



Guidance

Curriculum and  
Standards

# Secondary

## National Strategy for school improvement

### *Strengthening pedagogy with ICT*

#### *Management guide*

#### **Secondary teachers**

Status: Recommended  
Date of issue: 03-2006  
Ref: 0240-2006DOC-EN



## **Acknowledgements**

The National Strategies would like to thank Ben Walsh and the following local authorities for their assistance in making this DVD:

Northumberland LA,

Newcastle-upon-Tyne LA,

Sandwell LA,

Bournemouth LA,

Wakefield LA, and

Worcester LA.

Our grateful thanks also go to the National College of School Leadership (NCSL) for video extracts from their SLICT and teamSLICT programmes.

# Strengthening pedagogy with ICT

## Contents

Executive summary	2
Using the DVD	3
The whole-school module	4
The self-study modules	7
Using the modules	12
Sources of additional support	16
Appendix A: Presenter's notes for delivering the whole-school module	18

## Executive summary

The *Strengthening Pedagogy with ICT* resource is an interactive DVD designed to support teachers in using ICT to enhance learning and teaching in their subject. It builds on and links to the *Pedagogy and Practice: Teaching and learning in secondary schools* (TLSS) pack (DfES 0423-2005G) and other embedding ICT publications, in particular the *ICT across the curriculum pack* (DfES 0171-2004G) and the *Learning and Teaching using ICT: Practical Support Pack* [www.teachernet.go.uk/supportpack](http://www.teachernet.go.uk/supportpack). There is a clear focus on pedagogy and how ICT can contribute to and strengthen existing good practice in classrooms.

The focus of the DVD is to bring together, in a mutually supportive way, the dual professional development imperatives to embed ICT across the curriculum and to strengthen pedagogy. The aims of *Strengthening Pedagogy with ICT* are therefore to:

- consider the potential for ICT to strengthen teaching and learning across the curriculum;
- provide opportunities for individual reflection, collaborative work and whole-school development in the use of ICT;
- contribute to a coherent CPD approach to embedding ICT and strengthening pedagogy within the emerging climate of new teacher professionalism.

The *Strengthening Pedagogy with ICT* DVD is designed to be used flexibly by the whole school, subject departments, small groups or individual teachers. It supports these aims by providing:

- a **whole-school module**, which is a presentation designed to be used with large groups or the whole staff. There are notes to support the presentation. The presentation is split into two main sections – ‘Focus on ICT’ and ‘Focus on pedagogy’ – and explores the relationship between them and strategies for moving forward. The module can stand alone or provide a platform from which some, or all, teachers can embark on the self-study modules described below;
- four **self-study modules** which relate to aspects of pedagogy and draw on some of the units from the TLSS pack. The modules are designed to be completed by individuals or small groups, reflecting on how ICT can enhance specific aspects of teaching and learning. Responses to the various activities are collated in an ongoing electronic learning log which can be used as evidence of professional development activity. The four modules can stand alone and may be approached in any order. There is an expectation that teachers will be familiar with the relevant units from the TLSS pack before tackling these modules.

Senior leadership teams and/or CPD coordinators will need to consider the most effective way to use the *Strengthening Pedagogy with ICT* resource in their school. This will depend largely on the stage of development of the use of ICT across the curriculum and development of pedagogy in the school, and on individual teachers’ needs.

This management guide provides detailed guidance on:

- the content of the whole-school module and the four self-study modules and how they link together;
- running the whole-school module, which includes presenter's notes (appendix);
- supporting individuals and small groups undertaking the self-study modules;
- implementation and consolidation exemplified by case studies;
- sources of additional support.

## Using the DVD

The *Strengthening Pedagogy with ICT* DVD is made up of two elements – the whole-school module and the four self-study modules.



Choosing the whole-school option from the home screen leads to the set of presentation slides designed for use with large groups or the whole school. These slides are split into two main sections – Focus on ICT and Focus on pedagogy – which can be selected in any order. They can be used independently or linked together.

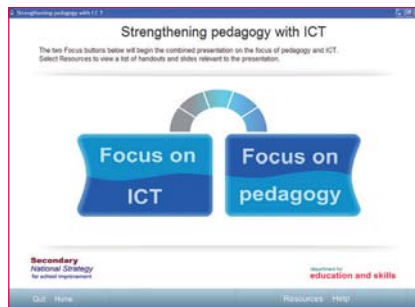
Choosing the self-study option from the home screen leads to the self-study modules, which are designed to be completed by individuals or small groups. The four modules can stand alone and may be approached in any order and at the start of each module the electronic ongoing learning log is activated.

The default approach to using this resource is to run the whole-school module during, for example, a school training day and then ask individual teachers or departments to select one or more of the four self-study modules to work on. However, the resource is designed to be used flexibly to suit a school's specific stage of development and needs. How the approach could be adapted is described in the specific sections below and the case studies on pages 12 to 15.

Throughout the DVD there are handouts to support the various activities. These are generally PDF files but Microsoft Word versions are also available on the DVD in a separate folder.

## The whole-school module

The whole-school module contains a series of slides to be used by a presenter who will normally, but not necessarily, be one of the school's senior leadership team or the CPD coordinator. Comprehensive notes are provided in appendix A to support the presenter with the key points for each slide. Handouts which accompany the presentation are available in electronic form via the Resources button at the bottom of the whole school module main menu screen. These handouts should be printed in advance of the presentation and given to participants before starting the session.

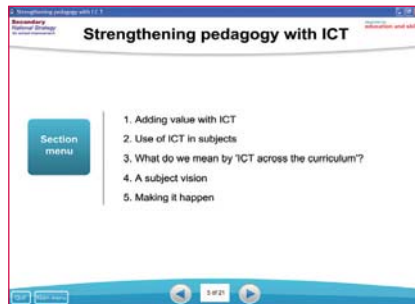


This module is written assuming that there is a presentation screen and large audience in a big room with space for small groups to reflect and work together at various points to respond to the activities during the presentation. However, the materials and organisation could easily be adapted for use with, for example, a department or smaller group of staff.

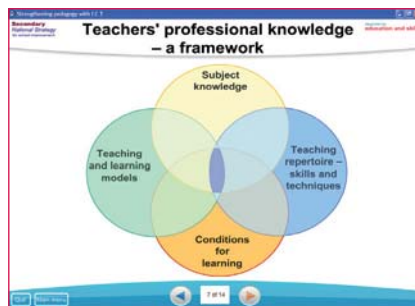
The module can be used from start to finish running through 'Focus on ICT' and into 'Focus on Pedagogy'. Indeed, for most schools, this will be the most appropriate way to use this module. However, some schools may decide to use only one of these foci depending on the stage of development in embedding ICT and/or pedagogy in the school. Whatever approach is used, the importance of linking the two foci together is critical. The embedding ICT agenda needs to be firmly rooted in enhancing pedagogy and ultimately raising attainment. The presentation could, of course, also be tailored to suit specific needs by using supplementary material or inputs from other staff in the school and/or the local authority support staff.

There are also alternative options within the module to divert, as appropriate, from the linear use of the slides, such as the following.

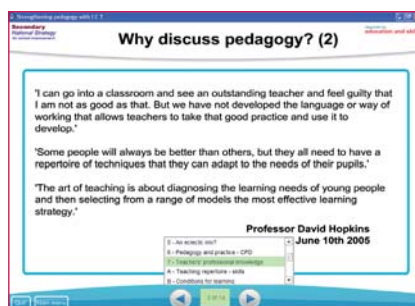
- 1 In Focus on ICT, there is a section menu part way through the presentation that allows for direct links to each of the five separate components as shown in the diagram. A school that has taken ICT across the curriculum as a whole-school initiative, for example, may decide that it does not need to spend time looking at 'What do we mean by ICT across the curriculum?' as this has already been covered in detail elsewhere.



- 2 In Focus on pedagogy, there is a diagram showing a framework of teachers' professional knowledge. Each component of the diagram has a set of accompanying slides linked to it to enable further explanation and exploration of that component.



- 3 Throughout the presentation, slides can be selected by number using the 'go to' menu that appears when the slide number box at the bottom of the slide is clicked.



However the whole-school module is used, the links between embedding ICT and strengthening existing, good pedagogical approaches should be firmly established. The following key points should emerge from the module.

- ICT becomes part of a set of tools used to develop learning, which are transferable to different subjects, topics and key stages, but with different emphases.
- New technology can offer opportunities for more effective and efficient learning and teaching.
- The use of ICT must be planned and appropriate to the learning objectives.
- ICT only adds value when it contributes to good teaching and effective learning.

### **Preparing for delivery of the whole-school module**

Presenters will need to:

- work through the presenter's notes that accompany the module (see appendix A or access an electronic copy from the Resources button on the DVD);
- decide whether all, or some, of the presentation will be used and whether any additional resources or inputs will be needed;
- ensure that a large enough screen is available to project to a large audience if appropriate;
- ensure sufficient space, if possible, for teachers to work in small groups at various times during the presentation, and allow time for this to happen;
- print a copy of each of the handouts intended for use and duplicate sufficient copies for the participants;
- decide how feedback from the various activities will be collected and recorded for further use in developing the school's work on ICT and pedagogy;
- allow up to 3 hours to deliver the module, depending on the selected options and time allowed for activities.



# The self-study modules



The self-study section contains four modules as follows.

## Starters and plenaries

Starters and plenaries are key to setting the focus for learning and reflecting on progress. This module examines how ICT can be used to enhance these experiences.

## Explaining and modelling

Explaining and modelling are critical components of effective teaching. This module explores the potential of ICT in supporting and enhancing these particular areas.

## Problem solving and enquiry

Problem-solving and enquiry skills are fundamental to being an effective learner. This module explores how ICT can be used to develop these skills.

## Creating effective learners

Creating effective learners explores how ICT can support pupils' development of effective learning strategies.

Each module stands alone. Not all modules need to be completed and they may be approached in any order. The choice will largely depend on an identified area of development for individual teachers, departments or schools. The key focus, however, of all of the modules is how **ICT** can strengthen **pedagogy**. Each module relates to a specific aspect of pedagogy and is directly linked to the relevant units from the TLSS pack. There is an expectation that teachers will be familiar with the relevant TLSS units and other related materials before tackling these modules. A summary of this is shown in the table below.

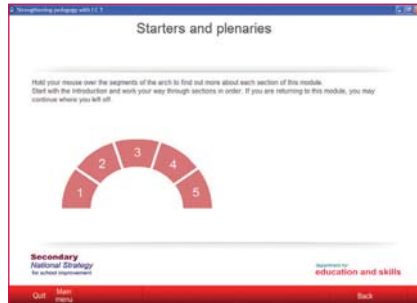
<b>Self-study module</b>	<b>Pedagogy and Practice: TLSS unit</b>	<b>Other related material</b>
Problem solving and enquiry	Unit 16: Leading in learning	Leading in learning: developing thinking skills at Key Stage 3 – Handbook for teachers, page 31  ICT across the curriculum pack
Explaining and modelling	Unit 6: Modelling Unit 8: Explaining	
Starters and plenaries	Unit 5: Starters and plenaries	
Creating effective learners	Unit 1: Structuring learning Unit 2: Teaching models  Unit 15: Using ICT to enhance learning  Unit 16: Leading in Learning	ICT across the curriculum pack  E-safety guidance on Becta website <a href="http://schools.becta.org.uk">http://schools.becta.org.uk</a>

The self-study modules are designed to be used interactively by individuals, pairs or small groups. There is significant benefit to be gained from participants working collaboratively with one or more colleagues and it is recommended that you consider such an approach. Whichever approach is selected, there are certain points in the modules where there is a need to work directly with a colleague in the classroom. This colleague need not necessarily be a member of the same department since many of the points raised with strengthening pedagogical approaches also apply across subjects. Identifying commonalities and differences across subject areas is a powerful tool for reflecting on approaches to teaching and learning in subjects. All approaches will require time to be made available for collaborative work.

The self-study modules are a mixture of reflection, video stimulus, written activity, planning and teaching, peer observation in classrooms, working collaboratively and identifying next steps within departments. Although much of the work takes place at the computer, there is a significant amount for teachers to do away from the screen, including planning, teaching and evaluating lessons in classrooms. Supporting resources are hyperlinked from screens as appropriate. These resources are items such as video observation sheets, lesson observation sheets and departmental meeting templates. These can be printed out, or Microsoft Word® versions can be completed online. The departmental meeting template (in section 4) should be partially completed before distribution to colleagues in the department. An ongoing electronic log collects the user's responses to various activities and can then be collated, with other material generated in the modules, to create a portfolio of evidence. This portfolio could contribute to professional

development reviews and might link to accreditation.

Each of the self-study modules is split into five discrete sections as identified by an opening screen (see below.) It is strongly recommended that the module is followed from the Introduction section through to the final section. However, it is also possible to re-enter at different sections to navigate around the module or get to a point which has already been completed.



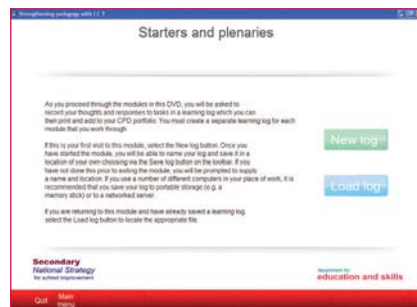
Additional resources required for the self-study modules can be accessed by hyperlinks within the text. These and other related resources, together with sources of further support, can also be accessed from the Resources button at the bottom of the screen.

The five segments are split as follows.

- 1** Introduction – This section introduces the user to the module and links to the recommended preparatory work.
- 2** Reflection and analysis – In this section the user reflects on current practice and considers how ICT can enhance the teaching and learning.
- 3** Plan, do, evaluate – In this section, the user explores how ICT can enhance teaching and learning by planning, teaching and evaluating practical examples in their own and others' classrooms.
- 4** Departmental working – In this section the user applies what they have learned to the development of lessons and schemes of work within their department.
- 5** Next steps – In the final section the user identifies next steps in their own development and within their department.

## Learning log

Responses to various reflective tasks and activities are collected in the electronic learning log. Throughout the modules questions are raised and the learning log enables users to capture their thoughts and responses. Log questions change to reflect the activity being completed. When starting a new module, the New log button creates a new learning log for the module. On exiting the module, or when pressing the Save log button, the user gives the log a filename, which should differ for each module. When returning to a module, the Load log button should be selected and the relevant file chosen.



Users can type their responses directly into the learning log on the right-hand side of the relevant screens. The text boxes expand as responses are entered. At each stage, the user should save their learning log using the Save log button at the bottom of the screen. Additional support for using the learning log is given in the Help file, accessed from the bottom of each screen. This includes help with printing the learning log.



## Key points screens

At various points in the self-study module, key points are raised and shown on the screen. These key points are then available for recall or printing using buttons on the bottom of the screen. The key points are sometimes referred to in later tasks.



## Preparing to use the self-study modules

Users will need to:

- identify which of the self-study modules would be most appropriate to start with;
- revisit the relevant units from the TLSS pack and other related material as outlined in the table on page 8
- identify colleagues to work with on a particular self-study module;
- ensure that up-to-date copies of subject schemes of work are available;
- allocate sufficient time to work through a self-study module taking account of availability of ICT resources and time to work with colleagues. Time needed will vary between individuals. However, sufficient time should be allocated for:
  - working through the interactive activities on the DVD;
  - planning and teaching lessons;
  - lesson observation and feedback;
  - sharing thoughts with other colleagues either within, or outside, the subject department;
  - identifying next steps on an individual, departmental and whole-school level;
- identify a location for saving the learning log. This location could be, for example, a hard drive on an individual computer, a space on a network area or on a portable device. It is important that the learning log can be accessed on each visit to the self-study module.

A self-study module may involve working over several weeks and does not have to be done all at once. It is possible to leave a module at any point, save the log and return to that point as time becomes available.

## Using the modules

A range of case studies follow that outline how different schools might approach the use of *Strengthening pedagogy with ICT*.

### Whole-school models of implementation

**School A** is a large urban community school. The school has recently expanded the quantity and range of ICT equipment, so that all departments now have greatly improved access to computers and many classrooms now have either data projectors or interactive whiteboards. The school is embarking on a training programme to ensure that all staff has increased confidence in using ICT in their lessons and is at early stages of developing ICT across the curriculum as a whole-school initiative. The senior leadership team wants to use the *Strengthening pedagogy with ICT* material to take this further. The CPD coordinator is keen that teachers should be able to record what they have done and use this to demonstrate professional development. Accordingly the senior leadership team and the CPD coordinator have planned a whole-school and departmental programme to facilitate this development.

The first stage of this is planned for a professional development day, starting with a meeting for the whole staff in which they are taken through the introductory module of *Strengthening pedagogy with ICT*. The CPD coordinator will present this session with support from the local authority ICTAC consultant. The CPD coordinator will run both parts of the presentation, to support the development of ICT across the curriculum. Many departments have used parts of the TLSS pack and the senior leadership team wants to reinforce the value of this material during the session.

Following the whole-school session, subject leaders will be able to work with their departments to consider the implications emerging for planning and teaching their subjects. Departments are expected to review their current schemes of work and identify one area where the use of ICT could enhance teaching and learning. Each department then chooses the self-study module that will support them most in using ICT to add value to this area. Teachers are encouraged to work together on the module, but are able to work through it on their own if they prefer. They are expected to maintain their learning log and can add this to their professional development portfolio should they choose.

There will be a follow-up training day one term later, by which time departments are expected to share what they have learned with the rest of the staff.

**School B** is a specialist arts and humanities college. ICT is used extensively in most subject teaching, but evidence suggests that this use of ICT does not always add much value to pupils' learning. Many teachers use ICT to present material to their pupils in ways which do not involve a great deal of interaction. The senior leadership team wants to encourage teachers to reflect on their pedagogy and how they can use ICT more interactively with their pupils. There are also plans to develop the use of the TLSS pack across the whole school. This will be supported by whole-school training and also linked to the Focus on pedagogy section of the introductory module of *Strengthening pedagogy with ICT*.

Following the training subject leaders will work with their departments to select one of the self-study modules from *Strengthening pedagogy with ICT* to work through alongside the relevant modules from the TLSS pack. Members of the department will support each other in doing this work, and the impact on teaching will be evaluated within three months. They will maintain learning logs and will be able to use these as evidence of professional development for their performance review.

**School C** is a mixed comprehensive where ICT is securely embedded in much of the teaching and learning. The school has been developing work on teaching and learning using the TLSS pack and this work is well advanced. The senior leadership team wants to use *Strengthening pedagogy with ICT* as an action research project and there are no plans to use the introductory module. Instead, subject departments will work through some or all of the self-study modules in order to explore and form judgments about ways in which the appropriate use of ICT can enhance, or even transform, pedagogy. Findings will be reviewed during the term and used as the basis of a staff training day later in the year.

Some teachers have planned to use their learning logs from the project as part of the evidence for their performance review and a few teachers intend to use this towards accreditation.

## Departments and small groups

**School D** has recently been inspected by Ofsted and the use of ICT across the curriculum was highlighted as an area for development. The school had already identified the science department as making very little use of ICT, either as a tool for teaching or as a vehicle for learning. The CPD coordinator and the science subject leader have planned a programme of support and coaching for teachers in the department to improve their confidence in using ICT in their lessons. They agreed to use *Strengthening pedagogy with ICT* as the focus for the work, and identified the Explaining and modelling module as the most appropriate starting point, as this has been a main focus in whole-school work using the TLSS pack. Before starting the self-study module, the CPD coordinator set the context of the work by taking the science teachers through the whole-school module.

The CPD coordinator and the science subject leader were available to coach teachers with aspects of the module as they worked through it. This was found to be particularly valuable for lesson observations and subsequent discussions. Most teachers began the work on their own but very soon began to discuss what they were doing in the department and eventually the work became much more collaborative. Teachers found the learning log helpful in tracking their development and some became more confident in their use of ICT.

The subject leader is now planning to develop another module with the department to consolidate the practice and develop the use of ICT further.

**School E** has been using the TLSS pack as the main focus for CPD in the school and the senior leadership team has made time available for coaching to support this work. Staff has been briefed on *Strengthening pedagogy with ICT* through the use of the whole-school module as part of a professional development day. The senior leadership team used this as a stimulus for discussion but has allowed individuals and departments to decide what further actions they might take. There are no expectations, at this stage, that all teachers or all departments will work through any of the self-study modules.

Three teachers, one each from the design and technology, geography and modern foreign languages departments, who all teach the same Year 7 mixed-ability group, decided that they would try to use the Problem solving and enquiry module with this class and work together. The teachers have approached the CPD coordinator and arranged for some time so that they can observe each others' lessons. This will be linked to the whole-school work on coaching and TLSS.

As they worked through the *Strengthening pedagogy with ICT* DVD together they became aware that many of the pedagogical issues raised are common to them all, despite the differences in their subjects. The pupils are beginning to experience similar approaches in their lessons in the three subjects and recognise this.

The sharing of ideas and the observation of lessons added richness to the teachers' discussions and generated new strategies that they wanted to try. They reported back to their departments, sharing their learning and extending the work to other teachers.



## Individual working

**School F** is an average sized comprehensive school where teachers in the modern foreign languages and history departments have been using the ICT across the curriculum pack to enhance learning in their subject. Interactive whiteboards have been installed in all classrooms in the modern foreign languages department. One of the teachers has decided to use the *Strengthening pedagogy with ICT* DVD to support her in using the whiteboard in her teaching. She decided to use the Explaining and modelling module from the DVD to help her reflect on how she would use the whiteboard to improve her teaching of complex grammar points.

She worked through the module on her own, although she realised that there were issues she wanted to discuss with colleagues. She talked to her subject leader, who agreed to observe a lesson and provide feedback to her. The subject leader also made time available at a department meeting where the teacher could share her experiences and learning with other teachers in the department. She was pleased with the work she had done and encouraged colleagues to use the material themselves in their own teaching.

Colleagues in the department are now involved in joint planning of activities using the interactive whiteboards for explaining and modelling.

## Sources of additional support

There is a wide range of information, advice, resources and other materials available to help you make the most of the potential of ICT to support teaching and learning in your subject. These are listed below.

### Secondary National Strategy

A range of publications, to support the use of ICT across the curriculum, the development of pedagogy and leading CPD, is available at: [www.standards.dfes.gov.uk/keystage3/](http://www.standards.dfes.gov.uk/keystage3/). These include:

- The ICT across the curriculum (ICTAC) pack (DfES 0171-2004 G)
- Pedagogy and practice: teaching and learning in secondary schools (DfES 0423-2005G)
- Leading in learning: developing thinking skills at key stage 3 (DfES 0035-2005G to DfES 0048-2005G)
- Leading and coordinating CPD in secondary schools (DfES 0195-2005 GCD)
- Sustaining improvement: A suite of modules on Coaching, Running networks and Building capacity (DfES 0565-2003 G)

### Department for Education and Skills/Secondary National Strategy

The Practical Support Pack is a substantial web-based source of ICT support for subject teachers. It contains a collection of downloadable resources to help teachers develop their practice using ICT. The site contains lesson plans, audio/video clips, presentations, software applications, skills guidance and evaluation materials. There is also an extensive library of case studies. This resource is available at:

- Learning and Teaching Using ICT: Practical Support pack [www.teachernet.gov.uk/supportpack](http://www.teachernet.gov.uk/supportpack)

Other useful support material including publications relating to all subjects in the Embedding ICT@Secondary series can be found using [www.publications.teachernet.gov.uk](http://www.publications.teachernet.gov.uk) and includes:

- Embedding ICT@Secondary: Use of interactive whiteboards in subjects (13 subject booklets)
- Hands On Support: guidance and support materials for HOS providers – secondary (DfES 0418-2004)

### British Educational Communications and Technology Agency (Becta)

A range of reports and publications relating to the impact of ICT on teaching and learning can be found at: [www.becta.org.uk/research](http://www.becta.org.uk/research) and includes:

- The Becta Review 2005: Evidence on the Progress of ICT in Education
- ICT and pedagogy: a review of the research literature (DfES 0793 2003)
- ICT and attainment: a review of research literature (DfES 0792-2003)

Advice on the use of ICT in different subjects across the curriculum can also be found at [www.becta.org.uk](http://www.becta.org.uk).

### **National College for School Leadership (NCSL)**

NCSL provides a range of strategic leadership of ICT (SLICT) programmes for headteachers focusing on leading and developing ICT. The SLICT programme seeks to engage school leaders in developing and implementing their vision for learning in their school. The teamSLICT programme is a leadership programme which gives teams the opportunity to review and consider how ICT can extend and enhance learning in school. Details of these, and other related programmes, can be found at [www.ncsl.org.uk](http://www.ncsl.org.uk).

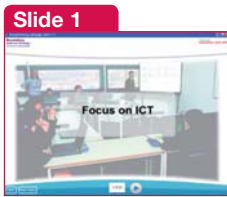
### **Other useful sources of support**

Other useful web-based sources of support are available and include:

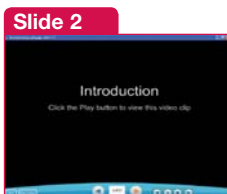
- Qualifications and Curriculum Authority (QCA) [www.qca.org.uk](http://www.qca.org.uk)
- Specialist Schools and Academies Trust (SSAT) [www.specialistschools.org.uk/](http://www.specialistschools.org.uk/)
- Training and Development Agency (TDA) [www.canteach.gov.uk](http://www.canteach.gov.uk)
- Subject associations [www.teachernet.gov.uk/professionaldevelopment/](http://www.teachernet.gov.uk/professionaldevelopment/)
- Regional broadband consortia <http://broadband.ngfl.gov.uk/>

# Appendix A: Presenter's notes for delivering the whole-school module

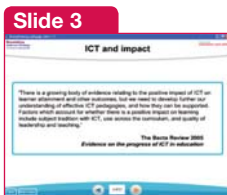
## Focus on ICT



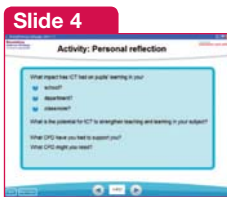
This part of the presentation focuses on the impact of ICT across the curriculum. It provides a stimulus for individuals, departments and the school to reflect on current use of ICT and consider what the next steps might be to develop further the use of ICT to support teaching and learning.



Video montage showing ICT being used in a range of lessons and school leaders and teachers talking about a whole-school vision for developing ICT across the curriculum

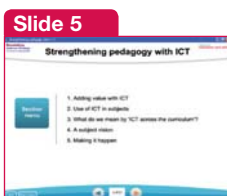


This quote and the preceding video montage illustrate that new and emerging technologies provide new opportunities to strengthen pedagogy. Different schools, departments and staff will be at different stages in the development and use of these technologies to strengthen and enhance their practice. The next slide asks participants to reflect on where they are in their own practice within your school.

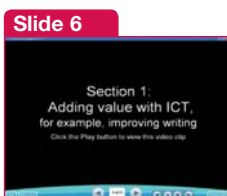


Participants will need **handout 1: Personal reflection**.

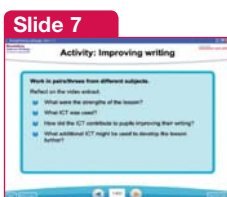
Ask participants to reflect on their own practice and how this has impacted on pupils' learning. You should allow about 5 minutes for this. Participants should then take another 2 minutes to share their thoughts with a colleague. You may wish to collect brief feedback and record common themes emerging.



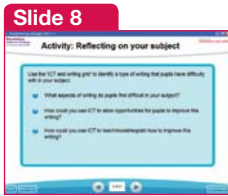
This slide provides a section menu of five options. You could run through all five options sequentially by just clicking the forward arrow, or you could select some or all to run in any order. All subsequent slides have a Section menu button at the bottom of the screen which returns you to the section menu on this screen. You can also use the number box to choose which slide to go to. For more information see page 5.



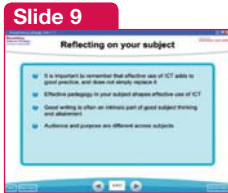
Video – Adding value with ICT. This video shows a teacher making minimal but appropriate use of ICT in the lesson, using only a laptop and a data projector. The technology contributes to the effectiveness of the lesson by allowing the class to share in the process of improving geographical descriptions.



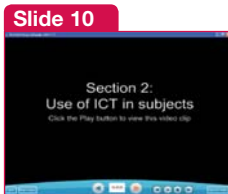
Participants will need to use **handout 2: Improving writing**. It would be useful if this activity could be done by pairs or groups of three who come from different subject backgrounds. You should allow 5–10 minutes for the activity. Take some brief feedback to allow further sharing of ideas, particularly on what additional ICT might have been used to develop the lesson further.



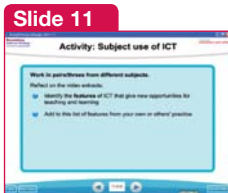
Participants will need **handout 3: ICT and writing grid** and **handout 4: Reflecting on your subject (1)**. They should use handout 3 to help them to think about the range of writing types required in their subject. They should then reflect on the points on this screen, and note their thinking on handout 4. Allow 4–5 minutes for this activity. Again, brief feedback could be collected.



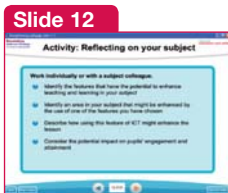
Reinforce these points, drawing out the value of using ICT as a tool to strengthen teaching and learning. Some areas of learning that pupils find difficult – for example writing – are common across departments. ICT can offer potential solutions in different or similar ways to different departments.



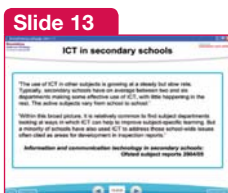
Video – Use of ICT in subjects. This video shows a range of teachers from different subjects talking about the impact of ICT in their subject. As participants watch the video they need to identify what it is about the use of ICT (the features) in each case that moves the subject forward. They will need to use **handout 5: Subject use of ICT** to record their thoughts.



Participants should use their notes on handout 5 to discuss the points on this screen. Again, it would be useful if participants worked in pairs or groups of three who come from different subject backgrounds. Take feedback and draw out the features of ICT that moved teaching and learning forward in a number of subjects, for example easy manipulation of images; repeated calculations; direct and lively means of presenting ideas and providing explanations; alternative means of creativity and expression; instant feedback of performance for pupil self-assessment as well as to inform teachers; and ease of access to a wide range of information.

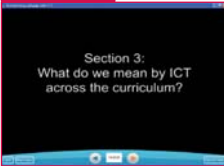


Ideally, participants should work with a subject colleague for this activity. Following the feedback, participants should identify the features of ICT that have the potential to enhance teaching and learning in their subject. You should focus participants' thinking on the last bullet on the screen and ask them to consider the potential impact on engagement and attainment – how these might be different and how they would recognise these impacts. They should use **handout 6: Reflecting on your subject (2)** to record their thoughts. Allow about 5 minutes for this activity. Take brief feedback to allow some sharing of ideas.



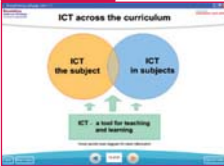
The national findings shows that schools are at different stages of development of the use of ICT across the curriculum. When you show this slide, you should locate your school within this national picture. This will be further explored in the next section (section 3): What do we mean by 'ICT across the curriculum'?

#### Slide 14



Section 3 header screen

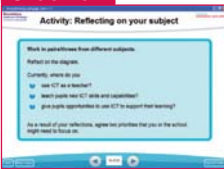
#### Slide 15



ICT across the curriculum is often interpreted in different ways but can be viewed as three interlocking elements. This slide shows a diagram showing the relationship between ICT the subject, ICT in subjects and ICT as a tool for teaching and learning across the curriculum. If you hover the pointer over each section of the diagram it provides further explanation and some examples. You should aim to focus teachers on the different aspects of the use of ICT and reflect on how they use ICT in their current practice.

Note: The understanding of this relationship is central to the *ICT Across the Curriculum* (ICTAC) initiative (DfES 0171/2004), which focuses on this in detail. Other substantial resources and material to support the development of ICT across the curriculum are available and are listed on page 16 of this guide. However you should not explore this here, as it will take a great deal of time and potentially sidetrack the discussions.

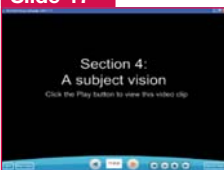
#### Slide 16



Ideally participants should continue to work in pairs or small groups from different subjects to reflect on the points on this slide. They should note their ideas on **handout 7: Reflecting on your subject (3)**. You will need to find ways of sharing identified priorities further.

- Each group could share priorities with another group.
- Each group could log their agreed priorities on sticky notes which are placed on flipchart paper, or using mind mapping software on a computer, for others to see. They could then be grouped and categorised following the session.
- Each participant could take their priorities to a departmental meeting so that each department can identify its own two key priorities for the development of ICT.

#### Slide 17



Video – A subject vision. In this video a history teacher talks about using ICT in his subject.

The subject used is only an example and is meant to stimulate discussion about the use of ICT in other subjects. Participants will need **handout 8: A subject vision**, and should make notes on the first two points while watching the video. They can then use these notes in the discussion that follows.

#### Slide 18



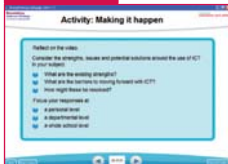
Following the video, participants should discuss the points on this screen in their pairs or small groups, and record their thoughts on handout 8. These ideas could be used in a later departmental meeting.

Slide 19



Video – Making it happen. In this video montage senior leaders and subject teachers talk about what needs to be in place, from their point of view, for ICT to be used as an integral part of teaching and learning. It explores possible barriers to the use of ICT and suggests some solutions that have worked for them in their schools.

Slide 20



After they have watched the video participants should work in their pairs or small groups to discuss the points on the screen. They should record their ideas on **handout 9: Making it happen**. The responses in the activity could become part of follow-up departmental meetings. These meetings could then feed into whole-school discussion to help identify and remove barriers to progress in the use of ICT throughout the school.

Slide 21



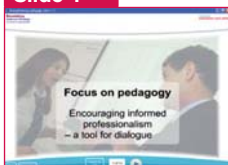
This slide helps you to summarise the main points that will have emerged from the presentation. There are likely to be more points to make which have come out of discussions and which are specific to your institution.

At this point you can either move into the Focus on pedagogy section of the presentation, or outline how you will follow up this Focus on ICT section to help subject departments and the school plan and take the next steps on this journey.

### Focus on pedagogy

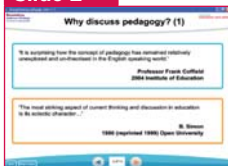
Note: For ease of use, the animated slides 4, 7 and 11 will remain built after you have run them. Reactivate the animations by re-launching the Focus on pedagogy presentation from the main menu.

Slide 1



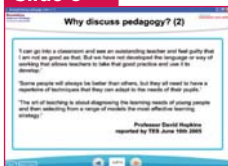
Introduce the Focus on pedagogy section of the presentation. The main focus of this section is pedagogy and how this relates to teachers using ICT as part of their practice. The next few slides focus participants on the debate about pedagogy and how a clear understanding of pedagogy can underpin improvements in teaching and learning.

Slide 2



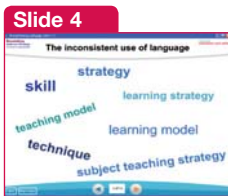
Many of those in education express a view that we need a way of considering what constitutes 'Teachers' professional knowledge'. Without such a shared view, it is argued that advice and guidance about teaching and learning can often seem eclectic in character and gives people no clear sense of direction, leading to professional development often becoming the mere collection of tactics, so that teachers acquire a wider range of strategies without necessarily understanding what these strategies can contribute to learning.

Slide 3



Many have also argued that we need a commonly shared and consistent language to describe pedagogy. Without such a shared understanding how can teachers and other professionals describe good practice and learn from each other to develop practice? In order to be effective, teachers need to have access to a considered range of effective approaches from which they can select to meet different objectives and secure learning outcomes.

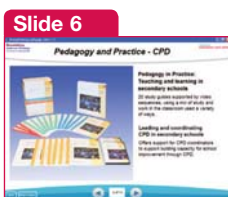




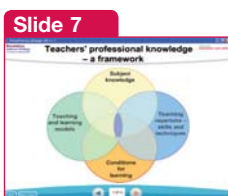
This animated slide includes some of the words used when people talk about teaching and learning and shows that we do not necessarily have a consistent view of the language we need to describe teaching and learning and this may not facilitate the sharing of good practice. Participants may have thoughts on this that could be shared with the whole group.



This slide includes just some of the Strategy's publications. A shared and consistent view of teachers' professional knowledge where the language used and the different domains are clearly defined will enable professionals to select the appropriate materials for the next stage in their professional development rather than taking the view that 'there is too much stuff out there'.



In order to begin to address these points the Strategy has produced two key unifying resources: *Pedagogy and practice: Teaching and learning in the secondary schools* – a suite of study guides which draw on other Strategy training and guidance, and *Leading and coordinating CPD in secondary schools*, guidance on building capacity for school improvement through CPD.



Participants will need to use **handout 1: Teachers' professional knowledge**.

Reveal the diagram presented step by step, by clicking on the Forward button. The notes below introduce each circle of the diagram as it builds. Hover the cursor over each circle for more information and examples.

**Note: Optional additional slides**

This main diagram also contains hyperlinks from the centre of each circle that link to optional additional slides with further information and examples. Once you have moved into the optional slides you should see a new Diagram icon which can be selected at any point within these additional slides to return to the main diagram and the remainder of this presentation. Notes on these additional slides are given at the end of these presenter's notes together with guidance on where different approaches might be appropriate.

The ideas outlined below are explained in detail within Unit 1 and Unit 2 of *Pedagogy and Practice: Teaching and learning in secondary schools*. **handout 1: Teachers' professional knowledge** also provides further detail for you and participants.

Make the following points as the diagram builds.

If teaching is to be really effective then teachers should have an armoury that helps them to be good teachers and secure learning outcomes for all pupils. The model shown in the diagram outlines one possible approach to articulating the various components.

- 1 **Teaching repertoire – skills and techniques:** There is a series of skills and techniques that teachers need to draw on in any lesson in any subject area. This is called the teaching repertoire – the hover box shows some examples of these but participants will have their own preferences.
- 2 **Conditions for learning:** There is a set of knowledge and understanding that



teachers need to have and use to create the right conditions for learning.

- 3 Teaching and learning models:** There are different ways of structuring learning – these are called teaching and learning models and require teachers and pupils to think or behave in different ways. They are based on theories of learning. Examples include direct interactive, inductive and concept attainment.
- 4 Subject knowledge:** This means knowing and understanding the key concepts, common misconceptions, and progression within the subject.

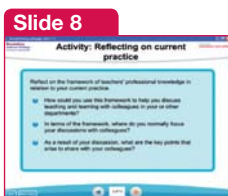
The links between areas in the framework are significant and do raise questions about how one domain can affect another. Differences between subjects may also be significant: for example, some particular teaching models are more relevant to some subjects than others.

The most effective teachers have knowledge and understanding about all of these areas and know how and when to select the most appropriate approaches to meet the needs of the subject objectives and the learners.

To develop professionally, teachers at different stages in their career may need to focus on one of these areas rather than others. For example, an NQT may wish to focus early development on creating the right conditions for learning and developing their teaching repertoire.

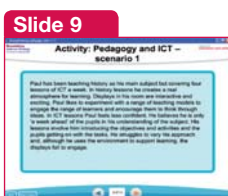
This framework provides a language, structure and rationale that can help teachers identify learning needs and access the appropriate Strategy and other resources to potentially meet those needs.

**Note: Either use the optional additional slides (by clicking inside the circles) or move straight to the next slide.**

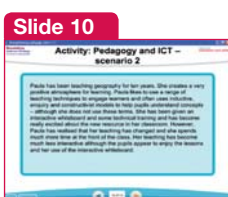


Participants will need **handout 1: Teachers' professional knowledge** to support them in this activity, in particular the diagram. In pairs or small groups ask participants to discuss the points on this slide. They should make a note of the key points from their discussions to share with colleagues. Take brief feedback to allow some of these points to be shared.

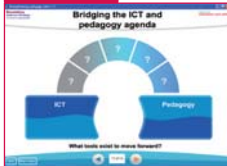
Note: You do not need to use both of the two scenarios that follow. If only one is selected, use the second scenario.



Participants should refer back to the diagram in **handout 1: Teachers' professional knowledge**, and spend a few minutes exploring the issues for the teacher(s) in relation to the framework; to decide what impact using ICT has had on their practice and what were the causes of any difficulties. Then discuss how they teacher(s) could be supported to improve their practice. Take brief feedback. An important point to bring out here is that ICT can often deflect experienced teachers from 'good' teaching without support to build confidence in using ICT. The diagram provides a useful tool for unpicking what areas might change when ICT is involved in a lesson. (If you have used the Focus on ICT part of this presentation you could refer people back to the section that focused on barriers to using ICT in subjects and possible ways of removing these.)



### Slide 11



This slide animates in two stages: the first stage (single click) shows the bridge with question marks. Do not click again until the next activity has been completed.

Show the first stage of the animated slide and ask the question on the slide: What tools exist to move forward? Unpick this question further by prompting: How can the 'ICT agenda' and the 'Pedagogy agenda' be brought together within current CPD needs? What do participants need to move forward and what tools and good practice already exist, in the school and beyond, that could help?

Give groups 2–3 minutes to discuss then take feedback about areas they think should be on the 'bricks' within the context of the school and why they think this. Take feedback which can inform some priorities for the school.

Continue the animated slide by clicking again to show some possible vehicles for moving forward – which may, or may not, be the same as the points raised. Note the last point 'Self-study modules, which are also available from this pack and may be a possible route forward from some teachers as a CPD development within a department.

### Slide 12



Show the video Moving forward which shows teachers discussing how the ICT and pedagogy agendas are moving forward in their school within the context of CPD and the new teacher professionalism agenda. As they watch this video ask participants to reflect on how other current agendas might support developments with ICT and pedagogy.

### Slide 13

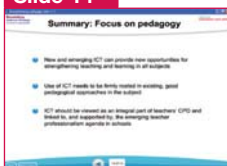


Give groups about 3–4 minutes to reflect on what the teachers say in the video and how it relates to their experience of the new teacher professionalism agenda in the school and how it might develop in the future. Use **handout 2: Questions for schools** to focus participants on the potential for these emerging agendas to move forward the use of ICT in their teaching. Use the questions in italics on the handout and the points on this slide to prompt this discussion.

Ask participants to consider the points on this slide in relation to their own context and consider whether these, or other agenda, can be linked to their own development needs. Ask participants to consider the next steps for the school, their department and themselves.

Take feedback which may again inform some priorities for the school.

### Slide 14



Ask participants to reflect on what they have seen today and the discussions they have had about ICT and pedagogy. Use the summary slide to pull together the main overarching points.

Outline how the school intends to move forward with next steps. Ensure that you have gathered any feedback to inform this.

### Guidance on additional slides (available from hyperlinks on slide 7)

At this point there are a number of options. This will largely depend on time available and the school's progress to date. However, participants should quickly be able to grasp the main ideas in order to tackle the activity that follows on slide 8. The options include the following:

#### Option 1

Briefly explain the four circles in the model using the hover facility for pop-up text which gives examples and further information. This is the default position and the presentation then moves immediately to the activity on the next slide by using the forward button.

#### Option 2

**Handout 1: Teachers' professional knowledge** gives a further explanation of the framework. This could also be given as pre-course reading prior to the presentation so that participants come to the session with a good understanding of the model.

#### Option 3

Undertake a more detailed look at pedagogy using the **handout 1: Teachers' professional knowledge** alongside the hyperlinked slides. If you use this option please note that you will need to spend a little time explaining briefly what is meant by the families of teaching models in the section on models of teaching and learning. Again these are explained in more detail on the handout.

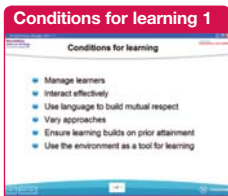
#### Option 4

Take an option 1 approach and return to a more detailed look at pedagogical theory at a later date.



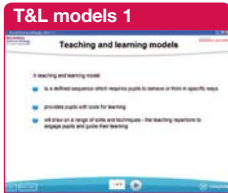
## Teaching repertoire

Direct participants to **handout 1: Teachers' professional knowledge** to consider some examples of areas that the Strategy explicitly promotes. Some of which are shown on the slides. Are there others that participants find significant? What are they and are they common between teachers and/or subjects?



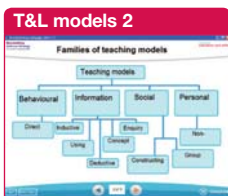
## Conditions for learning

Direct participants to **handout 1: Teachers' professional knowledge** and the list of points in the section that includes those listed on the slide. Ask participants what other conditions for learning should be addressed from their own perspective. Do these needs change between subjects, year groups, teaching activity? These ideas are further developed in units 18, 19 and 20 of *Pedagogy and Practice: Teaching and learning in Secondary schools*.



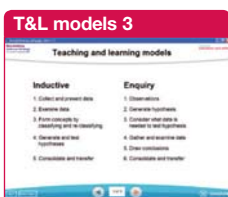
## Teaching and learning models

A teaching and learning model is based on a theory about learning. Direct Interactive Teaching is a defined sequence – at its simplest, beginning, middle and end - but it requires the deployment of a large range of techniques to actively engage and requires good teaching skills such as questioning and explaining to elicit learning. However this is not the only structured sequence. Some of these models help pupils to think in particular ways, for instance requiring pupils to think inductively which can provide them with a model for solving problems.



Explain that there are a number of teaching and learning models that have been developed from theories about learning. They can be grouped into families:

- The first family is the behavioural family. The Direct Interactive teaching and learning model, based on the work of many including Good and Brophy, within this family. It is about drawing pupils in and requiring pupils to respond to a variety of stimuli. This model has been widely promoted by the Strategy.
- In the information processing family (sometimes called cognitive family) there are a range of teaching and learning models, which require pupils to think in particular ways. Each is a highly structured sequence, for example, inductive teaching (Taba) requires pupils to make decisions and reach conclusions whereas enquiry (Schwab) requires pupils to reason deductively.
- The powerful argument is that if you make it clear to pupils that they are thinking in a particular way AND that they can use this way of working to solve problems then they can use this as a tool for their own learning in the future. You are not only teaching pupils to grasp a concept, but also developing different thinking strategies.
- Since the move through secondary education places increasing demand on acquiring abstract ideas and concepts there is a strong argument for using the information processing models more frequently.



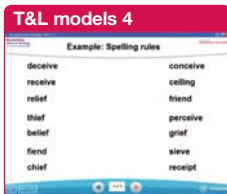
The slide lists the inductive and enquiry sequences.

An example of an inductive sequence might be as follows.

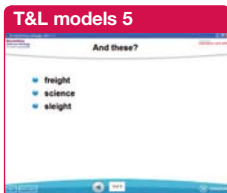
Provide groups of pupils with a pack of cards showing pictures of different animals, e.g. robin, seal, bear, salmon, alligator, python, common frog. Each card contains information such as lays eggs, gives birth to live young, has fur. Pupils sort, into any classification they wish, with a justification. They discuss each other's classifications. They hypothesise that backboneed animals fall into five categories. They then test with others – duck-billed platypus: mammal but lays eggs. The teacher consolidates by saying: When faced with a lot of data, classifying helps us

form concepts and can even help us predict missing bits of information.

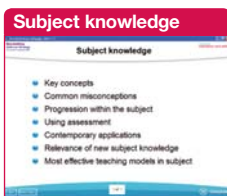
An example of an enquiry sequence might be: What might affect the strength of an electromagnet? This is a typical stem. Wrap a coil of wire round a nail. Connect the ends to a battery and the nail acts like a magnet (the observation). So now pupils speculate: what might make it stronger; they hypothesise; they reason using previous knowledge, for example, number of coils, length of nail, voltage of battery. They then decide what data are needed, plan and test, gather the data, examine it and draw conclusions.



A further example: Imagine being asked to sort many words containing i and e together (ie or ei) and using the inductive approach to build up spelling rules. The slide provides an example of inductive reasoning using classification to help pupils develop spelling rules. Show this slide, ask participants how they might classify these words and then demonstrate a possible classification by advancing the slide. What conclusion might be drawn about a possible rule from this classification?



This shows that different classifications may be needed for other ie/ei words, for example those that sound different.



## Subject knowledge

Direct participants to **handout 1: Teachers' professional knowledge** and the list of points under subject knowledge. Some of these points are also shown on the slide. Ask participants to consider each of these points in the context of their own subject. What are the most significant areas and what are the implications for teachers' continuing professional development needs?

## Notes



Copies of this document may be available from:

**DfES Publications**

Tel: 0845 60 222 60  
Fax: 0845 60 333 60  
Textphone: 0845 60 555 60  
e-mail: [dfes@prolog.uk.com](mailto:dfes@prolog.uk.com)

**Ref: 0240-2006DOC-EN**

© Crown copyright 2006

Produced by the  
Department for Education and Skills

[www.dfes.gov.uk](http://www.dfes.gov.uk)

[www.standards.dfes.gov.uk](http://www.standards.dfes.gov.uk)

The content of this publication may be reproduced free of charge by schools and local education authorities provided that the material is acknowledged as Crown copyright, the publication title is specified, it is reproduced accurately and not used in a misleading context. Anyone else wishing to reuse part or all of the content of this publication should apply to OPSI for a core licence.

**The permission to reproduce Crown copyright protected material does not extend to any material in this publication which is identified as being the copyright of a third party.**

Applications to reproduce the material from this publication should be addressed to:

**OPSI**, The Information Policy Division,  
St Clements House,  
2-16 Colegate, Norwich NR3 1BQ  
Fax: 01603 723000  
e-mail: [hmsolicensing@cabinet-office.x.gsi.gov.uk](mailto:hmsolicensing@cabinet-office.x.gsi.gov.uk)

**Disclaimer**

The Department for Education and Skills wishes to make clear that the Department and its agents accept no responsibility for the actual content of any materials suggested as information sources in this document, whether these are in the form of printed publications or on a website.

In these materials icons, logos, software products and websites are used for contextual and practical reasons. Their use should not be interpreted as an endorsement of particular companies or their products.

The websites referred to in these materials existed at the time of going to print. Tutors should check all website references carefully to see if they have changed and substitute other references where appropriate.