

## Embedding ICT @ Secondary



# Use of interactive whiteboards in English

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# Section 1: Getting started



## 1.1 Introduction

Your interactive whiteboard has arrived in your classroom. You have had some technical training from the whiteboard's suppliers and you are ready to go. This booklet aims to help you take the first steps in using the whiteboard to support your teaching of English. You should find enough support here to get started, after which, we hope, you will soon find using the whiteboard both easy and exciting.

*'I was really excited when I first realised I was getting an interactive whiteboard in my classroom. However, it was rather a challenge quite knowing where to start. The company that sold the whiteboard gave us some really motivating training and I became very excited about the possibilities, but I still wanted some further support to use it effectively in lessons to improve my teaching.'*

*'For the first few weeks I just used it in the same way as my old whiteboard – for writing on in handwriting. But I knew that I could save what I had written and I slowly started to revisit work we had already done. I could see that I could do so much more with the interactive whiteboard. A group of us who had the boards met and the people who had had them longest talked about them and demonstrated what they could do. This made me much more confident about trying different things.'*

*'I started to add pictures and text and found some great resources online. I also started to use some CD-ROMs that we had in the department and in the library. I am feeling my way gradually and I can see the long-term benefits in using this technology.'*

## 1.2 What is an interactive whiteboard?

An interactive whiteboard is simply a surface onto which a computer screen can be displayed, via a projector. It is touch-sensitive and lets you use a pen on it (or in some cases, a finger) to act like a mouse, controlling the computer from the board itself. Changes made to information projected onto the whiteboard are transferred to the computer and can be saved and retrieved in future lessons. Everything that can be displayed on a computer can be projected onto the whiteboard and, if the computer is linked to

speakers and a DVD or video player, multimedia resources can be incorporated too. If the board is connected to the Internet, teachers can have immediate access to appropriate websites to enhance work in the lesson.

There are two main types of interactive whiteboard. Hard boards have a hard magnetic surface behind the screen and need special pens to write on them. Soft boards have a tough membrane on the surface which can be written on with a finger or a special pen. Most interactive whiteboards are supplied with specific software tools to exploit the potential of the board.



## The basics

The best way to understand how a whiteboard works is simply to find one and to have a try. You will find that it is easy to control the computer from the board itself. The most important point to understand is that anything that works on the computer will work on the interactive whiteboard too.

Certain items of equipment are needed to use the different features of interactive whiteboards.

- **Essential pieces of equipment are:** the interactive whiteboard and supplied software, computer and data projector.
- **You should also consider:** additional software, speakers, multimedia, remote input devices such as a keyboard, gyromouse or voting devices.

Other issues that need to be taken into account are:

- Installation
- Maintenance/warranty
- Security
- Networking to the school network and the Internet

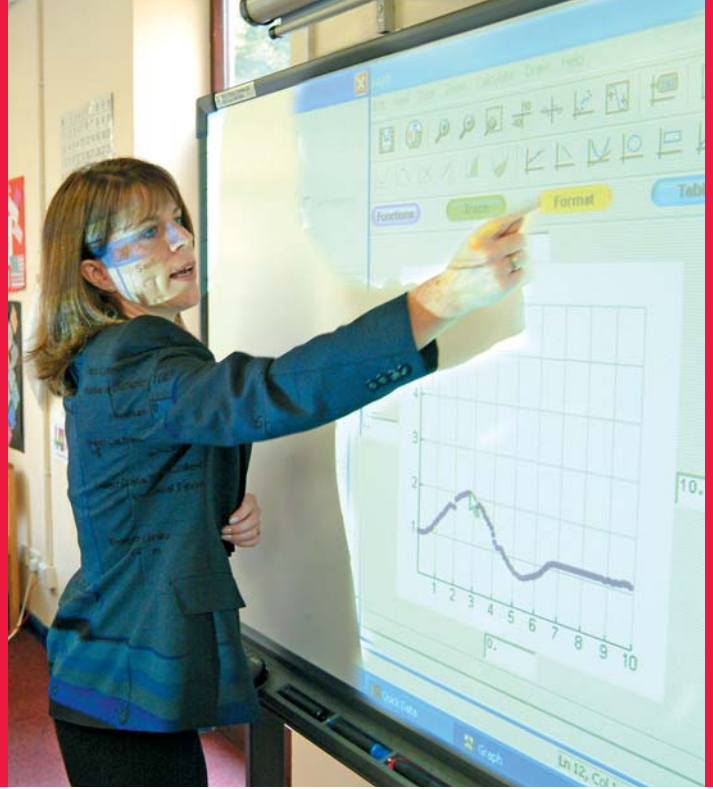
It is important to remember that there are likely to be additional costs that need to be allowed for when using an interactive whiteboard. For example, replacement projector bulbs are also needed. These are expensive but do last a long time.

For further advice on these issues and procurement visit [www.whiteboards.becta.org.uk](http://www.whiteboards.becta.org.uk)

*'When we first looked into getting an interactive whiteboard for our department, we realised that we needed to take into account not just the costs of the board itself, but also the cost of the computer, the projector, speakers and training for staff. We were also really keen to be linked to the Internet but the classroom we wanted to use wasn't wired up for that, so it took a few months to sort out.'*

*'It all seemed to be going well until the bulb in the projector blew. We didn't have any in stock and one had to be ordered. It took a couple of weeks to arrive and it was quite expensive. Those of us who had become used to using the whiteboard felt lost without it.'*

## Section 2: Why use an interactive whiteboard?



Interactive whiteboards have the potential to improve teaching and learning in a variety of ways. In this section, we will focus on three key areas:

### **1. Presentation, demonstration and modelling**

How the use of appropriate software and resources in combination with the interactive whiteboard can improve understanding of new concepts.

### **2. Actively engaging pupils**

How pupils' motivation and involvement in a lesson can be increased through the use of the interactive whiteboard.

### **3. Improving the pace and flow of lessons**

How the use of an interactive whiteboard can improve planning, pace and flow in lessons.

## 2.1 Presentation, demonstration and modelling

An interactive whiteboard is a valuable tool for whole-class teaching. It is an outstanding visual resource that can help teachers to present lessons in lively and engaging ways. It allows information to be presented using a wide range of resources, which can then be annotated by teachers and pupils to clarify and refine understanding. It can facilitate explanations of models by both teachers and pupils and contribute to an understanding of what happens to a model if a variable or rule is altered.

Teachers can use the board to demonstrate and present ideas in exciting and dynamic ways. The boards also allow pupils to interact with the new learning that is being demonstrated, as well as providing a valuable tool for teachers to model abstract ideas and concepts. Teachers can change what they put on the board easily, or move an object to a different place, making new connections. They will be thinking aloud as they carry out the process, making what they are doing transparent to pupils. They will gradually involve pupils, who can then add their own ideas to the board.

## 2.2 Active engagement

Evidence suggests that the interactive whiteboard 'increases enjoyment of lessons for both students and teachers through more varied and dynamic use of resources, with associated gains in motivation' (Levy 2002).

The careful use of a whiteboard can support teachers in effective questioning. Well-judged questioning, which is aimed at pupils refining their ideas and posing new questions, helps them to deepen their understanding of the concept or idea.

It can provide a focus and impetus to class discussions managed by the teacher and give stimulus to small group work. The whiteboard provides an engaging focal point in the classroom. It also supports a good pace in teaching, as all the resources are prepared in advance of the lesson and are instantly available.

areas highlighted and colour added. In addition, sections of text, pictures or diagrams can be concealed then revealed at key points during the lesson. This is done with teachers or pupils at the front of the room and becomes the focal point of the class' attention.



## 2.3 Improving the pace and flow of lessons

The use of interactive whiteboards allows for the creative and seamless use of materials, as lessons or topics can be structured around a single file. Files or pages can be prepared in advance and used to link to other resources deployed in the lesson. Teachers say that preparing lessons around a single file helps with planning and assists the flow of the lesson. It also allows for reflection after the lesson.

'It is very useful as a means of planning on the basis of past teaching and, following review with colleagues, we can share, adapt and develop according to needs' (teacher quoted in Glover and Miller 2001).

Objects and text can be moved around easily using the whiteboard, diagrams labelled, text, pictures and diagrams annotated, key

Pre-preparing text, charts, diagrams, pictures, music, maps, subject-specific CD-ROMs as well as including hyperlinks to multimedia files and the Internet can give lessons a crisp pace, as no time is wasted writing on the board or moving between keyboard and screen. These pre-prepared resources can be annotated on screen if required, using the handwriting tool, and saved for future use. Files from previous lessons can then be recalled to help with reinforcing previous learning.

These strategies can also engender a greater sense of involvement and engagement in the lesson in the pupils. The work they do on the board can be saved and referred to later. Flip charts or pages can be stored at the side of the board as thumbnails and the teacher can move backwards to an earlier section, if need be, to reinforce learning for the whole class or a small group. Pupils who are unclear about what has been taught can refer back to teaching points from earlier parts of the lesson.

## 2.4 What the research says

These benefits of whiteboard use have been highlighted in Becta's publication, *Getting the Most from Your Interactive Whiteboard: A Guide for Secondary Schools*

### General benefits

- versatility, with applications for all ages across the curriculum (*Smith A 1999*)
- increases teaching time by allowing teachers to present web-based and other resources more efficiently (*Walker 2003*)
- more opportunities for interaction and discussion in the classroom, especially compared to other ICT (*Gerard et al 1999*)
- increases enjoyment of lessons for both students and teachers through more varied and dynamic use of resources, with associated gains in motivation (*Levy 2002*).

### Benefits for teachers

- enables teachers to integrate ICT into their lessons while teaching from the front of the class (*Smith H 2001*)
- encourages spontaneity and flexibility, allowing teachers to draw on and annotate a wide range of web-based resources (*Kennewell 2001*)
- enables teachers to save and print what is on the board, including any notes made during the lesson, reducing duplication of

effort and facilitating revision (*Walker 2002*)

- allows teachers to share and re-use materials, reducing workloads (*Glover & Miller 2001*)
- widely reported to be easy to use, particularly compared with using a computer in whole-class teaching (*Smith H 2001*)
- inspires teachers to change their pedagogy and use more ICT, encouraging professional development (*Smith A 1999*).

### Benefits for students

- increases enjoyment and motivation
- greater opportunities for participation and collaboration, developing students' personal and social skills (*Levy 2002*)
- reduces the need for note-taking through the capacity to save and print what appears on the board
- students are able to cope with more complex concepts as a result of clearer, more efficient and more dynamic presentation (*Smith H 2001*)
- different learning styles can be accommodated as teachers can call on a variety of resources to suit particular needs (*Bell 2002*)

- enables students to be more creative in presentations to their classmates, increasing self-confidence (*Levy 2002*)
- students do not have to use a keyboard to engage with the technology, increasing access for younger children and students with disabilities (*Goodison 2002*).

### Factors for effective use

- sufficient access to whiteboards so teachers are able to gain confidence and embed their use in their teaching (*Levy 2002*)
- use of whiteboards by students as well as teachers (*Kennewell 2001*)
- provision of training appropriate to the individual needs of teacher (*Levy 2002*)
- investment of time by teachers to become confident users and build up a range of resources to use in their teaching (*Glover & Miller 2001*)
- sharing of ideas and resources among teachers (*Levy 2002*)
- positioning the whiteboards in the classroom to avoid sunlight and obstructions between the projector and the board (*Smith H 2001*)
- a high level of reliability and technical support to minimise problems when they occur (*Levy 2002*).

## Section 3: Where do I go from here?



### 3.1 Planning to teach with an interactive whiteboard

Interactive whiteboards offer far greater potential for teaching than simply being used as electronic chalkboards. They can also enhance lessons more than a data projector and a computer used on their own. Using an interactive whiteboard to its full potential requires planning, and this will take time. However, lessons created for the whiteboard can be used again, with or without adaptations, which actually saves time in the long run. Whiteboards also allow for lessons to be improved and refined based on practice, and they are likely to benefit by being carefully structured to take full advantage of the whiteboard technology.

Interactive whiteboards offer a wide range of advantages in the teaching of all subjects. Many teachers say whiteboards have led them to plan collaboratively with other members of their departments, which has had the effect not only of saving time but also of improving the overall quality of what is produced.

Teachers interviewed also say that they feel their planning has improved because of the way the interactive whiteboard software allows them to structure their lessons before they teach them. The fact that lessons can be saved, complete with notes, and then easily altered, allows for improvement and refinement before the topic is taught again. Teachers can also create libraries of resources which build up as they use the whiteboard.

The range of content available for use with the whiteboard means that students sometimes grasp new ideas and concepts more quickly. This is partly due to the visual nature of the presentation, and partly because whiteboards offer ways of actively engaging pupils in activities. Teachers who have been using the boards for some time feel that the quality of some of their lessons has improved too.

It is not possible to say categorically that pupils' results will improve through the use of interactive whiteboards, but many teachers using them note that pupils are more engaged, more interested and more motivated. They discuss topics more and they seem to remember things better.

*'I guess it's almost impossible to say whether your teaching improves with a whiteboard and how far a pupil's success is attributable to the use of the board, but I know that I have seen improvements in my students' work.*

*'Their enthusiasm has definitely increased and I think that is because I am able to find more interesting and relevant resources. Let's face it, they watch TV and play with their computers at home, so I can understand their lack of interest in some of the text books we have.*

*'I was really worried at one point because I realised that last term we'd written a lot less down than we would normally do. There seemed to be more talk in class, but talk about what we were doing and what was on the board eg "What if we did this...?" or "How would it change if we did that?" I was still concerned about the lack of written work, but when the end-of-module test results came back they were actually better than they had been the year before. Pupils seemed to find it easier to remember what we did in class. Well, that has to be a bonus!'*

It is important to realise that using an interactive whiteboard on its own will not provide any magic solutions to problems. Nor should teachers feel obliged to use the whiteboard in every part of a lesson, or indeed in every lesson. Sometimes the whiteboard might only be used for a starter or a plenary. As with any resource, its use will have most impact when it is used appropriately to enhance teaching and learning.

Teachers need to understand the generic software that comes with the whiteboard and its potential for helping them to create curriculum resources. They also need to identify subject-specific resources that can enhance the work they are doing on the whiteboard; eLCs (eLearning Credits) are likely to be available to help them purchase these resources where necessary.

In summary, using an interactive whiteboard has the following advantages:

- The lesson can be pre-prepared, which can contribute to a brisker pace and more time for meaningful discussion.
- Links can be created from one file to another – for example, to a sound or video file or an Internet page. This saves time looking for another resource and keeps the lesson flowing smoothly. It allows for the integration of a variety of media, facilitating audio and visual tasks. This is particularly important in languages, where teachers are very aware of the value of pupils being able to see and hear language simultaneously.
- Structuring the presentation of new material around a series of pages demands a logical step-by-step approach that can enhance and enrich lesson planning.
- Files can be saved to the school network at the end of a lesson for pupils to access later. The files can be saved in their original format or as they appear at the end of the lesson, complete with annotations and final tasks. These can be a useful reference point for both teacher and pupils, to be drawn upon later for revision purposes.

## 3.2 Using software tools

In the introduction, we mention that an interactive whiteboard is, in part, a display board for your computer. This means that all the resources which are on your computer can be displayed on the interactive whiteboard.

This gives you the scope to use resources such as:

- Presentation software
- Word-processing software
- CD-ROMs
- The Internet
- Image files (eg photographs, drawings, diagrams, screenshots)

- Movie files (eg sections of video from television programs, VHS video cassettes or files from a digital movie camera)
- Links to sound files (such as sections from cassettes or radio or recorded by a pupil or member of the teaching staff). Any sound included in a CD-ROM or Internet page will also play, providing that speakers are attached.
- Whiteboard software, which has the additional advantage over presentation software that items can be moved on the screen.
- Subject-specific software.

available on a computer, eg colour, movement and sound, all of which are more difficult (but not impossible) to achieve in a traditional lesson.

It is probably the ease with which such features can be deployed that makes pupils say that the resources used on an interactive whiteboard are generally more 'exciting' than those used in 'traditional' lessons. However, teachers do often have to search around to find appropriate resources. Look at the **Further links and references** section of this publication for some ideas to help with finding suitable materials.

It is probable that lessons will involve a variety of these resources and that the teacher will pick and choose from what is available. Many of the resources listed above will take advantage of the features

In addition, most interactive whiteboards come with a useful range of generic functions which are likely to include some of the following:

Whiteboard function	Contribution to teaching and learning
Colour	The range of colours available on an interactive whiteboard allows teachers to use colour to indicate important areas for focus, to link similar ideas or to differentiate between ideas, or to demonstrate a process using colour. Examples of this might be a choropleth map in geography or a diagram of the digestive system in biology.
Annotations on the screen	These are useful for modelling thinking and for adding information, questions and ideas to text, diagrams or pictures on screen. Annotations can be saved, referred to again or printed off for pupils to use.
Inclusion of sound and video clips	This can significantly enhance learning in a lesson. The technology also allows screens from video clips to be captured and displayed as still images for discussion and annotation.
Drag and drop	This helps pupils to group concepts, identify advantages and disadvantages, identify similarities and differences, and label maps, pictures, diagrams, equipment for an experiment and much more.
Highlighting specific elements of the whiteboard display	Text, diagrams and pictures can be highlighted on the whiteboard, allowing teachers and pupils to focus on particular aspects of the display. It is often possible to cover part of the display and reveal it only when needed. This can be helpful when pupils are being expected to focus on just a part of a text or a picture. Some interactive whiteboard software includes shapes that can also be used to help pupils focus on a particular area. Sometimes, there is a spotlight facility which teachers and pupils can use to select and focus on a particular aspect of the lesson.

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continued	continued
Cut and paste	Sections can be cut and erased on screen, copied and pasted, undone and redone. These features help give pupils the confidence to take risks, as they know they can always go back or make changes.
Flip chart pages	These pages can be turned backwards and forwards, allowing teachers to go over particular aspects of a lesson or to recap areas that some or all of the pupils may not have understood. Pages can be viewed in any order and images and text can be dragged from one page to another. It may also be possible to make a link between pages, so that a teacher can move between a general statement and a more detailed analysis.
Split screen	Teachers can split the screen and display two different sets of things at once. This can be useful when exploring what happens if particular changes are made.
Rotate objects	This allows objects to be moved so that pupils can see symmetry, rotation and reflection.
Linking a digital microscope to the screen	This can provide a greatly enhanced experience when it comes to examining and discussing microscopic images.

These features can add significant value to teaching with an interactive whiteboard. For example:

- Using the drag and drop feature
- Using annotation and highlighting

### Using the drag and drop feature

When using an interactive whiteboard, any item on the board can be moved to another position, using a technique called 'drag and drop'. This enables text or pictures to be moved anywhere on the board by pressing down on the item to be moved, holding it down and moving it, then releasing the pressure where you want it to stop – rather like moving a coin across the surface of a table. Using traditional methods, the same effect could be created by writing words on card or cutting out pictures and then sticking

them to a board. However, doing this on a computer is much less time-consuming, easier to manage and reduces the need to store paper-based resources.

Being able to move items on screen helps with activities such as:

- Matching
- Labelling
- Grouping
- Sorting
- Gap filling
- Ordering

Pupils can experiment by trying the task and, if their answers are incorrect, simply moving items and trying again. Pupils say they find this more motivating than doing a task on paper

where errors are permanent. There can also be a discussion based around what is on the interactive whiteboard. Using careful questioning, teachers can encourage pupils to explain their actions, thereby demonstrating their understanding and sharing their knowledge with the rest of the class.

Tasks using drag and drop are ideal for starters as they can be used to gain focus in the classroom. They can also act as revision from a previous lesson or a lead-in to the current lesson.

Drag and drop activities can also be useful during the main part of the lesson or plenary sessions, consolidating knowledge and applying the new knowledge and skills to other topic areas or providing a focus for extension.

### **Using annotation and highlighting**

With an interactive whiteboard, all the materials that can be accessed through a computer can be used in lessons, including charts, diagrams, animations, sound and video. The variety of materials enables a greater selection of teaching strategies and activities to be used and for a wider range of learning skills to be addressed.

When working at the interactive whiteboard, it is possible to take a pen and make notes, add comments, circle, underline or highlight anything that is on the board. How this is done depends on the type of board being used, but the key teaching advantage is that the interactive whiteboard can prompt greater discussion in the classroom, when supported by probing questions by the teacher. Of course, it is possible to underline and add notes on a traditional board. The advantages of using an interactive whiteboard are that:

- The notes are added to pages that have been prepared before the lesson.
- The notes can be kept once the lesson is finished, rather than erased.
- Different colours can be used as well as items such as a highlighter, which could only be achieved using an OHP slide with traditional methods.

The flexibility of the whiteboard for this type of activity provides greater engagement for pupils, especially kinaesthetic learners.

Notes and comments can be added over the top of anything that is displayed on the screen and then the notes can be saved within the file. This means that pupils can access the file later or pages can be printed for the pupils' notes. This technique can be adapted to a variety of tasks – any task that involves sorting, matching, grouping or ordering items can be done effectively on the interactive whiteboard.

## Section 4: Pedagogy and the interactive whiteboard

The teaching and learning strategies you need to use when teaching with interactive whiteboards will not be unfamiliar. The features that make for successful lessons are the same, regardless of the technology or equipment you use. Successful lessons are well-designed and well-structured. They have clear learning objectives and outcomes and are broken into teaching episodes. This structure helps pupils to understand the content of the lesson and to relate it to what they already know.

The Key Stage 3 Strategy publication **Pedagogy and Practice: Teaching and Learning in Secondary Schools** sets out the characteristics of the teaching episodes in a typical lesson. These include:

- A starter activity.
- An introduction outlining the purpose and objectives of the lesson.
- The introduction of new learning or the introduction of a task. Typically, this will be the main area of whole-class teaching and may be repeated at different points of the lesson.
- The development of the learning by pupils.
- Plenaries at the end or during the lesson, providing opportunities to review what has been learned and reflect on the learning process.

The lesson structure is the same, whether or not an interactive whiteboard is used. Some aspects of lessons, however, can be enhanced by the boards. For example, the interactive whiteboard is particularly useful when using a style known as inductive teaching, in which pupils are expected to reach hypotheses based on sorting, classifying and re-sorting information.

The teacher can model different ways in which information might be classified using the features of the board, such as moving objects, and using colour and highlighting, while bringing pupils into the process. Pupils can

then work in small groups away from the board, taking the classification process further. They can be drawn back to the board at intervals so that different groups can present their thinking to the class for discussion, before continuing with the task.

The following section shows the phases in a typical lesson and looks at the contribution that an interactive whiteboard can make to each phase. However, this contribution ultimately depends on the materials used and how teachers exploit them, as well as how they interact with the pupils. The role of the teacher is still central in an effective lesson. The appropriate use of an interactive whiteboard can significantly support effective teaching.

The case studies give some examples of how interactive whiteboards could be used in English to enhance learning and teaching during the different episodes of a lesson. Remember that these are only examples and that interactive whiteboards offer many more possibilities than suggested here.

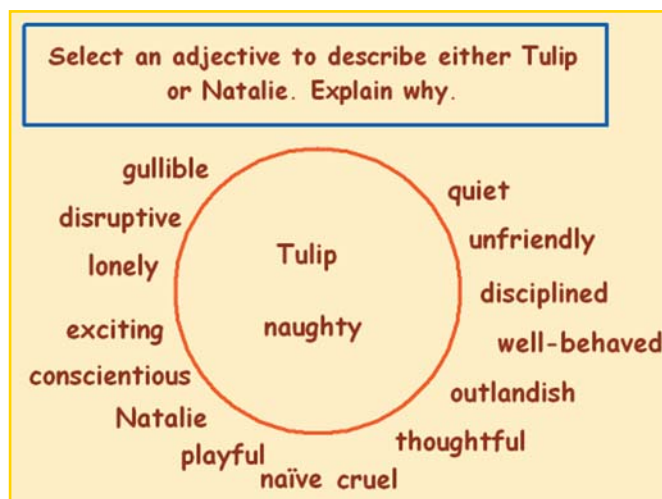
### 4.1 Using an interactive whiteboard for a starter activity

Teachers can use the dynamic nature of interactive whiteboards in a lively and engaging way in starter activities. Pupils can be set challenges using the board and can write their ideas on it. Teachers can also call up aspects of previous lessons to check pupils' recall.

### Case study 1

The teacher has set up a screen for a lesson starter for a group of lower-attaining pupils in Year 7. Pupils are reading *The Tulip Touch* by Anne Fine. In this task, a pupil selects a word and drags it into the circle, explaining which character has this characteristic and how he or she knows. The preparation for this task has taken about ten minutes.

This image shows the interactive whiteboard after a pupil has come to the front and moved the related words 'naughty' and 'Tulip' into the circle. The pupil explains why Tulip could be described as being naughty. The teacher prompts the pupil to find more words and discusses in more detail why different words can be used in different contexts.



Once the explanation and questions have been tackled, the pupil replaces the words and another pupil chooses new words. To add an extra challenge, the pupil can leave one word in the circle and the next pupil has to find a suitable match for the word that has been left.

This task is quick and easy to set up and can be adapted for many different books and year groups. The words could be based around character, plot or language and could be used as a lesson starter or as a plenary to consolidate reading done during a lesson. Questioning techniques are crucial in this type of task as it is not so much testing whether pupils know which characteristics apply to which characters as

how they have reached that conclusion. Asking pupils to explain their reasons promotes discussion in the classroom and develops oracy.

Pupils can be asked to operate the whiteboard themselves, which involves them more in the task. It's important to increase independence and interactivity when using a resource such as an interactive whiteboard, and pupils can also set up tasks like this themselves, either at the whiteboard computer or at separate computers. The task can be developed further by setting up 'zones of relevance' on the board, where pupils need to decide how relevant any adjective is to a character, and what evidence can be found to support conclusions.

The task supports teacher modelling and shared discussion. With the whiteboard it is also possible to annotate, gather more ideas and words, make new resources and remove words with the undo button. The whiteboard provides opportunities for the class and teacher to interact with the task and adapt it for different purposes.

It is also effective to have pupils delivering a plenary using the whiteboard themselves, to show what they have selected or changed and what they have learned about character.

Using traditional methods, this task could be achieved with card and sticky tape or pieces of acetate on an overhead projector slide – both of which are considerably more time-consuming to prepare and require physical storage space if they are to be re-used. This file can be saved, re-used and shared with colleagues in school or via the Internet with colleagues worldwide.

## 4.2 Using an interactive whiteboard for the:

- Introduction of new learning;
- Development of the learning by pupils.

Interactive whiteboards are useful for

introducing new learning and developing learning in that they allow teachers to collect all the resources they need on their computer. This means that teachers can structure lessons carefully in advance, ensuring a smooth flow and maintaining a good pace.

Interactive whiteboards can make an important contribution to the presentation of new information, modelling new concepts and processes, creating simulations, stimulating discussion and explaining new ideas.

Once pupils have begun to learn new ideas, it is useful if they can practise their knowledge or apply the new concepts to a different context. This may be a time to discuss what they have learned or allow them to consolidate learning before moving on, and can be done away from the board.

## Case study 2

One of the advantages of using an interactive whiteboard is that any digital media can be used on it. This includes sound and video clips, either as single files or included on a CD-ROM. This case study looks at how a teacher, working with a Year 9 SATS group, uses video and interactive whiteboard to challenge pupils' perceptions of Macbeth.

The teacher has taken video clips from a VHS video of Macbeth, which had been encoded digitally by the school technician. (Converting video from VHS to digital format for use in education is legal, providing that the school has the original video or a Public Broadcast Licence. It is, however, advisable to check any such regulations with Becta.) The teacher has worked with the technician to select and encode short sections of video for use with the interactive whiteboard using appropriate commercially available software.

The teacher has found the text of Macbeth on the Internet and copied and pasted Act 1,

Scene 1 into presentation software to use with the whiteboard. A video clip showing the same section is inserted into the page. This means that the video clip will play alongside the text.

In the lesson, the teacher discusses the text with the pupils and then immediately plays the video clip. This has the advantage over a video cassette that it can be replayed quickly and easily, and displayed alongside the text. It can also be paused and notes or comments added over the top of the text or the video. Pupils can see the text and hear the words spoken at the same time. This can help some pupils who find it difficult to understand Shakespearean language.



Difficult language has been highlighted for further comments to be added

Video clip will play when clicked

An alternative to this would be to look into commercial packages, some of which include screens similar to the one above, and feature either audio or video files. CD-ROMs can be used very effectively with an interactive whiteboard; again, notes and comments can be added to any screen.

In this task, teacher's and pupils' annotation

support shared reading and writing. This technique can be adapted to suit a range of teaching objectives for English. However, it is important to ensure that the technique itself is not the objective of the lesson. Pupils will need to see what it is helping them learn, and the plenary will reflect this learning.

### Case study 3


A teacher has been working on the book Stone Cold by Robert Swindells with a Year 8 group. The group has now moved on to attempt some written work on the theme of homelessness and to do this they draw on ideas that they have examined in their reading. In this lesson, the teacher looks at a structure for the piece of work and provides some stimuli for the pupils.

The teacher has drawn up some questions to help the pupils think about what they want to say. These questions form the basis for an essay. The interactive whiteboard helps by linking each question to another page with more information and more questions. Once they have discussed these, pupils can return to the framework page to see their progress through the essay. The following two screens illustrate what could be done in this context.

On this screen, the teacher or pupils can make notes over text that has been prepared before the lesson. In this case, notes are added in different colours, identifying and expanding on the terms '1st person' and '3rd person'. Pupils spend time discussing the way that they would like to write their own piece of work, then the teacher returns to the first page to look at another aspect of the writing.

With the interactive software, the teacher or pupils can move words, phrases, clauses and sentences around to highlight and discuss effect.

Plenaries could involve pupils sharing



## Stone Cold

- 1st person or 3rd person?
- Why homeless?
- How do other people react?
- What is life like now?
- What is the future like?

## 1st person or 3rd person?

I live rough and this is my story.

Jim became homeless 3 years ago.  
This is his story.

This is the first slide shown on the interactive whiteboard by the teacher. It has links to all the other sections that will be discussed in the

lesson. By clicking on '1st person or 3rd person?' the next slide is displayed on the interactive whiteboard.

annotations or movement of text to make learning explicit.

The advantage of using a whiteboard in this lesson lies in being able to write and save all the pages beforehand. This means that the teacher can focus on extracting the key points from text and pictures that have been prepared in advance. The teacher is more able to return to previously saved resources during the lesson to help pupils make the connections in what they learn. The whiteboard can support shared writing, enabling the teacher to concentrate on and share visually the thought processes involved in writing.

### Case study 4

Linking the computer used for the interactive whiteboard to the Internet can have many advantages. These activities illustrate some of them. Pupils in Year 10 are studying Bill Bryson's *Notes from a Small Island* as an example of travel writing. The teacher used the Internet in several different ways while working with this text.

#### Maps and photographs

The teacher has found maps and photographs to illustrate each place visited by Bryson. These are shown as each new place is introduced, and

pupils follow Bryson's journey around Britain on the map displayed on the board. This provides a framework for the younger readers who may not be as familiar with the geography as an older reader. Photographs also help to set the text in context.



"Here's a piece of advice for you. Don't go on the Mersey ferry unless you are prepared to have the famous song...running through your head for about eleven days afterwards."  
Bill Bryson, *Notes from a Small Island*

#### Pupils present work at the interactive whiteboard

After finding materials for the first couple of lessons, the teacher challenges groups of pupils to find resources and create an interactive presentation for later lessons. Small groups or pairs of pupils will talk about each location, comparing what Bryson says with other sources of information.

Displaying work at the interactive whiteboard helps pupils develop their creativity and presentational skills. Pupils say it is easier to speak to the class with the use of images the board can offer. The visual quality and use of colour that can be achieved with the interactive whiteboard is greater than with overhead projector slides; also, pupils can control the computer from the board, allowing them to interact with their fellow pupils at the same time.

### Book reviews

In another lesson, the teacher finds an Internet site that features book reviews written by members of the public. One of these is selected and copied into the whiteboard software.

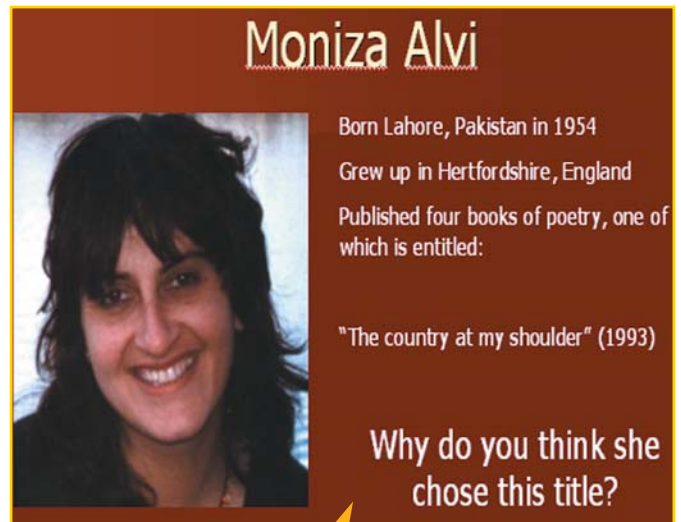
The teacher models an analysis of the site for the whole class, then pupils continue, saying what they think are the good and the poor points and deciding on a set of criteria for their evaluations. Pupils continue the work away from the board, looking at other reviews and developing their own ideas.

There are increasingly exciting opportunities for pupils to use the whiteboard to explore different ways of producing presentations, and teachers and pupils will want to explore the interactivity it offers.

## Case study 5

A teacher working with a Year 9 group wants to look in detail at the poetic devices used in *Presents from my Aunts in Pakistan*, a poem by Moniza Alvi which is currently in a GCSE syllabus. The teacher has structured the lesson around a single file in the presentation software used by the school.

On the first page, the teacher brings up some text and a picture, which has been prepared in advance, to introduce the author of the work.



Moniza Alvi

Born Lahore, Pakistan in 1954  
Grew up in Hertfordshire, England  
Published four books of poetry, one of which is entitled:  
"The country at my shoulder" (1993)

Why do you think she chose this title?

Bloodaxe Books

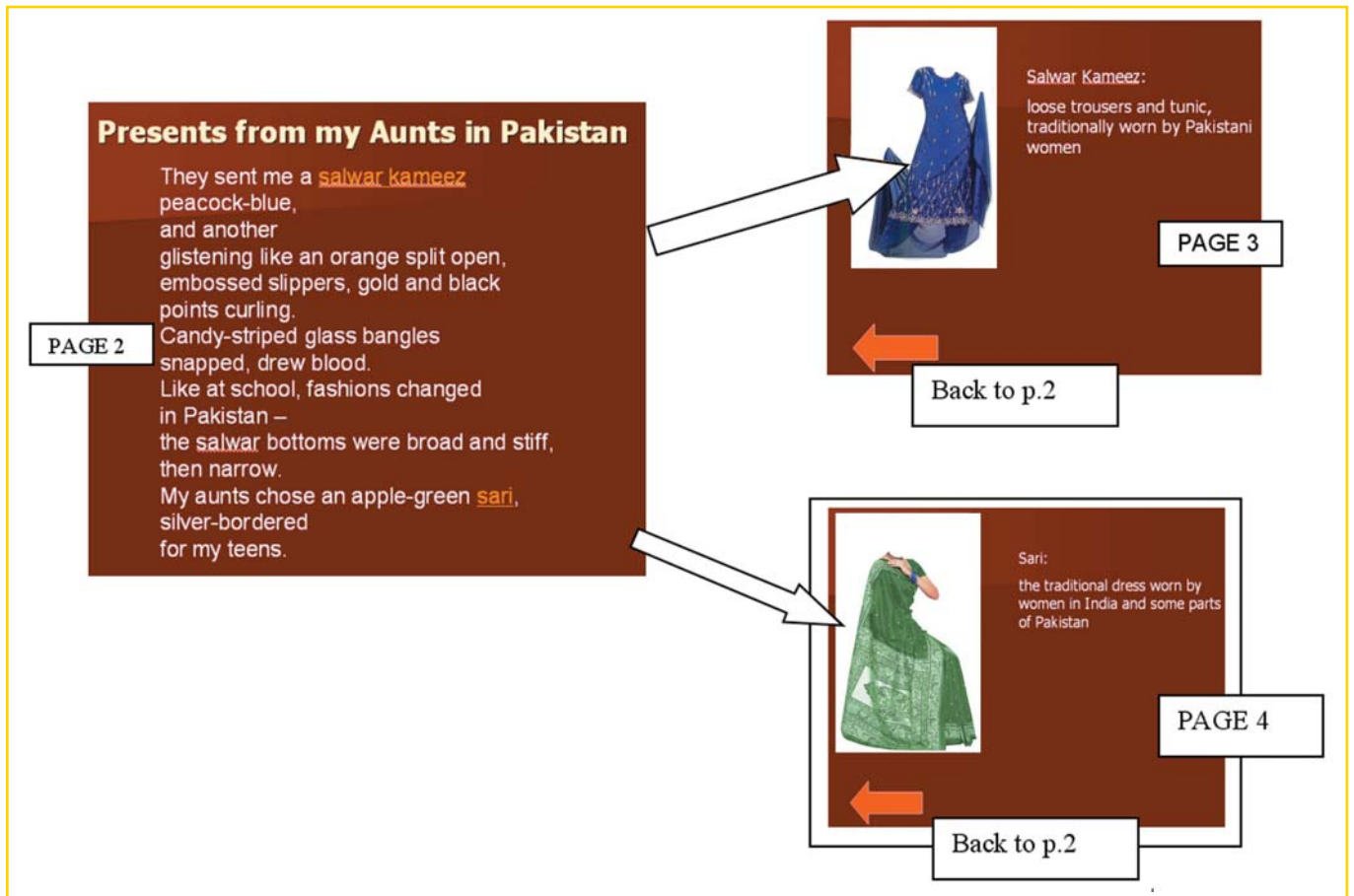
**Information is prepared before the lessons. Pupils can see pictures and text together and the first task is clearly presented and remains on the interactive whiteboard.**

The teacher has included a task on the page, which is to look at the title of a work (*The Country at My Shoulder*) and think about why the author has chosen this title. The teacher has not had to spend time writing on the board, which leaves longer for discussion time, and the pupils now spend two minutes thinking about the title and discussing it in their groups.

Teachers have said that they have more time to spend with their pupils when they use the interactive whiteboard as they are not busy putting up work on the board – they simply turn the page and the next resource is ready. However, it is important to leave thinking time for the pupils as the resource will be new to them and it may take some time for them to digest the information being presented.

After the discussion of the title, the teacher turns the page to look at one of the poems from the work. This is called *Presents from my Aunts in Pakistan*.

Links from the poem go to other pages where pictures illustrate the words that pupils may not



*Presents from My Aunts in Pakistan* by Moniza Alvi, from *Carrying My Wife* (Bloodaxe Books, 2000)

understand, so facilitating the reading of the poem. Alternatively, the link could go to a dictionary definition or other examples of the word used in context.

In preparing the work, the teacher has used a large, simple font, and the lighter writing against a darker background helps with visibility in the classroom. Pupils say that they like the way the colours make the text easier to read, analyse and select. The hyperlinks to other pages are shown in a different colour.

Taking an electronic pen, the teacher and pupils can then start to look at the language in more detail. The teacher begins this activity by modelling her thinking for the pupils as she highlights words. She thinks aloud about what she is doing, making changes and explaining why. In this way she makes the process clear to the pupils. She then brings them into the process by inviting them to highlight the words in the poem which help to identify the key themes. In

this example, pupils have noticed that one of the themes is colour and they have highlighted all the words relating to colour in pink.

In a later example, the teacher has set up an animation effect to make pupils think about the effect that line breaks have on emphasis in a poem.

When the new slide appears, pupils discuss the meaning of the sentence that appears. The teacher then presses a button and a line break is added (see over page).

Moving, hiding or revealing words can be easily done by the teacher and the effect on the pupils of seeing the words change can be quite dramatic.

In the final phase, pupils are given the full text of the poem and spend some time reflecting on what is described and which items and feelings are Pakistani and which are English.

**Presents from my Aunts in Pakistan**

They sent me a **salwar kameez** **peacock-blue**, and another glistening like an **orange** split open, embossed slippers, **gold and black** points curling. **Candy-striped** glass bangles snapped, drew blood. Like at school, fashions changed in Pakistan – the **salwar** bottoms were broad and stiff, then narrow. My aunts chose an **apple-green sari**, **silver-bordered** for my teens.

I longed for denim and corduroy

↓

I longed for denim and corduroy

These items are collected on the board.

Pakistani	English
salwar kameez	cardigans from M and S alone, playing with a tin boat

At the end of the lesson, the teacher saves the file, complete with all the notes and annotations, to the pupil area of the school server. The pupils have been asked to write a commentary on the language and devices used in this poem and they can access the work done in class via a computer. The lesson can also be extended when pupils prepare their own individual or collaborative analysis of a text using similar approaches and present it to the class.

This lesson was adapted from a BBC Bitesize web page and pupils were also given the web address so that they could use the resources available on the website to complete their assignment.

### 4.3 Using interactive whiteboards in the plenary session

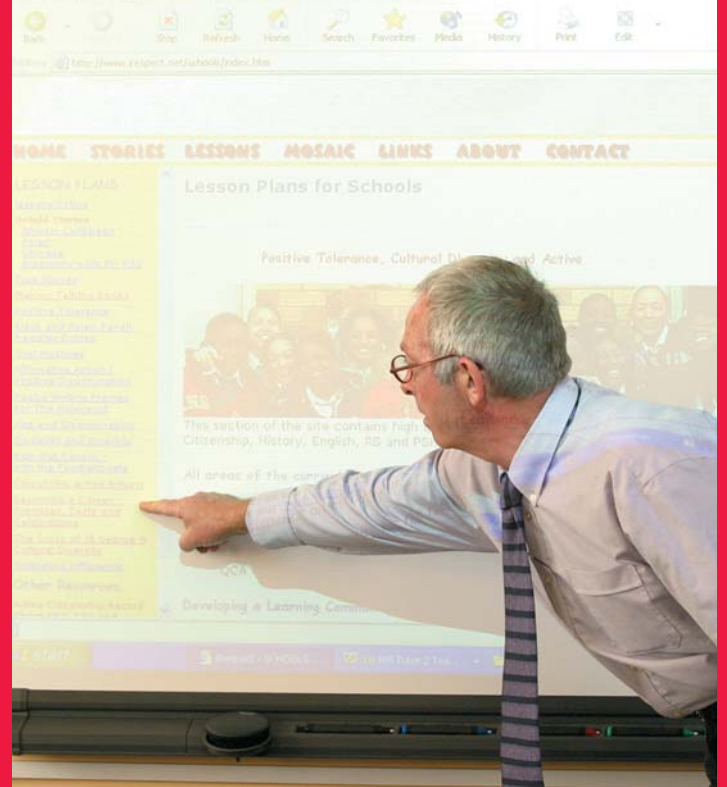
Interactive whiteboards can contribute hugely

to plenaries. Pupils can use the boards to present some of their ideas to the rest of the class for discussion, encouraging them to review and reflect on what they have learned. Learning can be reinforced with games and quick quizzes and the interactive whiteboard can also be used to point pupils to extension activities, such as websites related to the topic.

### Case study 6

In the lesson described in case study 5 the teacher uses the whiteboard in the plenary session. Pupils are asked to work in small groups for a few minutes to identify a small section of the poem and explain its effect on the reader. Representatives of each group are invited to the board to highlight that section, explain its effect and explain why their group chose it. This allows them to reflect on the thinking they did as a group to select the example. They are able to annotate the board with key words to sum up the effect.

## Section 5: Emerging technologies



Interactive whiteboards have paved the way for a host of interactive technologies in the classroom. Some of these require an interactive whiteboard in order to work, some complement an interactive whiteboard, and others can work with just a computer and a projector.

### **Slate or graphics tablet**

This wireless piece of equipment, which is about the same size as an A4 pad of paper, allows an interactive whiteboard to be controlled from anywhere in the room. This is done by the teacher or pupil holding the slate and using a special pen on it. The cursor on the board moves in line with the movements on the slate.

The tablet has advantages for classroom management, as the teacher can be situated anywhere in the classroom and still control all the functions of the board. In addition, the slate allows pupils who do not want to come to the board, or who are not physically able to do so, to participate fully in lessons.



### Remote keyboards

Teachers or pupils can enter text onto the computer from anywhere in the classroom when using the remote keyboard. The keyboard works wirelessly with the computer, with any text typed being displayed on the interactive whiteboard. This is useful for shared writing activities or for a pupil to make notes directly onto the interactive whiteboard during class discussion.



### Remote mouse

All the actions of a computer mouse can be carried out from any position in the classroom by this wireless device, also often known as a gyromouse.

Rather than moving over the surface of a desk, the remote mouse can be moved through the air to control what is happening on the screen. The remote mouse can be used from anywhere in the room.



### Tablet PC

Using wireless connections to transmit data to a projector, the tablet PC can be used freely from anywhere in the room. Tests are currently being carried out to assess the value of using tablet PCs in this setting through the DfES Testbed project.

### Voting devices

Voting devices allow teachers to ask pupils to vote electronically on questions. These could be multiple choice questions, with several options to choose from, or pupils could be asked to express an opinion across a range of answers (eg from A = agree strongly to E = disagree strongly). Some voting devices allow numerical answers to be entered. Teachers can even ask pupils if they understand or are if they are ready to move on. As pupils vote anonymously, they are less likely to be afraid to admit that they would like more time on a section of work.

Results from the vote are displayed immediately on the interactive whiteboard, allowing for immediate feedback on questions. Some software allows for detailed analysis of the results in order to offer more support to pupils who are scoring below the expected levels.

### Digitizer

A digitizer is rather like an overhead projector that can enlarge opaque objects. It allows any small object to be enlarged and displayed on an interactive whiteboard. A teacher could, for example, open a book and place it on the digitizer. The page of the book would be displayed clearly on the board. Using the right software, images can then be annotated or saved.

### Video conferencing technology

A computer with a webcam offers the possibility of video conferencing during lessons. Links can be established with people outside the

classroom and live streaming video displayed on the interactive whiteboard. Video conferencing technology enables 'experts' to contribute to lessons – for example, by linking up the classroom with a specialist who is able to answer pupils' questions from a laboratory, a museum or overseas. The video link can be recorded and replayed later in the lesson using the interactive whiteboard, to analyse or recall what was said during the interview.

### **Digital repositories**

As the use of digital technology develops, so too will banks of resources that can be searched and downloaded to provide short video or audio clips for lessons. Searching the Internet for material can be time-consuming and ultimately frustrating, so the advent of resources which can be quickly and easily accessed and customised for particular lessons is a welcome development.

## Section 6: Further links and references



There is a wide range of further sources of information, advice, resources and other materials available to help you make the most of the interactive whiteboard in supporting learning and teaching.

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

### Department for Education and Skills

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

Homepage for the Department for Education and Skills (DfES).

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

For information on all policy areas relating to ICT in schools.

#### [www.curriculumonline.gov.uk](http://www.curriculumonline.gov.uk)

Online catalogue of digital learning resources.

#### [www.learnevaluations.co.uk/findeval\\_intro.aspx](http://www.learnevaluations.co.uk/findeval_intro.aspx)

Homepage of Evaluate, a Guardian newspaper-run, DfES-appointed evaluation service for products registered on Curriculum Online.

#### [www.schoolzone.co.uk/evaluations/findeval.htm](http://www.schoolzone.co.uk/evaluations/findeval.htm)

Features independent evaluations of thousands of web-based learning materials, as well as details of educational suppliers and products. DfES - appointed evaluation service for products registered on Curriculum Online.

#### [www.teachernet.gov.uk](http://www.teachernet.gov.uk)

Homepage of TeacherNet, the Government gateway for educational professionals.

#### [www.teachernet.gov.uk/teachingandlearning/secondary/ks4/](http://www.teachernet.gov.uk/teachingandlearning/secondary/ks4/)

TeacherNet information about Key Stage 4.

**[www.publications.teachernet.gov.uk](http://www.publications.teachernet.gov.uk)**  
Online publications for schools service.  
View, download or order paper copies of  
the latest publications.

**[www.standards.dfes.gov.uk](http://www.standards.dfes.gov.uk)**  
Homepage of the DfES Standards Site,  
containing information on the latest  
educational initiatives.

**[www.standards.dfes.gov.uk/keystage3/](http://www.standards.dfes.gov.uk/keystage3/)**  
Information on ICT across the curriculum  
in Key Stage 3.

## British Educational Communications and Technology Agency

**Becta main site**  
**[www.becta.org.uk](http://www.becta.org.uk)**  
Website of the Government's key partner  
in developing and delivering its information  
and communications technology (ICT) and  
e-learning strategy for schools and the  
learning and skills sector.

**Interactive Whiteboard Catalogue**  
**[www.whiteboards.becta.org.uk](http://www.whiteboards.becta.org.uk)**  
Online resource enabling you to look at  
interactive whiteboard solutions, services,  
suppliers and pricing before having a site survey  
carried out. Using the site, you can compile a  
shopping list of items and find all the necessary  
information to place an order with a supplier.

**ICT advice for Teachers**  
**[www.ictadvice.org.uk](http://www.ictadvice.org.uk)**  
Advice from Becta on the use of ICT in  
different areas of the curriculum.

**Teacher Resource Exchange**  
**[www.tre.ngfl.gov.uk](http://www.tre.ngfl.gov.uk)**  
Database of resources and activities  
designed to help teachers develop and share  
ideas for good practice. All resources on the  
TRE are checked by subject specialists to  
ensure they are of the highest possible quality.

**National College for School Leadership**  
**[www.ncsl.org.uk](http://www.ncsl.org.uk)**  
For information and advice on the strategic  
leadership and ICT course.

**Qualifications and Curriculum Authority (QCA)**  
**[www.ncaction.org.uk/subjects/ict/inother.htm](http://www.ncaction.org.uk/subjects/ict/inother.htm)**  
For information on ICT in subject teaching.

## Subject association websites English

**English Association**  
**[www.le.ac.uk/engassoc](http://www.le.ac.uk/engassoc)**

**National Association for the Teaching  
of English (NATE)**  
**[www.nate.org.uk](http://www.nate.org.uk)**



Copies of Whiteboard series can be available from:

**DfES Publications:**

Telephone 0845 60 222 60  
Facsimile 0845 60 333 60  
Textphone 0845 60 555 60  
email [dfes@prolog-uk.com](mailto:dfes@prolog-uk.com)

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