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subject leaders
and teachers in
secondary schools

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Pedagogy and Practice: Teaching and Learning in Secondary Schools

Unit 1: Structuring learning

Designing lessons



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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.

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?

Structuring learning

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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

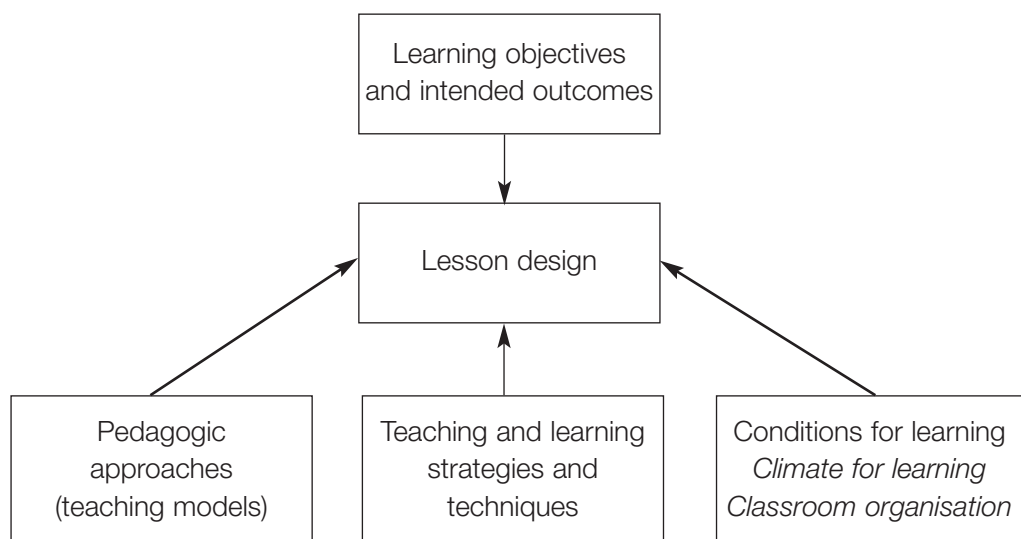
Good lesson design is a key factor in resolving these issues.

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;

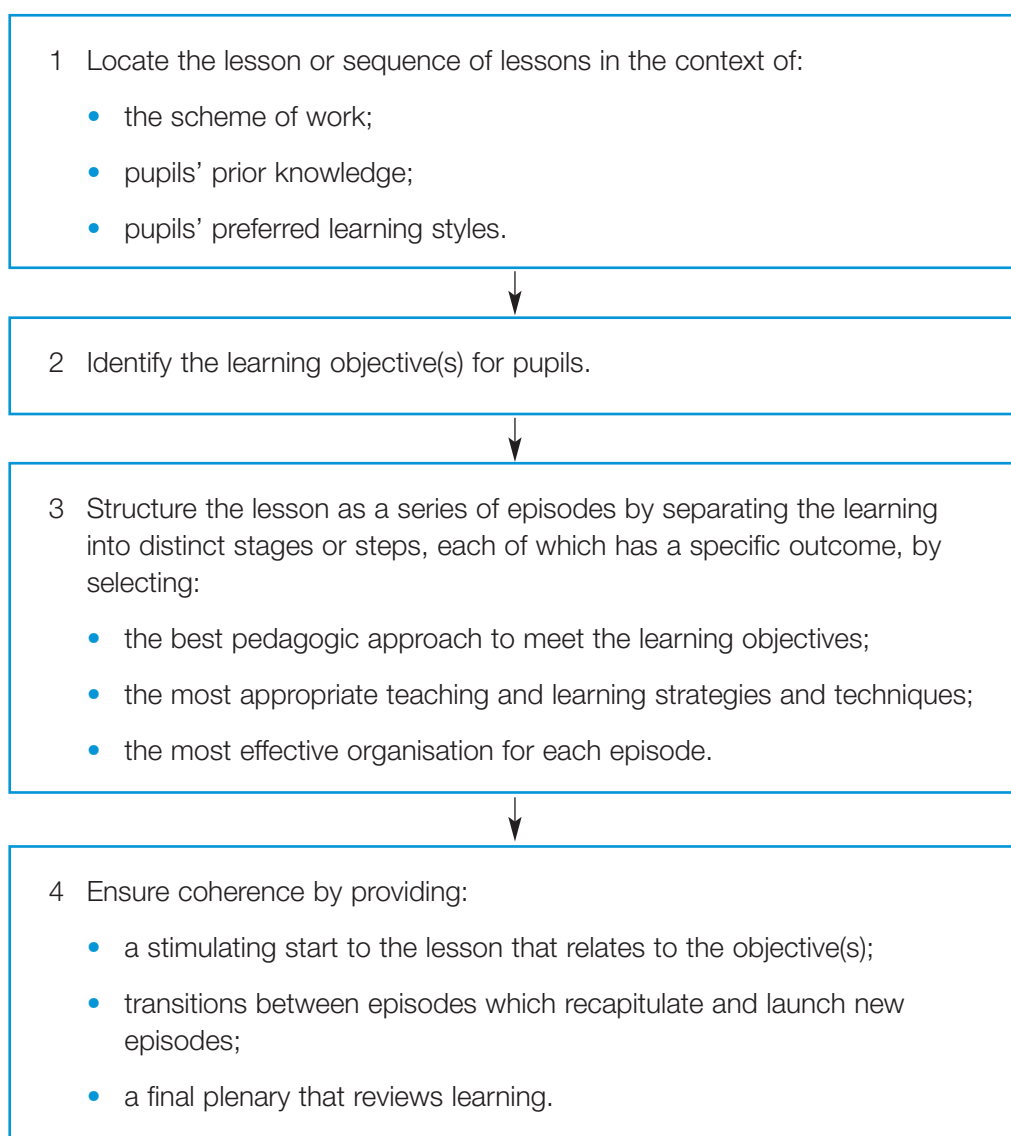
- establishing relationships which allow pupils to feel safe and able to respond;
- providing variety so that different learning styles can be accommodated over time.

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.



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	Starter activities 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.

Case study 1

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.

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.

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.

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.

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.

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.

Although individual incidents are minor, they spark off others, contributing to a loss of focus on learning and a sense of frustration.

Arranging seating so that you can see all pupils enables you to identify when pupils are losing concentration and intervene to refocus them.

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.

The promise of a game at the end motivates pupils and contributes to the pace of a lesson.

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.

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?

[Task continues](#)

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.

[Task continues](#)

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.
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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:
<p>Direct interactive</p> <p><i>Key features:</i> Talk or demonstration is followed by active tasks that help pupils remember and fit the new knowledge into their existing ideas.</p>	<ul style="list-style-type: none"> • Learning new knowledge or practical skill • Learning new processes • Learning new communication or mathematical skill 	<ul style="list-style-type: none"> • Exploring feelings • Generating new perspectives about complex issue • Forming a concept • Generating creative thinking
<p>Inductive</p> <p><i>Key features:</i> 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.</p>	<ul style="list-style-type: none"> • Forming a concept • Building on or shaping previously learned concepts • Exploring feelings 	<ul style="list-style-type: none"> • Learning new skills • Learning new knowledge • Generating creative thinking
<p>Setting up an enquiry</p> <p><i>Key features:</i> 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.</p>	<ul style="list-style-type: none"> • Forming a concept • Building on or shaping previously learned concepts • Stimulating conditions for learning new knowledge • Embedding understanding of processes • Practising skills 	<ul style="list-style-type: none"> • 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.

Practical tip

Create a bank of key words for a topic. Print them in a large type size, laminate and display them on felt boards or whiteboards. This improves the quality of presentation and the resource is available for all staff to use.

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

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.

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.

Next, pupils gather the data they require. The teacher suggests they collect data on Year 8 pupils; other classes are also involved.

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.

Commentary

Pupils suggest hypotheses such as ‘some pupils cycle to school because they are taller’ or ‘some walk to school because they live closer’.

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.

At this point the teacher has additional data from a previous year which can be added.

This final episode not only helps pupils draw conclusions, but allows them to reflect on how they could improve the design of their investigation.

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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