	Watch body movements
Are recalling something	Remember what you saw / people's faces / how things looked	Remember what was said / people's names / jokes	Remember what was done – what it felt like
Are memorising something	Prefer to memorise by writing something repeatedly	Prefer to memorise by repeating words aloud	Prefer to memorise by doing something repeatedly
Are choosing clothes	Choose almost exclusively by how they look, how they coordinate and by the colours	Take a lot of notice of the brand name, what the clothes 'say' about you	Choose mainly on how they feel, the comfort, the texture
Are angry	Become silent and seethe	Express it in an outburst	Storm about, clench your fists, throw things
Are inactive	Look around, doodle, watch something	Talk to yourself or others	Fidget, walk about

Situation: When you …	Your preferred course of action: Do you …		
	Visual	**Auditory**	**Physical**
Express yourself	Often use phrases like: I see / I get the picture / Let's shed some light on this / I can picture it	Often use phrases like: That sounds right / I hear you / That rings a bell / Something tells me / It suddenly clicked / That's music to my ears	Often use phrases like: That feels right / I'm groping for an answer / I've got a grip on it / I need a concrete example
Contact people on business	Prefer face-to-face contact	Rely on the telephone	Talk it out while walking, eating etc.
Are learning	Prefer to read, to see the words, illustrations, diagrams, sketch it out	Like to be told, attend lectures, talk it over	Like to get involved, hands on, try it out, write notes
Assemble new equipment	First look at the diagrams / read the instructions	First ask someone to tell you what to do	First work with the pieces
	And then your second choice would be to …		
	Ask questions / talk to yourself (A) as you assemble it, and then do it (P)	Ask them to show you (V) and then try it (P)	Ask questions (A) and then look at the diagram/instructions (V)
Total responses			

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Pedagogy and Practice: Teaching and Learning in Secondary Schools

Unit 1: Structuring learning

Designing lessons

How to use this study guide

This study unit offers some practical strategies that teachers use to structure learning. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to structuring learning. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 1, Structuring learning, when working through this unit.

Structuring learning

Contents

Introduction

Successful lesson design

In successful lessons pupils are:

- clear about what is to be learned, how it fits in with what they know already and the structure of the lesson;

- actively engaged in their learning so they make their own meaning;

- able to work independently when required to do so;

- able to understand expectations;

- able to use assessment to help them to improve;

- confident that they can succeed because the right conditions for learning prevail.

Common issues

Sometimes pupils do not appear to make enough progress in lessons and the teacher is generally unhappy about the way pupils respond to activities. Lessons do not go according to plan.

Resolving the issues

Good lesson design is a key factor in resolving these issues.

Designing a lesson follows the same process as other design projects. It starts with a clear understanding of the purpose and the tools and materials that are available. You need to have:

• clarity about objectives and outcomes;

• awareness of the range of pedagogic approaches and strategies available;

• knowledge of how to select the right approaches and strategies to meet the objectives;

• knowledge of how then to structure a lesson or series of lessons to ensure that learning takes place.

1 Factors affecting lesson design and the design process

Effective, experienced teachers consider the full range of factors when designing lessons.
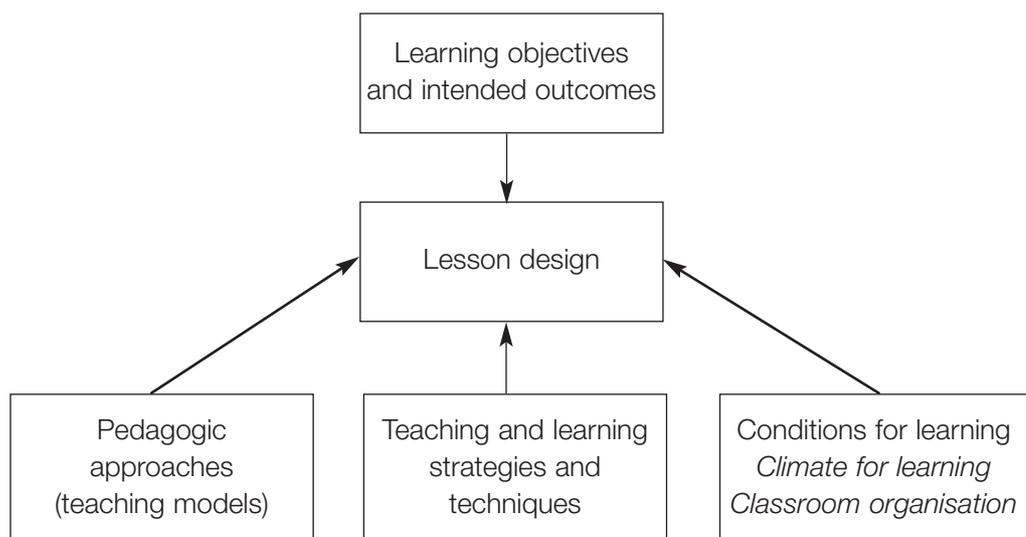
Learning objectives and learning outcomes

The learning objective(s) for a lesson will come from the scheme of work. Having clearly defined the learning objective, it is important to go one step further and consider the intended outcome. What will pupils produce at the end of the lesson or sequence of lessons that will demonstrate the learning that has taken place – for example, a piece of writing, an artefact, a presentation or the solution to a problem? You will need to be clear from the outset what a good-quality product will look like. This will help you to clarify your expectations with pupils.

Learning objectives fall into five categories (see pages 6–7).

The nature of the learning objective – for example, skill acquisition or developing understanding – will determine the approaches and strategies you use. Sections 3, 5 and 6 develop these ideas further.

Pedagogic approaches

Researchers have identified a number of different approaches to teaching that can promote different types of learning. Each of these has a defined sequence of episodes or steps that give a particular structure to the lesson. Some subjects have a strong leaning towards particular approaches because of the nature of the content and demands of the syllabus. The choice of pedagogic approach or teaching model will depend on the nature of the learning objective. Direct interactive teaching, inductive teaching and enquiry, are examples of different approaches. Section 6 and unit 2 Teaching models explore these ideas further.

Teaching strategies and techniques for learning

Within each pedagogic approach teachers may draw on a range of strategies to maximise learning from their input. For example, within the direct interactive teaching approach, modelling could be used to help pupils learn a new skill or procedure. Other strategies include questioning and explaining. Each has a set of procedures or methods that makes them effective. To embed learning and/or assess learning teachers can select from a wide range of techniques such as card sorts, concept mapping or group work. Learning how to employ each strategy effectively and which techniques are suitable is the key to successful teaching. Section 5 and units 6, 7, 8, 9, 10 and 11 develop these ideas further.

Objective	Pedagogic approach (teaching model)	Strategy or technique for teacher input
Learn how to use the pillar drill safely	Direct interactive	Explaining with demonstration
Able to recognise layers of multiple meaning in a text	Direct interactive	Modelling
Develop the concept of mammal	Concept attainment	Card sort
Understand the effects of water flow on the landscape	Enquiry	Questioning
Understand better the causes of World War 1	Inductive	Questioning

Conditions for learning

This has two components: the climate for learning and the classroom organisation. Research shows that pupils learn most effectively when they feel motivated, confident and successful. The main factors contributing to a climate of success are:

• getting the pitch of the lesson right so pupils can recognise and demonstrate their learning;
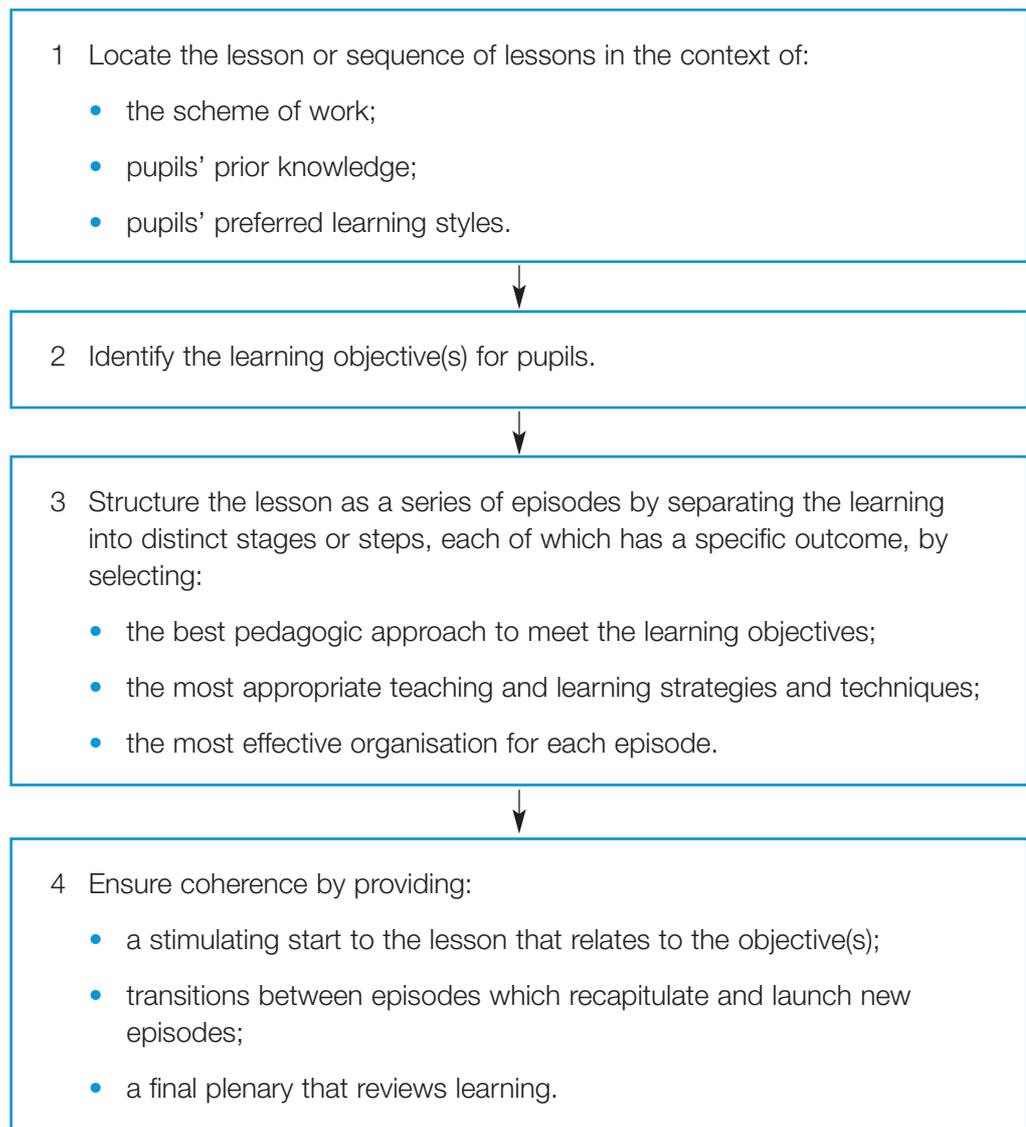
- establishing relationships which allow pupils to feel safe and able to respond;

- providing variety so that different learning styles can be accommodated over time.

Classroom organisation and the use and appearance of the physical environment can have an enormous impact on the attitudes and behaviours of pupils. Significant improvements in learning can result from simple alterations to aspects of the environment which are within the teacher's control.

As far as possible, the organisation of the room should be appropriate to the teaching and learning strategies to be employed. Display in classrooms can be used to enhance learning and to promote quality. The display of annotated pupils' work, showing why a particular piece of writing exemplifies a particular standard – for example, a GCSE Grade A or a Key Stage 3 level 6 – can help pupils see what to aim for. These ideas are further developed in units 12, 17 and 19.

The process of lesson design

The process of lesson design is summarised below. The flowchart emphasises that lesson design can be viewed as a series of decisions, each leading to and providing a foundation for the next, building a planned series of episodes.

---

1   Locate the lesson or sequence of lessons in the context of:

- the scheme of work;

- pupils' prior knowledge;

- pupils' preferred learning styles.

↓

2   Identify the learning objective(s) for pupils.

↓

3   Structure the lesson as a series of episodes by separating the learning into distinct stages or steps, each of which has a specific outcome, by selecting:

- the best pedagogic approach to meet the learning objectives;

- the most appropriate teaching and learning strategies and techniques;

- the most effective organisation for each episode.

↓

4   Ensure coherence by providing:

- a stimulating start to the lesson that relates to the objective(s);

- transitions between episodes which recapitulate and launch new episodes;

- a final plenary that reviews learning.

---

2 Locating the lesson in context

Lessons do not exist in isolation, and it is important to place the lesson in context. Most schemes of work have a modular or unit structure, with themes that may last for several lessons. The first lesson of any sequence is an opportunity for you to find out what your pupils already know about the subject, and to help them recall work that they have done in previous years on similar topics.

Typically the first lesson in a sequence will:

- describe the overall learning objective: 'Over the next two weeks we will be learning about …' or 'Your task over the next four lessons is to produce …';

- tell pupils how they will know they have achieved: 'At the end of this you will be able to do a presentation for the class' or 'After this bit of work you will be able to …';

- contain a starter activity designed to find out what pupils already know, understand or can do about the work in hand.

Dividing your work into units of four or five lessons is an effective way to support the learning of boys because it encourages a sense of progress and achievement.

| Task 1 | Reviewing your scheme of work | 30 minutes |

Consider your scheme of work.

How does it suggest you start the first lesson in a new sequence or topic? For example, concept mapping, traffic-lighting the set of learning objectives, annotation of a diagram.

Does it suggest an early activity that will identify pupils' prior attainment? *This will be particularly important for pupils as they move between key stages – that is, in Year 7 and Year 10 – but also when pupils pass from one teacher to the next.*

How well does the activity work? Will it tell you what you need to know about your pupils? Can you think of a better way to find out what pupils already know, understand and can do?

Devise a technique of your own for finding out what pupils already know. The techniques listed in section 5 may help. Try it out for the next unit of work you have planned and evaluate its effectiveness.

3 Identifying and sharing learning objectives

Task 2	**Sharing objectives and setting expectations** **10 minutes**

Watch video sequences 1a and 1b, which show the introductions to two lessons. Note how the teachers share the purpose with pupils and indicate what outcomes they expect. Reflect on your own introductions to lessons: how do you communicate your objectives and expectations to the pupils?

A two-step approach – in which pupils are told not only the purpose of the lesson but also what the teacher expects in terms of outcomes from tasks – leads to improved learning, particularly for pupils who tend to make slower progress or who can be challenging.

Learning objectives

The learning objective for your lesson will fit into one of these five sets:

1 Acquiring and applying knowledge *(learning factual information such as names of people, equipment, places, symbols and formulae)*

Many lesson objectives may fall into this category. Teaching methods that lead to meeting these objectives are highly organised by the teacher. Pupils are led through a well-planned set of activities.

2 Acquiring concepts *(understanding concepts including abstract ideas, reasons, generalisations, laws, principles, how processes occur)*

A large proportion of objectives in secondary education fall into this category. Once again teaching methods will be highly organised, but will often involve more than one approach being used, so that pupils increasingly develop a better grasp of the idea. This may happen over a period of lessons.

3 Acquiring new behaviours, learning new skills *(learning processes and procedures, handling equipment, writing specific text types, applying techniques, analysing information)*

All subjects have a significant number of lesson objectives associated with skill acquisition and practice. Subject-specific skills are easily identified; however, underlying skills are often hidden and pupils' lack of skill, for example in writing or discussion techniques, may be the cause of slow progress. Teaching methods are highly structured and involve direct interaction between teacher and pupil.

4 Exploring attitudes and values, perspectives on a problem and solutions to complex issues *(developing understanding through empathy, caring, sensitivity towards social issues, moral issues)*

While all subjects will have objectives in this category, some will have a significant number, such as personal, social and health education, social studies, drama, RE, history and geography. Teaching methods, while being structured, often involve high levels of pupil–pupil discussion.

5 **Personal growth, developing creativity** *(exploring motives, creating, designing, hypothesising, exploring alternatives)*

Subjects such as personal, health and social education, citizenship, English, art, drama, music, dance, design technology have many lessons in this category; other subjects also have a number. Teaching methods here seek to promote productive independence, helping pupils become increasingly aware of their abilities.

Task 3

Writing learning objectives   **15 minutes**

Review two lessons you will be teaching in the next few days. Have you identified the objectives you plan to share with pupils? Are they precise enough, or do you need to refine them?

You want to tell pupils why they are doing what they are doing and how it fits into the bigger picture of the subject or their wider learning.

You may find it helpful to use stems such as 'By the end of the lesson you (pupils) will ...' plus:

- **know that …** (for knowledge – factual information such as names of people or equipment, places, symbols, formulae etc.);

- **understand how/why …** (for understanding – concepts, reasons, effects, principles, processes etc.);

- **develop / be able to …** (for skills – using knowledge, applying techniques, analysing information etc.);

- **develop / be aware of …** (for attitudes and values – empathy, caring, sensitivity towards social issues, feelings, moral issues etc.);

- **explore and refine strategies for ...** (creating, designing, hypothesising, exploring alternatives).

An alternative is to phrase objectives in terms of the stem '**We are learning to …**' to give pupils some consistency.

Deciding in advance what you want as an outcome – not only in terms of product but also in terms of quality and quantity – will help you to design the lesson. If you expect a written explanation as an outcome, it is helpful to explain how many paragraphs are needed, what the opening paragraph should look like, what key words must be included and whether it should be illustrated with a diagram.

Task 4

Defining learning outcomes   10 minutes

For the same two lessons you looked at in task 3, decide what outcomes you want from pupils.

You want to tell pupils what you expect from them as a high-quality outcome of each lesson or part lesson ('episode').

Have you defined the outcomes clearly?

How do you plan to explain them to pupils?

You may find it helpful to use stems such as:

What I am looking for is for you to set your conclusion out in three paragraphs: the first will describe the pattern you found in your results; the second will explain this, using the scientific ideas we talked about; the third will state whether the hypotheses you investigated were supported or not from the evidence.

What I expect from everyone is a description of the events leading up to the Norman invasion in 1066. It should have three main parts: an introductory paragraph to set the scene, a description of events in chronological order and a closing statement. A good one will contain …

For top marks you will need to solve the equations for all values of x and show clearly in your working how you reached your answer.

To be successful your group will have listed the pros and cons for each of the suggestions on the paper provided and be prepared to give feedback in 20 minutes.

Task 5

Classroom assignment: sharing learning objectives and outcomes   10 minutes

Now share the learning objectives and outcomes that you developed in tasks 3 and 4 in the lessons for which they were written.

Rather than asking 'Does everyone understand?', choose individual pupils to explain again to the class the objectives and the intended outcomes so you can see at once where any misunderstandings lie.

Another way to find out whether your instructions are clear is to ask questions of pupils whilst they are working: 'Can you remind me of what we are trying to do?' or 'Why are we doing this?' or 'What do you have to do to get top marks?'

4 Principles for structuring a lesson in episodes

An effective lesson will be organised into a sequence of distinct learning episodes with a beginning (teacher input), a middle (activity for pupils) and then a quick check for understanding before moving to the next episode – until the end of the lesson, at which there might be a longer review time. Pupils remember more from the beginning of a learning activity than they do from the middle. They also learn more from the end of the experience than they do from the middle. It follows that with slower learners or challenging classes it is beneficial to create lots of beginnings in a lesson.

When you decide how many episodes to cover in a lesson, and how long each should be, try not to exceed the concentration span of your pupils. It has been suggested that the average concentration span corresponds roughly to chronological age plus one or two minutes. With challenging classes take this figure as a maximum – so, for example, keep episodes under 12 minutes for Year 7 pupils.

Task 6

The 'good lesson guide'   10 minutes

Watch video sequence 1c. Listen to what some Year 10 pupils consider constitutes a good lesson and then the teacher describing how his school has developed a whole-school approach. The result is that pupils have consistent expectations about their learning in all lessons. This consistency has contributed to improved behaviour.

When you have watched the sequence, reflect on how this compares with your lessons. How do you ensure consistency?

Task 7

Considering the research   10 minutes

Read the summary of research on pages 22–23.

Highlight those areas of the research that you think are the keys to helping you improve lesson design for either yourself or your department.

Do you think your lessons are better structured in one key stage than the other? If so, consider why this might be so.

Each episode should have a distinct purpose and distinct outcome. Planning for smooth transition from one episode to the next is important. This can often be achieved by establishing classroom routines or using signals that pupils recognise, such as the phrases 'eyes on me' or 'now move to your home groups'. It takes time to establish these routines. They need to be introduced, then used consistently.

Episode	Commentary
Starter activity	Starters are lively, engaging starts to lessons. They are the place to establish early teaching points or to position the 'little and often' objectives by revisiting and practising skills or consolidating knowledge. They also allow you to quickly establish any gaps in knowledge. They are often short (e.g. 5 minutes).
Introduction	All lessons need introductions where objectives and expectations are shared. Here the scene is set and the lesson located in the context of previous and future learning. Pupils should be helped to see the 'big picture'. Introductions are short, but be sure to allow enough time. They are often distinct from the starter activity; they sometimes precede the starter but often follow. You need to explain objectives and expected outcomes briefly at the beginning of each subsequent episode.
New learning or introduction of task	New learning is introduced by teacher input. This will draw on a range of strategies or techniques to engage pupils: it may be a demonstration or a discussion or use modelling to teach a new procedure. The length of the input should relate to the age and maturity of the pupils. In a lesson concerned with developing a concept, the initial input may be very brief and confined to a description of the task. When introducing tasks, make clear the expected outcomes and suggest timings. There may be a series of inputs during the lesson, each followed by a period of development.
Development	Pupils need opportunities to use new knowledge, understanding or skills. They will learn by applying new ideas or trying to generate their own understanding from data sets. Once again, the tasks undertaken by pupils will be determined by the range of techniques known to the teacher and related to the nature of the learning objective. For example, a sorting or pattern-finding activity may well help pupils develop an understanding of a generalisation such as a spelling rule. Once again, the length of the activity should be related to pupils' age and maturity. More challenging pupils often benefit from shorter and more varied episodes.
Plenaries	It is here that learning is reviewed and there is an opportunity to reflect on the learning process itself. Thinking about where this new learning can be applied or about what aspects of the learning process really helped pupils move their understanding forward can help develop pupils' thinking skills. These periods may be short (5 to 10 minutes, for instance). There may be a series of shorter plenaries throughout the lesson.

A teacher who used this approach commented:

'I found the initial changes in the planning process were particularly demanding as there were many additional factors to consider. However, the more lessons I planned the quicker it became to integrate such strategies. My overall planning has dramatically improved and I know that my colleagues' has also.'

The following case study discusses the experience of a teacher who changed her practice to ensure that her lessons had distinct episodes with planned transitions from one to the other.

A teacher identified that pupils rarely responded positively to lessons which had taken a lot of preparation. Work was often incomplete and pupils seemed easily distracted, resulting in frequent misbehaviour.

Although individual incidents are minor, they spark off others, contributing to a loss of focus on learning and a sense of frustration.

The teacher decided to focus on a Year 8 group. The changes to lesson structure needed to be implemented together, so she chose to signal this 'new start' by rearranging tables and insisting on a deliberate seating plan. By arranging the tables in a double horseshoe rather than in groups, she kept pupils in her eye line at all times; yet the arrangement was flexible enough for small groups to be formed as tasks required. She chose boy/girl seating arrangements to help pupils stay on task during paired activities.

Arranging seating so that you can see all pupils enables you to identify when pupils are losing concentration and intervene to refocus them.

She planned the series of lessons (in this case, on Islam) from objectives, focusing on what pupils would know, understand and be able to do, before beginning to think about the activities. She found it helpful to focus on what outcomes she was expecting; this enabled her to articulate success criteria clearly for pupils. She then planned a series of episodes, each with its own outcome.

Using the 'What I'm looking for' stem helped her to remember the learning objectives and success criteria where previously she had just stated the activity.

Following a brief starter activity designed to introduce pupils to some key words, she gave pupils 'the big picture' of the lesson – she told them what they were going to **do** and what they were going to **learn** by doing it – and the plenary activity was explained briefly as an opportunity to show that they had achieved the objectives.

The promise of a game at the end motivates pupils and contributes to the pace of a lesson.

Telling pupils how long each phase would last helped them to stay focused. This was particularly true of the teacher-led phase in which she introduced new material. She had identified this as the section when attention was most likely to drift, so she kept it short. The teacher told the class that she was going to speak to them for about 5 minutes before they watched a short video clip to give them the information they would need for the task – working in pairs to produce part of a guide to a mosque. Giving pupils an opportunity to 'think, pair, share' the key areas that a good guide would need to cover and then having them identify as a class which were the most important helped to break the learning into distinct episodes.

Again, timing helps to inject a sense of pace. This can also be achieved by using a note-making frame or a blank concept map with five boxes for the key areas to look for, then lines with three or four connected boxes for points about each section. Pausing videos to reinforce what pupils have noted improves memorisation.

A 'loop game' aimed at reinforcing key learning points about mosques was used at the end of the lesson to help develop pupils' sense of fun and of achievement. Pupils had the opportunity to apply their learning immediately in an environment which, because of the nature of the game, was supportive and inclusive. The teacher was particularly pleased when a few pupils commented on their way out that the lesson had been fun. Although the planning had taken her longer than usual, others could use the resources. Marking would take less time because it was clearly focused on the planned outcomes.

Loop games – cards, each containing a question and the answer to another question – require preparation, but they do encourage pupils to work together and listen to each other at the same time as reinforcing knowledge.

5 Selecting strategies and techniques

Teaching strategies

Teachers need a repertoire of teaching strategies to promote learning and develop understanding. They also require a wide variety of techniques to actively engage pupils.

The table below identifies three key strategies that teachers employ. The nature of the learning objective will determine when it would be appropriate to use each strategy within an episode. Further guidance is provided in the units identified in the table and in *Key messages: Pedagogy and practice* (ref. DfES 0125/2003). Strategies and techniques are described in units 6, 7, 8, 9 and 10.

Strategy	Brief description	Unit
Questioning	Questioning is effective when it is planned and sequenced. Use questioning to promote higher-order thinking and active listening when developing knowledge and understanding.	Unit 7
Modelling	Modelling is more than demonstrating; it helps pupils understand underlying structures through the teacher's 'thinking aloud'. Use modelling to introduce new skills, procedures, processes and conventions (such as text types).	Unit 6
Explaining	Explaining is crucial to helping pupils understand abstract concepts and events that are outside their own experience. Verbal explanations are supported with the use of models and analogy. Use explaining to develop knowledge, understanding and reasoning.	Unit 8

Techniques to stimulate active engagement of pupils in tasks

Some pupils learn most easily by listening, others by working with diagrams, and others by making models or physically re-organising information. When a mismatch arises between the way a pupil prefers to learn and the way they are being taught, the pupil may lose motivation, misbehave and underachieve. The best way to meet the needs of many different pupils is to ensure variety in the tasks you set.

Variety doesn't just happen; it needs to be planned

Challenging classes often contain pupils who have weaknesses in literacy; they may choose not to read/write, have poor skills or lack confidence in their skills. Many of the techniques in the table below support reading and writing. They also help pupils make sense of information by causing them to re-organise it in some way.

Task 8 **Identifying teaching techniques** **20 minutes**

The techniques below are designed to engage pupils; they all require pupils to think and make decisions. They are varied in the learning styles that they support: visual, auditory or kinaesthetic.

Review six weeks' work for a chosen class, as specified in your scheme of work. How many of these techniques do you use?

Note any tasks you use that do not appear here. Ask yourself whether any of these tasks are passive – that is, whether any do not make pupils think or make a decision.

Broadening the range of techniques you employ can have a significant impact on attitudes and learning.

Choose a new technique and either substitute it for a passive task in your scheme of work or add it to your repertoire. Evaluate its impact on pupil engagement. Further examples can be found in unit 11.

Technique Pupils asked to:	Commentary
Verbalise	Asking pupils to explain what they learned to a partner can help them consolidate their learning and identify gaps in understanding.
Reduce information	Asking pupils to select the most important words from a text or parts of a diagram can help them recognise and identify key features. The teacher can impose a limit, e.g. reduce to five key words.
Transform information	Transforming information from one form to another aids learning because pupils have first to deconstruct then to reconstruct information. This can help reveal misconceptions. Examples include converting text to a picture, flowchart or diagram, visualising a piece of music, building a model to represent a process described in text or vice versa.
Sequence text	Providing pupils with text that has been broken down into a series of sentences or phrases and then inviting them to put them in the correct sequence can help them develop an understanding of text structure. It is particularly useful in helping pupils understand and describe processes.
Use analogy	Asking pupils to use analogy encourages creativity by exploring new and different ways of thinking. The teacher invites pupils to consider direct, personal and negative analogies. For example, How is an atom like a grain of sand? What does it feel like to be an atom? How is an atom not like a grain of sand?
Predict	Asking pupils to speculate about what will happen in a particular circumstance or what they expect to find before engaging with a task encourages pupils to engage with the learning.
Classify	Collecting, sorting, categorising and even recategorising data (e.g. through card-sort activities) can help pupils develop thinking and an understanding of concepts. It is a key aspect of a major pedagogical approach called inductive teaching (see below).
Create cognitive maps	Encouraging pupils to create maps such as concept maps helps them link ideas together and see connections. Pupils could be asked to draw a map of what they learned in a lesson and to show how these ideas link with previous learning. Concept maps are useful in revealing misconceptions.

Rank order	Providing pupils with information on cards and asking them to rank order the information stimulates decision making and discussion. Different decisions made by pairs can be explored in small groups where pupils have to justify their decisions. This is particularly useful for exploring complex issues and situations where there is no right answer.

6 Selecting a teaching model

Breaking lessons into teaching episodes, each of which has a learning objective and expected outcome, is an important element of lesson design. Pupils respond well to success, and dividing lessons into episodes gives more opportunities for praise and for pupils to see that they are learning. It can also increase the pace of work. Building in more opportunities to review learning at the end of episodes will aid pupils' recall.

The content of the episodes will be influenced by the pedagogic approach that you choose. Researchers have identified a considerable number of different approaches to teaching. Each has a defined sequence of stages or episodes. Three common approaches – direct, inductive and enquiry – are investigated here; some others are described in unit 2 and in the summary of research on pages 22–23. The choice you make will depend on the nature of the learning objective for the lesson, or part of lesson.

Pedagogic approach	Good for:	Less effective for:
Direct interactive *Key features:* Talk or demonstration is followed by active tasks that help pupils remember and fit the new knowledge into their existing ideas.	• Learning new knowledge or practical skill • Learning new processes • Learning new communication or mathematical skill	• Exploring feelings • Generating new perspectives about complex issue • Forming a concept • Generating creative thinking
Inductive *Key features:* Pupils collect and sift information, then examine the data. They construct categories for the information. They generate and test rules and hypotheses and consolidate and transfer skills.	• Forming a concept • Building on or shaping previously learned concepts • Exploring feelings	• Learning new skills • Learning new knowledge • Generating creative thinking
Setting up an enquiry *Key features:* Pupils test a prediction or hypothesis based on the understanding of a concept. Pupils decide what information to collect, obtain the data and analyse it.	• Forming a concept • Building on or shaping previously learned concepts • Stimulating conditions for learning new knowledge • Embedding understanding of processes • Practising skills	• Learning new processes or skills • Exploring feelings

Direct interactive teaching – planning episodes

The following sequence of stages is typical of the direct interactive approach.

1   Pupils are involved with a starter activity that engages and motivates; they already feel as though they've learned something.

2   Pupils listen to what the lesson is about and what is expected of them.

3   Pupils move from the starter to a main activity involving significant teacher input.

4   Pupils then apply what they have been taught either individually or in small groups.

5   As a whole class pupils in a plenary session review their learning to date with the teacher.

This sequence will normally take place within a lesson. It may take place more than once, with the whole class cycling through a series of starters, activities and plenaries. The order of stages 1 and 2 is not fixed and, depending on the nature of the lesson, will sometimes be reversed.

Deciding the number of episodes and the objectives for each

Once you have decided when to share the learning objectives and expected outcomes with pupils, you will need to decide the number of episodes to plan. This will be determined by the nature of the objectives, the length of lesson and what pupils need to learn.

Episode 1: This will be a starter activity designed to engage pupils and, in many subjects, used to set pupils up for the main part of the lesson. It could, for instance, be an activity that reminds pupils of the subject-specific language they will be using. On some occasions it may be used as a means of continual skill development, for instance mental arithmetic in mathematics.

Episode 2: This involves significant teacher input. It often begins with whole-class exploration of the features of the skill or knowledge or understanding to be acquired. You might use the strategy of modelling, casting pupils in the role of 'apprentice'. It is important to be explicit about the features to be explored. Also be careful that you do not make assumptions about what pupils know. By 'thinking aloud' you can give pupils insight into the decisions that have to be made. Other strategies such as questioning and explaining may also be used when developing a concept, new knowledge or new skill.

Episode 3: At this point pupils will often work in pairs, in small groups or sometimes individually. Pupils apply their understanding, with their early attempts at a newly learned skill or procedure being scaffolded. Choose from the range of techniques on pages 13–14.

Episode 4: The learning is reviewed with the whole class, and key features of the new knowledge are discussed. At this point you can involve pupils in reflecting on learning – perhaps inviting them to consider where else they may use their new knowledge or skill.

Unit 5 Starters and plenaries deals specifically with the design of episodes 1 and 4, whereas unit 9 Guided learning and unit 10 Group work provide guidance on managing episode 3.

Designing episode 2 – teacher input and active task

Episodes involving teacher inputs are often the most difficult to get right at first. Inputs need to be short, crisp and very focused. Interspersing them with tasks that actively engage pupils in processing information helps pupils to develop understanding and keep on task. Unit 11 Active engagement techniques explores these ideas in depth.

Where pupils have problems listening you will need to keep each teacher input very short – for most classes between 5 and 10 minutes.

| Task 9 | **Classroom assignment: managing teacher input** | **30 minutes** |

Ask a colleague or consultant to observe your teacher input in a lesson with a challenging group. How long did you talk in any one episode? How long did pupils listen? How long did you plan to talk for?

If the teacher input time was over 5 minutes and the class was restless, consider how you could have split up the information you needed to give. For example, ask for quick, 30-second discussions between pairs of pupils to reflect on your last few sentences before moving on to more information.

Good-quality teaching input using the explaining strategy has the following features:

- enthusiasm in presenting ideas engages and sustains pupils' attention;
- clear main points are stated in language pupils can understand;
- small steps in logical sequence focus on each point in turn and avoid digressions, which can confuse;
- a good choice of resources – video, pictures, artefacts, models and textbooks – backs up the teacher input;
- key words are identified;
- appropriate models and analogies help pupils visualise difficult ideas.

| Task 10 | **Classroom assignment: assessing your teacher input** | **30 minutes** |

Use a tape recorder (or a video camera) to capture two or three of your sessions of teacher input.

Use the list above to reflect on the quality of your input.

| Task 11 | **Improving your teacher input** | **20 minutes** |

Read the description on page 17 of good-quality teacher input in a lesson with a starter, an introduction and two main further episodes of teacher explanation. Identify any aspects of these episodes that match what you feel you need to improve.

Example of a science lesson using the direct interactive approach

Lesson sequence

Episode 1 (the starter)

Year 10 science (50 minutes). The teacher's lesson objective is that pupils will know the reasons for long- and short-sightedness.

On the board as pupils enter there are two stems of sentences:

'The eye has a hole in the centre called a pupil because …'

'The lens in the eye is flexible because …'

Within 5 minutes the teacher is asking for suggested reasons and, through questioning (a strategy), reminds pupils of work done last lesson.

Episode 2 (the introduction)

The teacher explains the purpose of the lesson and tells pupils that by the end of the lesson they will be able to describe to a younger child why they are long- or short-sighted using key words from the last lesson and this.

She explains the lesson structure (the five further episodes): teacher input 5 minutes; task for pairs 5 minutes; second teacher input on long-sightedness 5 minutes; task for pairs using textbook 10 minutes; summary and check 5 minutes; after the plenary, pupils work on writing their explanations for a younger child, to be completed for homework.

Episode 3 (teacher input using explaining strategy)

The teacher input begins by quickly reminding pupils of the names for parts of the eye. She does this by referring to a large diagram and asking a pupil to attach key-word labels to it as she speaks. She then introduces new key words for this lesson and writes them on the board.

She explains short-sightedness, clearly identifying the cause (the lens cannot be made sufficiently thin to focus the light from a distance on the retina), which is illustrated by a diagram on an OHT. Where appropriate she points to her key words and pauses for emphasis. She checks that pupils can pronounce the word correctly, to support spelling. She then sets the task: 'What I want you to do is place these (holds up set of numbered cards) in the right sequence. You have 5 minutes to decide the right order.'

Episode 4 (pupil activity using sequencing)

Episode 5 (second teacher input on long-sightedness)

Episode 6 (pupil pairs activity using textbook)

Episode 7 (the plenary)

She revisits the new key words in the plenary to ensure they have been assimilated and to support recall.

Commentary

GCSE syllabus: questions on this often ask for written explanations.

This starter will get pupils thinking about explaining. It serves as a bridge from the last lesson.

In the past this class has had difficulty recalling information.

Objectives and outcome made clear.

The lesson structure is presented on an OHT. The class has been slow to respond to requests for quiet to summarise between episodes. This method has been found to be effective. After the introduction are two distinct episodes: each has teacher input followed by pupil activity.

More recall. Pupils will need to know these words to understand the teacher input and complete the task.

Pupils are primed to listen for the words.

A good-quality OHT helps pupils visualise. The teacher could have used the textbook but wants to have a task from that later.

The sequencing activity helps pupils organise their thinking and aids memory. All the key points are on the cards. Pupils will reflect on these which will help recall.

Pitfalls to avoid when using textbooks

Textbooks are invaluable in helping to plan lessons, but they do not substitute for your planning. Good textbooks lead pupils logically through steps to new knowledge, often with excellent material, but, unless you manage it, the use of pupil texts can become routine and demotivating. It is essential, with challenging classes, to organise the lesson so as to structure the learning.

Task 12

Planning episodes when using a textbook   **20 minutes**

Start with the thinking outlined in tasks 3 and 4. You need to have a good overview of the lesson, the learning objective(s), the outcome(s) and the quality that you expect to see.

Read the pages in the textbook which have been designed to lead pupils to the new idea or skill.

List the steps in developing the new idea/skill indicated in the text and the tasks (a teachers' guide may help you do this).

Divide these steps into two or three episodes of the lesson. For each episode decide what is to be your input, what task pupils can do and what outcome you will expect.

Remember that each teacher input should be very short and crisp and that tasks should be active. Textbook tasks can fail to engage pupils actively. Avoid tasks that ask pupils to copy information.

Estimate a time for each episode. It may not be accurate, but it will become easier as you gain experience and as pupils become used to the active teaching methods.

With some classes you may have difficulty gaining their attention at the end of each episode. You will need to work towards making this an expectation.

Remember that pupils are usually more prepared to stop and listen if they know the whole structure of the lesson before it starts. Pupils will become better at stopping and listening if the tasks are motivating and the time limits are clearly stated. It also helps if they feel they have successfully completed the task. Set a minimum expectation for success within the task – for example, 'I expect you to come up with **at least** two but **preferably** four reasons for … and you have 5 minutes.'

Planning episodes when using the inductive approach

The following sequence describes the inductive approach.

1 Pupils gather or are given information concerning a subject related to the concept or understanding to be developed.

2 They sort and classify the material, sometimes several times.

3 Pupils make hypotheses or rules from their classifications.

4 Pupils test these hypotheses or rules.

The sequence can take place over several lessons, as one whole lesson or even as one episode in a longer lesson. The decisions about the design of the lesson will be different in each of these cases.

Deciding the number of episodes and the objectives for each

1 Whole lesson (or significant portion of lesson) concentrating on collecting information

A starter and introduction are completed, in which the objective and outcome are shared with pupils and links are made with previous learning.

Episode 3: This establishes exactly what information is to be gathered, how much is expected and how it is to be presented. The teacher could use strategies such as questioning or small-group discussion.

Episode 4: Pupils gather information in groups or individually for a defined period of time (approximately 15 minutes), after which the teacher asks a selected group(s) to say what they have found so far and to identify any difficulties with the task.

Episode 5: Teacher input refines the task or solves some problems, then pupils continue to gather information within the defined time.

Episode 6: A plenary session reviews the task and identifies successes.

2 Whole lesson (or significant portion of lesson) concentrating on sorting and classifying information

A starter and introduction are completed, in which the objective and outcome are shared with pupils and links are made with previous learning.

Episode 3: The teacher clearly defines the sorting/classifying task. Pupils work in small groups to complete the task in a given period of time (5 to 10 minutes). The teacher reviews with pupils what has been achieved and any hypotheses they may have generated and may ask for a short written response.

Episode 4: The teacher clearly defines the next task with the objective of refining or reclassifying material. Pupils work in small groups to complete the task in the defined period of time.

These episodes may be repeated.

Episode 5: A plenary reviews what has been learned and leads forward to the next lesson by considering how pupils may begin to test any hypotheses they have.

Example of a lesson planned to develop a concept using the inductive approach

Lesson sequence

Year 8 art (60 minutes). The teacher's lesson objective is that pupils will appreciate that there are different styles of painting and that there has been chronological development.

When pupils come into the room a colour transparency of a Van Gogh painting is projected onto the screen. Pupils are asked to think of six questions to ask about the picture, working in pairs.

Within 5 minutes the teacher is asking for suggestions and, through questioning (a strategy), reminds them of technical vocabulary.

She follows this episode by explaining the purpose of the lesson and tells pupils that, by the end of the lesson, they will look again at the painting and see what they have learned about it.

The class is divided into groups of six, and each group is given a selection from among 12 pictures of paintings representing different styles – one per pupil.

Working in pairs, pupils are asked to find at least 5 but possibly up to 10 things to say about their painting using technical language. They are given 5 minutes.

To complete this episode the teacher selects a pair of pupils to describe their picture to the class, using the opportunity to praise the use of vocabulary.

Pupils are told that the next task is for pairs to describe their pictures to the rest of their group and whilst doing so to note what parts of the picture or aspects of the picture the group finds important to talk about in their description. They have 6 minutes for the task.

To complete the episode the teacher asks for contributions to a list of important features, which she writes on the board.

The next task is for groups to categorise their pictures into two or more sets and to be able to say why the pictures belong together. They have 10 minutes for this.

The episode concludes with each group describing their choice of categories, each group taking about 3 minutes.

For the plenary session the teacher puts the Van Gogh picture back on the screen and asks pupils individually to write down eight things that they would say to describe it.

She asks them to reflect on whether they have improved their observation skills over the lesson.

She then tells them how this will lead into the next lesson, when they will be thinking about the way in which painting has developed over the years.

Commentary

This concept will be developed over several lessons and will be revisited throughout the course.

This starter will get pupils thinking about describing paintings.

The vocabulary will be used in the lesson.

Objectives and outcome are made clear in the second episode – the introduction.

The third episode in the lesson is designed to make pupils consider the data.

Working in pairs ensures that all are engaged. The time limit is important and the pupils know what is expected.

This episode causes pupils to become more analytical about their choices of things to look for in categorising.

In this episode pupils are beginning to formulate concepts and create linkages.

Planning episodes when using the enquiry approach

The following sequence describes the enquiry approach.

1. Pupils are introduced to a problem and invited to formulate hypotheses about possible solutions.

2. Pupils consider what data they would need to test the hypothesis and how this would be gathered. They may at this stage make a prediction about the patterns in the data they would expect to see if the hypothesis were correct.

3. Pupils gather the data.

4. Pupils interrogate the data, looking for patterns.

5. Pupils draw conclusions based on the data that either support or refute the hypotheses.

It is not necessary to go through every step in this sequence – for example, pupils may be presented with a data set – and the sequence may cover more than one lesson. A number of subjects lend themselves to the enquiry approach – for example, investigations in mathematics, science, D&T, history and geography. In many cases the data can be secondary data.

Example of a mathematics lesson using the enquiry approach

Lesson sequence	Commentary
Year 8 class (mathematics). The lesson starts with the teacher introducing pupils to the meaning of 'hypothesis' and inviting them to suggest a number of possible hypotheses in the context of transport to school. Pupils work in pairs and then quickly give feedback.	*Pupils suggest hypotheses such as 'some pupils cycle to school because they are taller' or 'some walk to school because they live closer'.*
The teacher then briefly outlines the lesson: how it will be broken down, what the objectives are and what outcomes he is expecting. One hypothesis to test is selected.	
In the next episode pupils work in pairs then in fours to discuss what data they need to collect and how they will collect it. Once agreed in fours, they move to a group of eight and share their ideas and give feedback.	*This snowball allows all pupils to take part in a discussion. Feedback from eights is quick. By the time pupils have done this they have a clear idea of how to proceed.*
Next, pupils gather the data they require. The teacher suggests they collect data on Year 8 pupils; other classes are also involved.	*At this point the teacher has additional data from a previous year which can be added.*
The next step involves pupils plotting graphs of the data they have collected and drawing some tentative conclusions.	
The final episode involves the whole class discussing what conclusions they can draw from their graphs, with the teacher conducting the discussion.	*This final episode not only helps pupils draw conclusions, but allows them to reflect on how they could improve the design of their investigation.*

Classroom assignment   **30 minutes**

Extending your range of pedagogic approaches builds your teaching repertoire.
The last two approaches encourage the development of pupils' thinking skills.
The first encourages pupils to think inductively, the second deductively. So using
a range will help develop their ability to learn effectively.

Choose one of the approaches with which you are not familiar and invite an
advanced skills teacher, consultant or group of teachers to work with you on
developing the approach. You could start by teaching something familiar using a
different approach such as inductive or enquiry. Work with others to evaluate the
impact of the approach.

Summary of research

Interacting with the whole class

Whole-class interactive teaching has been identified by researchers as being
effective in raising attainment. Early teacher effectiveness researchers in the USA,
using classroom observation, gradually started to find patterns which indicated that
more effective teachers (i.e. teachers whose students made stronger gains on
standardised achievement tests) tended to teach the whole class actively, spending
significantly more time than ineffective teachers explicitly lecturing, demonstrating or
interacting with the class (Rosenshine 1979).

A British study is that of Mortimore et al. (1988), who collected an immensely rich
database with information on children, their classrooms, their primary schools and
their individual characteristics, utilising a cohort of children followed through the four
years of British junior school education. Generally, Mortimore et al. found, as with
Galton in secondary schools, that teachers were spending much more time on
communicating with individual children than on whole-class teaching or facilitating
collaborative group work.

At classroom level the characteristics of effective teachers were:

- taking responsibility for ordering activities during the day for pupils, i.e.
  structuring teaching;

- giving pupils some responsibility for their work and independence within these
  sessions;

- maintaining high levels of interaction with the whole class;

- providing ample, challenging work;

- maintaining high levels of pupil involvement in tasks;

- creating a positive atmosphere in the classroom;

- giving high levels of praise and encouragement;

- using a variety of approaches, strategies and techniques.

Pedagogic approach and structuring learning

It has been recognised by contributors such as Olson and Torrance (1998) and others that, to be effective, teachers need to deploy a range of different pedagogic approaches and teaching strategies to meet the needs of the subject, to address the type of objective and to match the maturity of the pupils. Researchers such as Joyce et al. (2002) argue that there is a range of pedagogic approaches that not only are 'tools for teaching' but also provide 'models for learning'. They separate the pedagogic approaches into different families, depending on the type of objective for a lesson or part of a lesson. The information-processing family, designed to meet objectives about acquiring knowledge and understanding, includes approaches such as inductive thinking, concept attainment, scientific enquiry and cognitive growth. The social family, designed to meet objectives about exploring perspectives on a problem and exploring solutions to complex issues, contains role-play, group investigation and social enquiry as approaches. A third family is focused on changing behaviours and includes direct teaching, mastery learning, social learning and simulation. These can help to meet objectives about acquiring new skills, learning procedures, applying ideas and developing knowledge.

These families of pedagogic approaches all have one thing in common: they are all highly structured with distinct stages, or episodes. Research suggests that, when a teacher designs a lesson, each episode in the sequence needs to be planned in advance, even down to the questions the teacher will ask at each point.

References

- Much British research has studied the overall organisation of the classroom. The notable ORACLE study (Galton and Croll 1980; Galton and Simon 1980. Croll, P. (1996) 'Teacher–pupil interaction in the classroom'. In P. Croll and N. Hastings (eds) *Effective primary teaching*. David Fulton. ISBN: 1853463949.

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Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- Try varying the length of your teaching episodes and note what effect it has on pupils. What is their time-limit capacity? Is there a difference in the optimum episode length for different groups? Challenging pupils and those who tend to make slower progress benefit from shorter episodes.

- Over time build a wider teaching repertoire. Start with strategies and techniques if you are less confident or with a wider range of pedagogic approaches if you are more confident. For example, as an advanced skills teacher or head of department, you could develop a wider repertoire of pedagogic approaches such as inductive teaching, learning to think metaphorically by teaching through analogy (see Joyce et al. 2002).

- Work with a colleague who is teaching a parallel group. Choose a particular lesson from the scheme of work and design two different lessons, e.g. in a lesson that is to develop a concept, one teacher uses the inductive approach using questioning as a strategy and the other direct interactive teaching using explaining as the main strategy. Compare the outcomes: was there a difference? If so, which features were successful?

For further reading, the following publication is recommended:

- Joyce, B., Calhoun, E. and Hopkins, D. (2002) *Models of learning: tools for teaching*. Open University Press. ISBN: 0335210155.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   40 minutes

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?

- What are the expected outcomes in terms of pupils' achievements?

- What strategies will you employ to achieve these outcomes?

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Raising
Standards
Standards and Effectiveness Unit

INVESTOR IN PEOPLE

Cambridge University Press 09-2004

Pedagogy and Practice: Teaching and Learning in Secondary Schools

Unit 2: Teaching models

Designing lessons

department for
education and skills
creating opportunity, releasing potential, achieving excellence

How to use this study guide

This study unit offers some practical strategies that teachers can use to improve their understanding and selection of different teaching models. The techniques suggested are tried and tested; they draw on both academic research and the experience of practising teachers.

By working through this guide you can build your teaching repertoire step by step, starting with strategies that are easy to implement and moving on to those that will help pupils develop their skills still further. The unit contains 'reflections', to help you reflect on an idea or on your own practice, as well as practical tips and tasks to help you consider advice or try out strategies in your classroom. There are case studies to exemplify particular points, a summary of the research and some suggestions for 'next steps' and further reading. The final page invites you to reflect on the material and to set your personal targets for the future.

You can work through this unit in a number of ways:

- Start small; choose one class to work with. Ask another teacher to help by talking through what you intend to do and to act as a mentor.

- Work with another teacher or group of teachers who teach the same class. Work together on developing your approach to selecting and using different teaching models. After three weeks compare notes. Discuss which strategies are the most effective and why.

- Find someone to pair up with and team-teach. Design the tasks together and divide the role of teacher in the lesson between you.

- Work with a small group of teacher-researchers within your school. Use the guide to help you focus your work as a professional learning community.

- Identify sections of the unit that are particularly relevant to you and focus on those.

There is space in this study guide for you to write notes and responses to some of the questions, but you may also find it helpful to keep a notebook handy. For some tasks, you might want to make an audio recording or video of yourself in action so you can review your work more easily. You could add this, along with any other notes and planning that you do as part of your work on this unit, to your CPD portfolio.

The evidence of work you gather in your portfolio could count as points towards accreditation of an MA, or could support your application for membership of a professional body, such as the General Teaching Council of England (GTCE). It could also be used to support an application to reach threshold or Advanced Skills Teacher status.

You will need access to video sequence 2, Teaching models, when working through this unit.

Teaching models

Contents

Introduction

Successful lessons:

- are broken into teaching episodes, each with learning objectives and outcomes;

- have opportunities for praise and for assessment for learning;

- use an appropriate teaching model (pedagogic approach) to meet the objectives.

Common issues

Lessons seen as being, at best, 'satisfactory' are those which appear to lack direction and purpose: the structure is weak; pupils are not engaged in their learning; the focus of the lesson is on the teacher, not the pupils; tasks and activities do not always contribute to the learning objectives outlined for the lesson; and pupils often are not clear about what it is they are learning.

Resolving the issues

The content of teaching episodes will be influenced by the pedagogic approach that you choose. You will have seen in unit 1 Structuring learning that researchers have identified a variety of approaches to teaching. Each approach to teaching has a defined sequence of stages or episodes. This unit looks further at the three approaches: direct, inductive and exploratory, which were reviewed in unit 1. It also looks at other approaches to teaching that have been identified as developing successful approaches to learning. You will be invited to review your own teaching to identify which of the teaching models analysed are applicable to your subject. In task 9 you will have the opportunity to further explore one of the teaching models, to implement it in your own lessons and evaluate its impact on your teaching.

Beginning to analyse your pedagogic approach   **10 minutes**

Review the three teaching models – direct, inductive and enquiry – introduced in unit 1, page 14 and identify the models which exemplify, most closely, how you approach your subject teaching.

- Reflect on the key features to help you with this task.

- Note down why you feel particular aspects of your subject benefit from the model of teaching you have identified.

1 Developing your teaching: principles that encourage and stimulate learning

Teaching is a complex process. Complexity increases as we factor in assessment and pupil achievement; raising standards; the variety of experience that every classroom presents; and changes to curriculum models and subject specifications. Reviewing and refining the teaching process is necessary for teachers to be able to meet the demands of the changing classroom.

What you know as a teacher is not confined to your subject or 'content' knowledge. As a teacher you should expect to know about how the content is defined for the range of pupils that you teach and about the common misconceptions that are a feature of your subject and how to deal with them, e.g. by using appropriate models and analogies.

You will know about general principles and strategies of classroom management and organisation, about the pupils you teach, about the community in which your school is situated and about the aims and values of the education system in which you work.

As a teacher you make decisions all the time about how you will apply your different knowledges in order that pupils might learn effectively. You will identify appropriate learning outcomes and plan how best to ensure that these outcomes are to be met in the lessons you teach. This will involve selecting and preparing resource materials to enable all pupils to progress in their knowledge, skills and understanding.

The knowledge that you have about your subject, the curriculum and the decisions that you make will inform how you teach and how you organise the classroom to focus on pupils' learning. Your knowledge about the pupils and their rates of progress will change your view of the teaching process for each class that you take: you will amend your 'teacher actions' to foster appropriate learning opportunities.

You may have determined from task 1 that you have one preferred model of teaching. Alternatively, you may have found that you are applying a variety of pedagogic approaches dependent upon the subject content and upon the pupils you are teaching.

Teaching for learning

The combination of knowledge, decisions and action should provide an impetus for effective teaching in the classroom. Effective teachers promote effective learning in a culture of high expectations. Pupils achieve more when lessons are well structured and sequenced (see video sequence 1c), when teachers make objectives clear and where pupils know what they are supposed to be learning. Effective teachers interact with pupils through targeted prompting and feedback and review learning and pupil progress regularly. They see the development of themselves as teachers as a continuous process.
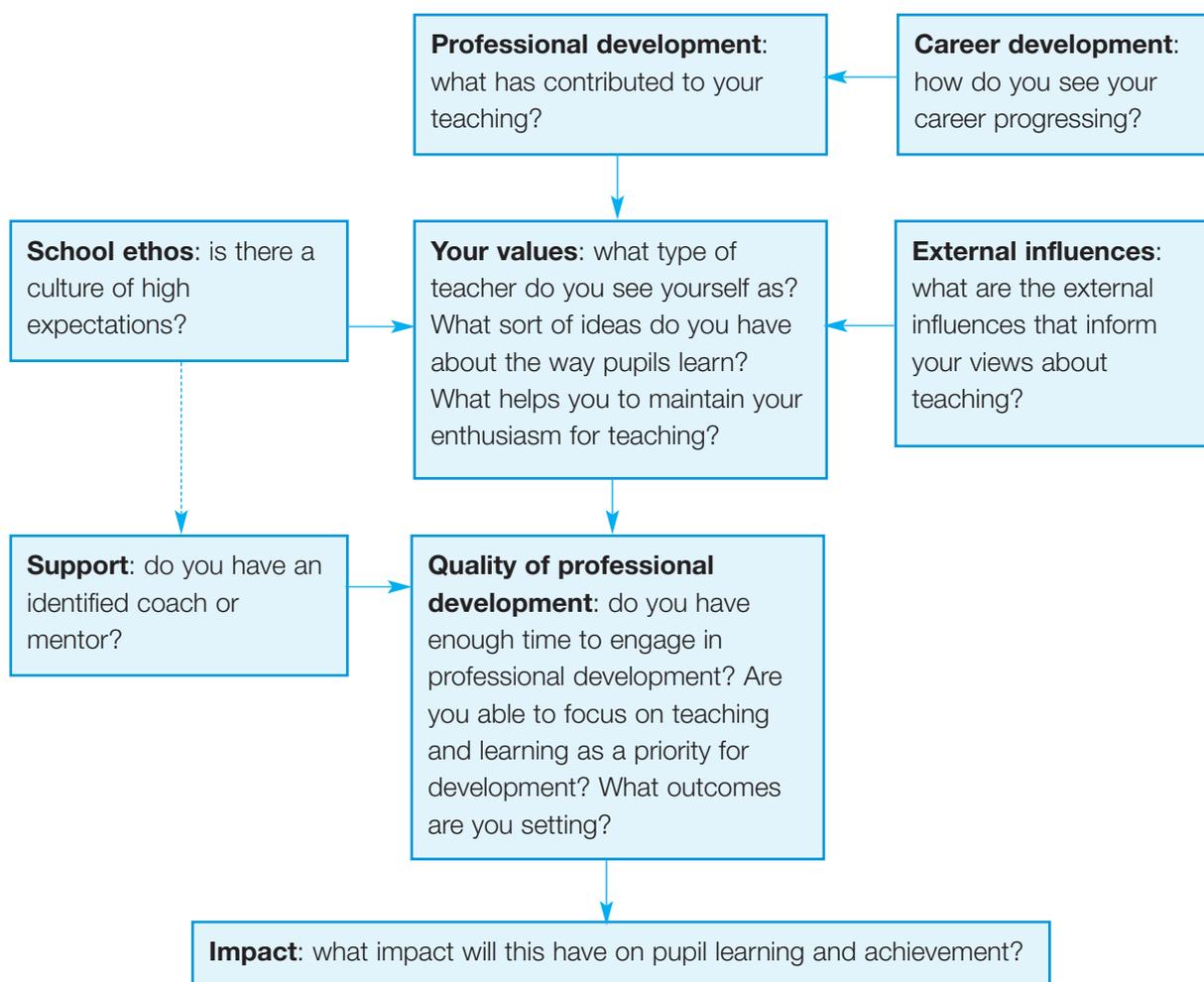
Task 2	Effective teaching – effective learning	30 minutes

The diagram below describes the factors that contribute to effective learning. Each factor has associated questions and prompts for you to consider.

Jot down your responses to the questions and prompts as you work through the factors – how does your preferred teaching style encourage and stimulate learning?

Professional development: what has contributed to your teaching?

Career development: how do you see your career progressing?

School ethos: is there a culture of high expectations?

Your values: what type of teacher do you see yourself as? What sort of ideas do you have about the way pupils learn? What helps you to maintain your enthusiasm for teaching?

External influences: what are the external influences that inform your views about teaching?

Support: do you have an identified coach or mentor?

Quality of professional development: do you have enough time to engage in professional development? Are you able to focus on teaching and learning as a priority for development? What outcomes are you setting?

Impact: what impact will this have on pupil learning and achievement?

Skilful teachers create effective learning situations and promote powerful learning. The impact of the teacher and the approaches to teaching that are selected cannot be overstated.

Some teaching models not only help to develop pupils' understanding of the subject-matter being taught, but can also, if approached in the right way, provide pupils with a tool they can use to support their own learning – both now and later in life. Inductive teaching, for example, requires pupils to sort, classify information and generate hypotheses and/or rules. The process of thinking inductively can be a powerful tool for solving problems, as can deductive reasoning.

Teaching in these ways can provide pupils with skills and techniques they can use later in life. This will only happen, however, if the teacher not only *teaches* the lesson, but also makes explicit what they are doing through the use of metacognitive processes and by involving the pupils in 'thinking through' the lesson.

2 Developing your teaching: metacognition and teaching for learning

Metacognition is broadly thought of as 'thinking about thinking' and enables us to become effective learners. As such, it has an important function in any model of teaching which requires pupils to identify how they are going to approach tasks and activities, which checks on pupil understanding and which evaluates how pupils are progressing towards the completion of a task or activity.

Teaching for metacognition

There are five elements in lessons which use metacognitive approaches successfully:

- **Concrete preparation**: setting the scene for the pupils by explaining the focus and direction of the lesson. This will include a discussion about the learning objectives and learning outcomes of the lesson, and the way that pupils are going to work in order to meet the specified learning outcomes. It may also require pupils to recall aspects of the subject learned in prior lessons, or to present their ideas about the 'problem' being considered in the current lesson.

- **Action**: the pupils work on the tasks and activities presented to them – they must, however, be given opportunities to check their work against the expectations that have been set and to question their approach to the work they are doing. Science teachers using the Cognitive Acceleration in Science Education (CASE) approach will know this element as *construction*. The pupils are asked to think about their ideas about the solutions to the tasks they have been set, and about the reasons for those solutions. Their thinking is also challenged through a process of 'cognitive conflict' where situations which do not fit pupil-generated generalisations or match their expectations, have to be reconsidered.

- **Metacognition**: here the pupils are given opportunities to outline their thinking about the work they have been doing. The focus is on the evidence for their conclusions. The teacher's role here is to ask strategic questions which enable all the pupils to identify the key aspects of the problems they have been working on.

- **Bridging**: this element of the lesson is very important in making the pupils see how what they have learned in one lesson relates to other aspects of their learning. It plays an obvious role in focused starters and plenaries, and also in the transitions between one lesson episode and the next.

- **Mediation**: teachers need to be sure that the pupils understand the nature of the tasks and activities they have been allocated, to keep pupils on track and to identify where pupils are having difficulties in engaging with the subject.

Case study 1

A class of Year 8 pupils is being reintroduced to spreadsheet modelling. They are looking at how models can be used to identify when a school fête becomes profitable. They also look at the range of tools and techniques they can employ to make the model more efficient. The teacher focuses on questions and activities that require the pupils to set targets for achievement and understanding.

- What elements of teaching for metacognition are applied in the episodes of this lesson?

- How does the teacher build 'bridging' into the lesson?

Lesson episode	Teaching for metacognition
Starter: the pupils are asked to reflect on their prior learning and to identify the components of a spreadsheet. The teacher questions understanding and uses pupils' responses to make assessments of the range of knowledge and experience they have.	**Concrete preparation and bridging** Teacher: *What tools do we have in spreadsheet packages that can help us to solve problems?* *You have five minutes to complete this task.*
Episode 2: outlining the aim of the unit – the teacher explores with pupils the benefits of using spreadsheets to create a model, and explains the objectives for the lesson.	Teacher: *We are learning about how a spreadsheet can be used to model what will happen if circumstances change. We will learn more about the tools and making the model more accurate.* *The context will be a school fête but we will consider where else we could use this approach to problem solving.*
Episode 3: using and interrogating a model – the pupils load a file from the shared area. The teacher uses this file to point out the key issues that pupils need to consider.	Teacher: *How are you doing?* *Are you on the right track here?* *What do you need to remember? What did we say about variables in the starter activity?*

Case study continues

The task requires the pupils to work in pairs to identify how the school fête model has been set up and to explore the impact of changing variables.	*Can you explain why you think changing the variables affects the amount of money the school fête makes?* *Don't forget to ask me for help if you need another explanation.*
Episode 4: making the model more efficient – the teacher discusses the trial-and-improvement method for finding out when the school fête breaks even. The teacher then introduces a function that makes the process more efficient. The pupils then use the function to explore its impact on the model.	Teacher: *What do you think is happening when we use this function?* *What do you think the message 'found a solution' means?* *Why do you think the answer is not an integer? Can we have part of a person coming to the school fête?*
Episode 5: plenary – reviewing the model – the pupils are asked to consider what makes a good model, and then to reflect on the school fête model they have been using. For homework the pupils are to collect information about the cost of running two types of mobile phone.	Teacher: *Is the school fête model a good model? What makes you think that?* *How accurate is the model?* *How can we find out how accurate it is?* *Can we improve it?* *What do we need to know if we want to improve it?* *Where else might this approach be helpful, and why?*

Task 3

Planning for metacognition — 30 minutes

Select a lesson plan from your scheme of work for one of the classes you teach.

Use the list of elements and the case study to identify opportunities for developing metacognitive learning.

Identify teacher questions and pupil questions that will help the process.

What extra resources will you need to prepare?

3 Models of teaching – developing effective learning

In this section of the unit five models of teaching are explored. It is important at this stage to remember that teachers apply a variety of pedagogic approaches dependent upon the subject content and upon the pupils being taught.

Inductive teaching

Inductive teaching is a model which encourages pupils to categorise the subject knowledge, skills and understanding they are learning, and to test and use those categories in challenging their level of understanding. It is a model that nurtures thinking skills and allows pupils of all abilities to process the information at their disposal effectively.

This teaching model is very powerful in helping pupils to learn how to build knowledge and as such is closely related to constructivism as a support for pupil learning. Inductive teaching is intended to help pupils to master large amounts of information. The inductive model requires pupils to sort, classify and re-sort data to begin to make hypotheses that can be tested in future work. It is used when teachers want to explore the concepts that underpin subject knowledge, and want pupils to recognise the ways in which their knowledge is constructed.

There are six phases in the inductive teaching model, which can be divided into episodes.

- Outline the nature of the problem and clarify the objectives and learning outcomes.

- Put together the first data set and label the items of data.

- Examine the items in the data set and identify the attributes that they have.

- Classify the items in the data set, share results and add data to the set and prompt a reclassification (this may happen a number of times).

- Identify any differences between the categories and group categories as appropriate.

- The final phase involves looking again at the resource materials to identify any other items of data that can add richness. This is then pulled together by writing about the problem being researched, using the categories to structure the writing.

Inductive teaching in practice

A Year 10 history class is exploring the factors which contributed to the outbreak of the First World War. One of the learning outcomes of this topic is the understanding that the assassination of Archduke Franz Ferdinand in Sarajevo in June 1914 was not the only cause of the war. The use of a series of lessons using the inductive method allows the pupils to understand the relationship between the factors in some depth. In the first lesson the teacher puts the class into groups of four. The pupils are told that they have to collect information about the causes of the First World War from a range of different sources and to record their findings on a form set up by the teacher in advance of the lesson.

During the lesson all groups collect the data from their allocated sources using the form and complete this by the end of the lesson. The second lesson involves the groups putting the factors into groups using their own sets of criteria (prompted by the teacher). The pupils are given a sheet to record their factor groups and to identify the common issues that prompted them to put the factors together.

During the plenary the teacher asks each group to present one of their factor groups to the class. This is recorded on the board. All the other pupils have to suggest possible reasons for categorising the factors in this way.

The teacher pulls this together by highlighting the causes of the First World War.

This provides the basis of the third lesson that covers the generation of hypotheses. Using the data the pupils have collected, and the teacher's guidance during class discussion, the class comes up with examples of hypotheses, which the teacher records on the board using prompts such as: 'Had Britain come out clearly on the side of Belgium and France earlier in July, war would have been avoided'; 'France was "desperate for revenge" after the disastrous defeat against Germany in 1871'.

Task 4

Observe and analyse an inductive lesson   20 minutes

Video sequence 2a shows a Year 9 English lesson which uses inductive learning to build pupils' understanding of the persuasive writing strategies used in advertising.

Watch the video sequence and identify the main stages of the inductive approach.

The teacher has planned the lesson so that it progresses from individual consideration of the information (the cards with advertising slogans) to paired and then group work. How does that sequence help to make the lesson more effective? More information on this techique can be found in unit 10 Group work.

How does the teacher help the pupils crystallise and consolidate what they have learned from the classification task?

How does the teacher get the pupils to apply what they have learned?

In the lesson the information or 'data set' is presented in the form of a series of cards with brief written extracts. What other forms would be applicable in your own teaching?

Discuss with a colleague when an inductive learning approach would be most appropriate to help pupils develop understanding in your subject, and jointly trial the approach in one lesson.

Deductive teaching

Deductive teaching focuses on subject concepts and, specifically, on the pupils' understanding of 'the concept rule': a definition or rule which is stated about the topic of the lesson.

For instance, if a teacher of English wishes to teach about phrases, they may create the concept rule as 'phrases are not sentences'. Similarly, with a concept of democracy in a citizenship lesson, the concept rule might be that 'Democracy is government of the people by the people'.

Concept rules are defined by their critical attributes: those attributes that must exist for the rule to be 'true'. For example, a critical attribute of a sentence is that it begins with a capital letter; a critical attribute of a war is that it involves two opposite forces in some type of conflict.

Getting to the critical attributes is certainly helpful for pupils. However, understanding the concept, and being secure in their understanding, requires pupils to identify the non-critical attributes: those characteristics which might be present for the concept to match the concept rule. For example, a non-critical attribute of a sentence is that it may or may not end with a full stop. (*Punctuation* is a critical attribute, but th*e full stop* is non-critical because sentences may end in different ways according to their meaning.)

The deductive teaching model has fives phases which can be divided into episodes.

- The teacher begins the lesson with the concept rule, or a statement of what the pupils will attempt to prove during the lesson.

- The teacher provides some examples which show proof of the concept rule.

- The teacher, through questioning of the pupils, identifies the critical attributes and the non-critical attributes which are essential and non-essential characteristics of the concept.

- The teacher follows this by showing examples and non-examples of the same concept to the pupils.

- The pupils must categorise the examples or non-examples (those which do *not* show essential characteristics of the concept rule) by explaining why they do or do not fit the concept rule being discussed.

The deductive teaching model in practice

- In a mathematics lesson pupils may use a computer to learn about the relationship between the number of sides in a regular polygon and 360 degrees.

- The teacher presents the concept rule: the number of degrees in the internal angles of a regular polygon must equal 360 degrees.

- The teacher defines a regular polygon and then shows the pupils examples, possibly objects in the classroom which have the desired qualities as well as mathematical props.

- The pupils, with guidance from the teacher, identify the characteristics that must be present for the object to be a regular polygon.

- The teacher then elicits the non-critical attributes of a regular polygon (i.e. shape is non-critical or non-essential as long as it meets other characteristics, meaning it could be two- or three-dimensional, or have any number of sides; size is also non-essential; weight is non-essential to the concept rule; etc.).

- The teacher shows more examples of a regular polygon, but mixes them in with non-examples. The pupils must distinguish the difference and verbalise it.

- The pupils should then test their understanding of the concept by testing it out using procedures in the computer program.

Task 5

Deductive teaching   15 minutes

Think about how the model described above could fit your teaching situation: your preferred styles; the pupils you teach; your school environment and your subject.

- Are there aspects of metacognition applied in deductive teaching?

- To which aspects of your work would a deductive model be best applied?

- When is it not likely to be appropriate?

- Is this a model you could apply – see task 9?

Teaching using metaphor

Teaching through metaphor, or *synectic teaching*, provides opportunities for pupils to see familiar ideas from a new perspective, or to engage with unfamiliar concepts in a meaningful context.

This teaching model assumes that creativity is fundamental: we all have the desire and skill to do something creative, no matter how capable we are. By harnessing the creative urge, we can enhance the educational reward. Pupils benefit by acquiring both the necessary skills and the critical power to reflect on and analyse the learning that has taken place.

Using metaphor to teach subjects across the curriculum provides the opportunity to problem-solve in a variety of ways that might normally be thought of as illogical or ridiculous. Teaching using metaphor may be seen as offering something of value only to literate subjects such as English or drama, but the element of 'thinking outside the box' is what encourages innovation in science or invention in technology.

Teaching using metaphor encourages creative thought in order to move teacher and pupils away from expected to unexpected solutions to problems.

Five phases can be identified in the synectic teaching model, which can be divided into a series of episodes.

- **Recognising the familiar**
  Pupils are introduced to the topic of the lesson and asked to identify what they can remember about the subject and what characteristics they can recall.

- **Direct analogy**
  Here the teacher and pupils explore the relationship between two objects or concepts. For example, pupils in a science class may be asked why the eye is like a camera, or why the DNA molecule is like a spiral staircase. These questions are important in that pupils can relate what they know to an idea that is new to them. It allows them to build new connections between two quite different ideas.

- **Personal analogy**
  Pupils are encouraged to empathise with the ideas or problems being compared; to express how they might feel if they were immersed in the problem. In personal, social and health education they may, for example, want to express how they would feel as a heart trying to pump blood through restricted blood vessels.

- **Compressed conflict**
  During this stage pupils are asked to provide a two-word description of an object, person or situation. These words need to appear to contradict each other and so make new connections between ideas and engage in higher-order thinking.

- **Making the connections**
  During the fifth phase pupils look at the pairings of words and use them to write about the topic they are exploring.

The synectic model in practice

- In a science lesson, pupils are put into groups of five and asked to jot down things they know about the heart. They do this individually and then share their ideas with other members of the group and agree a single set of characteristics about the heart.

- The pupils are then asked to respond to some direct analogies written on the board by the teacher:
  - How is the heart like a water pump?
  - How is the heart like a dancer?
  - How is the heart like a clock?

- The next phase requires the pupils to make personal analogies with prompts from the teacher: be a lion, how do you feel; be a butterfly, what are you like? This phase will generate lists of words that will be used for the fourth phase of the lesson.

- Using the words from the two lists they have generated, the pupils are asked to put pairs of words together (one from each list) which seem to contradict each other, for example:
  - majestically weak;
  - fragile power;
  - fluttery resting.

- In phase five pupils are asked to make direct analogies between these word groupings.
  - 'Give me an example of fragile power.'
  - 'What does fluttery resting look like?'

- Having made these analogies and discussed their answers with their group, the pupils are then requested to go back to their first set of notes about the heart and to write another paragraph using the point of view of one of the direct analogies. For example:

  The heart is a very important organ. It is strong and powerful, but also very fragile. The power that it has can be swept away by little globules of fat.

Task 6

Teaching through metaphor   **15 minutes**

Think about how the model described above could fit your teaching situation: your preferred styles; the pupils you teach; your school environment and your subject.

- To which aspects of your work would this model be best applied?
- When is it not likely to be appropriate?
- Is this a model you could apply – see task 9?

Teaching for concept attainment

You will already have noted that other teaching models use exploration and development of concepts. You may also recognise opportunities to develop metacognition through concept attainment.

The concept attainment model requires pupils to look in detail at concepts that are defined for them, and to develop their understanding of the concept by exploring attributes and non-attributes of the concept. This model focuses on the development of pupils' abilities in acquiring, controlling and remembering information.

It provides pupils with opportunities to engage deeply with ideas, to recognise the possibility of alternative and opposing perspectives. It is important that pupils recognise the possibility of a range of explanations.

There are three phases in teaching for concept attainment, which can be divided into episodes.

- During the first phase pupils are presented with information, some of which relates to the concept, while the rest does not. The pupils need to focus on the differences and similarities and to arrive at a hypothesis about the nature of the 'idea' by comparing the two sets of data they have.

- In the second phase the pupils need to test their understanding. This can be achieved by adding more unlabelled data which the pupils must categorise appropriately: does it fit with their hypothesis or not? They can also be asked to generate their own examples.

- In the final phase pupils begin to analyse the thinking that underpinned their work in the lesson, and to consider how they arrived at their conclusions.

The concept attainment model in practice

In a Year 7 PE lesson the pupils are planning how to complete a solo orienteering course. The teacher has identified sets of data to illustrate the concepts that underpin orienteering, and presents pairs of attributes to the pupils – some that are representative of the concept, others that are not.

After the pupils have seen two or three pairs of attributes each pupil should note down what they think is common to all the 'positive' exemplars.

The pupils are then presented with a few more pairs of attributes and asked whether this matches their ideas of what made the attributes fit together. If it doesn't they are asked to think again about their original concept.

During the next phase the pupils are shown individual attributes and asked to accept the ones that fit their concept and to reject those that do not. This needs to be repeated until the teacher feels confident that the pupils can explore the question: 'What is the main idea that we're trying to explore here?'

The teacher needs now to collect feedback from the pupils and to confirm views about the concept by using examples from the list of positive exemplars. It is important that the pupils are then given the opportunity to relate the concept model they have generated to the completion of the solo orienteering course. They should be able to say how the ideas they have explored help them in their planning.

Concept attainment   15 minutes

Think about how the concept attainment model could fit your teaching situation: your preferred styles; the pupils you teach; your school environment; your subject.

- To which aspects of your work would a concept attainment model be best applied?

- When is it not likely to be appropriate?

- Is this a model you could apply – see task 9?

Teaching to construct meaning

Constructivists argue that the ability to solve problems and apply reasoning using the knowledge, skills and understanding gained in previous experiences is a vital aspect of learning.

Constructivist approaches to teaching and learning are so closely focused on the application of knowledge, skills and understanding within a range of contexts, that the teacher's primary role is to identify opportunities to create those appropriate contexts and environments in which pupils can apply critical thinking processes to the tasks in hand.

Constructivists argue further that learners, in developing their problem-solving skills, require teachers who participate in the learning process rather than in the transmission of knowledge: the teacher here is responsible for the development of guided activities and tutorial guidance. Here teachers are allowing pupils to make sense for themselves of the problems they have been given, to explore the ideas they have begun to develop, to arrive at solutions and to knit all their experiences together to reach a conceptual understanding of the practice and principles of the subject being studied.

Constructivism is, however, a construct for learning and not a teaching model. The teacher's role in the constructivist classroom is that of facilitator and manager and it is from these viewpoints that we can look at teaching to construct meaning.

There are four key phases in developing construction for meaning.

- The first element is the planning stage, and the identification of what it is pupils bring with them to the lesson. What knowledge, skills and understanding do they have, and what is it that needs to be taught prior to this learning experience that will give the pupils a foundation from which to move forward? A first episode in a lesson would be used to elicit what pupils already know (or think they know) about the subject.

- The second element requires the teacher to outline the main concepts that are to be developed during the lesson; exploring with the pupils the new knowledge, skills and understanding that are to be developed.

- During the third element of the lesson, both teacher and pupils need to identify how the new knowledge relates to what it is they know already. How does the context in which they are working relate to previous experiences? What does this tell us about the new learning that is taking place?

- The fourth element involves the assessment of pupil understanding.

Running alongside these elements are opportunities for reflection, review and recontextualisation. Reflecting on what is being learned, reviewing progress and looking at how the knowledge, skills and understanding can be employed elsewhere are strands that bind the elements of the learning together. The teacher's role in managing this process is extremely important. It is often referred to as 'scaffolding'.

Teaching to construct meaning in practice

In a Year 7 lesson in mathematics, pupils are exploring ways to add and subtract whole numbers. They have had some problems in developing their understanding of the concepts involved. The teacher has decided to focus on specific problems and to encourage the pupils to work in pairs and to sort out errors themselves.

During the starter activity the teacher is exploring the concept of place value with the pupils. Using a place value chart, pupils are asked to demonstrate and explain the number 7023, and other similar examples.

They then explore the effect of adding 2 to 199, then 999 and then writing in digits the number that is 2 more than 1 999 999.

During the second phase of the lesson the teacher wants the pupils to use known number facts and place value to consolidate mental addition and subtraction, and to use standard column procedures to add and subtract whole numbers. The pupils are asked to recall addition and subtraction facts within 20 and complements of 100 using a number line or a 100 square. They explore a range of addition and subtraction problems mentally, discussing their approaches to the solution with their partner. The teacher reviews work as it is progressing and reminds pupils to focus on what they know when they encounter errors. If appropriate the teacher models solutions using the number line or 100 square to focus the pupils on the methods to be applied.

The lesson moves into its next phase. The pupils are asked to think about what they have learned so far, and then to look at the following problems and to choose how they want to approach the answers.

Work out these calculations without a calculator.

For each question, decide whether you:

- can do it in your head;

- need some jottings to help you to get the answer;

- need to use a written method.

 1 523 + 98

 2 436 + 253

 3 345 + 457 + 789

 4 716 + 897

 5 1076 + 57

 6 674 – 233

 7 547 – 289

 8 1784 – 98

 9 6052 – 1567

10 7894 – 8792 + 2358

The pupils, in their pairs, discuss approaches to the problems and their methods of solution. The teacher draws out responses, identifying, for example, that changing the order of calculation in question 10 makes the question easier.

During the plenary the teacher asks pupils to identify particular errors they have made, and uses appropriate examples to relate what they have learned to what they already know, focusing on what new learning will take place in the next lesson.

Task 8	Teaching to construct meaning	15 minutes

Think about how the model described above could fit your teaching situation: your preferred styles; the pupils you teach; your school environment and your subject.

- To which aspects of your work would the constructivist model be best applied?

- When is it not likely to be appropriate?

- Is this a model you could apply – see task 9?

4 Changing practice

The models described above represent a range of teaching models that can be applied in secondary classrooms.

Changing practice   45 minutes

Decide

Which of the teaching models described do you want to explore further?

Reflect

What implications does this have for your teaching? Look back at the notes you made during the task associated with the model you have chosen to apply.

Action

Implement the principles of the model you have chosen in one of your lessons.

Talk

Discuss your plans and the perceived impact on your teaching and on the pupils' learning.

Evaluate

What changes do you plan to make to future lessons as a consequence of this work?

5 Building capacity in school

The table below explains the characteristics of a school or department with a well-developed capacity for improvement in teaching and learning approaches.

Attribute	Examples at whole-school level	Examples at department level	How are you doing?
It routinely shares its expertise	Staff meetings regularly feature teachers demonstrating or illustrating how they teach	Collaborative planning involves teachers sharing their ideas on how work can be delivered. The department shares demonstration lessons with staff	
It uses external support and challenge to enhance practice	Teachers are regularly encouraged to attend external INSET. LEA school advisers are drawn in to contribute to school self-review processes	The department uses the LEA KS3 consultants to observe lessons and provide feedback	
It has a clear, operational focus	The SMT signals clearly that certain items in meetings are significant in improving teaching and learning and ensures they are given significantly more time	Meetings are focused on teaching and learning issues. The team is clear about which items require only a little time. Administrative items are given later slots in meetings	
It has a well-developed set of priorities	It has a clear and operational (not cosmetic) development plan which guides resource decisions and action taken	The department has an action plan based firmly on an audit of teaching strengths and weaknesses. Resource decisions are based on declared priorities of strengths and weaknesses	

It elevates professional development to a continual process	Individual teachers are enabled to watch colleagues teach on a regular and systematic basis	An audit of each team member's skills is used as a basis for termly review discussions and lesson observations	

Summary of research

Structured sessions

Lessons should have a clear structure to help pupils understand the content of the lesson and its relationship to what they already know. Many researchers have found that effective lessons use starters which review and practise what was learned during the previous lesson. This allows the teacher to find out what pupils remember of the content of previous lessons, and to identify what needs to be reviewed in further detail before moving to other learning contexts. This may mean going over homework with the class, and may mean revising schemes of work and planned lessons so that the pupils' learning can be developed appropriately. The objectives of the lesson should be made clear to pupils from the outset, with examples such as 'today we are going to learn about …', or through writing the objectives on the board or on a flipchart.

During the lesson the teacher needs to emphasise the key points of the lesson, which may otherwise get lost in the whole. The teacher also needs to plan for review points which signify the start and end of different episodes of the lesson.

At the end of the lesson the main points should once again be summarised, either by the teacher or, preferably, by the pupils themselves, perhaps by asking the pupils what they have learned during the lesson. Episodes of the lesson can usefully be summarised in the same way during the course of the lesson.

Teachers must also clearly signal transitions between lesson parts such as the start of a new topic or practice of the previous topic. It is also recommended that teachers build opportunities for repeating and reviewing general rules and key concepts, in order to facilitate pupil retention and understanding of the topic. Teachers would also do well to explain such demanding topics using a variety of media and methods, in order to help pupils with different learning styles (Rosenshine and Stevens 1986; Brophy 1992; Borich 1996; Reynolds and Muijs 1999).

Within this overall structure, it is recommended that material should be presented in small steps pitched at the pupils' level, which are then practised before going on to the next step. This allows pupils to gain a sense of mastery over the content and will stop them getting bored or losing the thread of the lesson. Information should be presented with a high degree of clarity and enthusiasm. Teachers need to focus on one point at a time, avoid digressions and avoid using ambiguous phrases or pronouns which can misdirect pupils. They need to focus also on the subject vocabulary being developed and applied during the lesson and to repeat it regularly during the lesson.

Information processing

Cognitive information processing theory is a more recent development. It focuses on memory. The memory consists of three parts: the sensory buffer, the working memory and the long-term memory.

The working memory is where 'thinking gets done'. It receives its content from the sensory buffer and the long-term memory but has a limited capacity for storing information, a fact that limits human mental processes. The working memory contains the information that is actively being used at any one time.

The long-term memory is made up of nodes and connectors: the nodes represent chunks in memory and the links represent connections between those chunks. Information processing theory emphasises the importance of helping pupils to memorise content, by connecting new knowledge to what they already know.

Using real-life contexts

Pupils often experience difficulty in relating their learning to what they know about the world around them. They may also find it difficult to see the relevance of what they are learning. This creates barriers to both learning and teaching. In mathematics the use of real-life materials, such as shopping bills, can enhance the making of these connections and the generation of informal mathematical knowledge. These materials can be brought to class by the pupils themselves, furthering involvement in the lesson (Gravemeijer 1997).

It is important to take into account here that using real-life examples is more than just using words from everyday life in problems that are, as a whole, unrealistic. Many problems use a *context* which only at first sight appears realistic. To be effective, a real-life example needs to connect far more to pupils' actual experience (Gravemeijer 1997).

Making connections

A subject already touched on is that of clearly linking different parts of the lesson and the curriculum. New knowledge needs to be linked to concepts learned earlier and different parts of the lesson should be linked to each other, to knowledge learned earlier and to the curriculum. Subject ideas should not be taught in isolation; a strong focus should be put on the relationship between ideas. This will enable pupils to be better able to retrieve knowledge from memory and to understand how the learning in one lesson links to learning in others. These linkages must be explicitly taught. Teachers can also use questions that ask a pupil to relate a newly taught concept to a previously learned idea (Hiebert and Carpenter 1992; Askew et al. 1997).

This means that teachers must themselves be aware of the connections between different aspects of their subject and the use and application of the subject in different areas of the curriculum. This highlights the importance of good teacher subject knowledge – about both the subject itself and its contribution to other aspects of learning across the curriculum. This is linked to higher pupil achievement (Mandeville and Liu 1997).

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Next steps

This unit has explored an aspect of teaching and learning. You may wish to develop your ideas further, to consolidate, apply ideas in different contexts or explore an aspect in more depth and innovate.

Reflect

What have been the key learning points for you?

What has been the impact on pupils?

Here are some suggestions as to how you may develop practice further:

- follow up some of the suggestions about these specific models by researching them further in *Models for learning: tools for teaching* (see reference below);

- consider undertaking some action research based on your evaluations of the impact of your changed practice;

- identify one teaching group which is likely to respond well to trying out a new model of teaching and learning over a longer period of time;

- review and revise the scheme of work for an examination group who could benefit from using metacognitive strategies in their learning;

For further reading, the following publication is recommended:

- Joyce, B., Calhoun, E. and Hopkins, D. (2002) *Models of learning: tools for teaching*. Open University Press. ISBN: 0335210155.

Setting future targets

Having considered your next steps, you may wish to set yourself some personal targets to support your own continuing professional development. You could use these ideas to inform your performance management discussion.

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Setting your targets   40 minutes

When setting targets for the future you may want to discuss the possibilities with a colleague or your line manager.

Whatever you decide to do, you will need to consider the following.

- What are your objectives for the next year?
- What are the expected outcomes in terms of pupils' achievements?
- What strategies will you employ to achieve these outcomes?
- How will you track progress over the year?
- How will you know whether you have been successful or not?

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