Choosing and using digital learning resources

A guide for school leaders

April 2008
Digital learning resources can engage, inspire and excite learners of all ages, abilities and needs. They can be used to stimulate and channel your own creativity as you adapt them to your needs and to develop more stimulating materials for personalising learning. The creative use of digital resources offers a great example of how good practice in ICT can support better learning outcomes.

Digital learning resources come in many forms: a resource might be as simple as a digital photograph, or as rich as an animated demonstration of a chemical process. In education a digital resource is anything which can be stored in a digital format and adopted or adapted for use in learning. Digital resources may or may not have been designed for use in the classroom, but if you can access and deploy them effectively you can reduce lesson preparation times, make learning more stimulating and engaging, and through sharing what you’ve done enrich the pool of learning materials available to everyone.

Because digital learning resources can come from such a variety of sources their quality will be uneven (some will be great, and ready to use more or less as they are, but others may require some work). You’ll need to use your professional judgement both about the quality of the original resource and the way you put it to work in the classroom.
To support and guide you Becta has developed a set of quality principles about the design and use of digital learning resources to support effective learning and teaching. What follows is derived from those principles, and designed to help you find and select appropriate resources for your work.

Throughout you’ll find examples drawn from the 2008 BETT award winners, which will help show how these principles translate into valuable materials.

At all times you need to ensure that the digital learning resources you use are:

- Culturally relevant to your audience
- Suitably challenging for the attainment levels of the learners in your class
- Factually accurate
- Technically robust
Depending on the type and size of resource you have chosen you may need to ask some technical questions:

- How much time and effort will the resource take to install and maintain?
- What demands will it put on the school’s internet connection (e.g. with video streaming)?
- Is the school’s equipment suitable for using the resource?

If the digital resource you want to use is connected to a Web 2.0 activity (e.g. a blog, discussion board, social network or wiki) you should check to see whether your school has specific policies – particularly with regard to e-safety.

Becta’s self-review framework may help. Many schools are using the framework because it offers a straightforward route for improving their use of ICT. The framework includes reviewing and purchasing appropriate digital digital learning resources.

Find out more about e-safety
www.becta.org.uk/schools/esafty

Find out more about Becta’s self-review framework
www.becta.org.uk/schools/selfreview
Once you have decided broadly on the type of resource you want to use, apply Becta’s Quality Principles below to assess the particular item. Click on the links to find more information.

- Does it match the curriculum?
- Is it inclusive and accessible?
- Does it engage learners and promote effective learning?
- Is it easy to use?
- Does it offer effective formative assessment?
- Does it offer robust summative assessment?
- Does the resource tell me what I need to know?
- What if we make a mistake while using it?
- Are the images, sound files and videos fit for purpose?
- Can it work with other systems?
- What about finding and sharing?
- Useful information

Find out more about Becta’s Quality Principles
www.becta.org.uk/partners/qualityprinciples
The resource you choose should relate to an appropriate curriculum or programme of learning activities. It should have:

- clear objectives
- content that is relevant, accurate and authoritative
- learning activities that are appropriate to curriculum goals
- assessment (where present) that is appropriate to curriculum goals.

Digital learning resources that match these four elements most closely will be the easiest to use in your work. Clarity about the resource will make it easier for you to present learning objectives to learners, so they understand what they should be doing and how to get the most from the experience.

*Rigolo* is a Key Stage 2 French course on CD, which links to the Modern Foreign Languages (MFL) curriculum. Each unit of the course has particular curriculum goals and deals with the skills of speaking, listening, reading and writing activities, based around the experiences of an English family moving to France. It is particularly suited to non-specialist language teachers.

*Rigolo* delivers the Key Stage 2 French Framework. It also covers the contents and skills in the QCA Scheme of Work. You can choose to follow a clear structure (unit by unit) or you can choose those sections that best match your learners’ needs.

The software has engaging animated characters designed to capture children’s interest.

**Find out more:**
Watch the video about Rigolo used in delivering the French Primary Curriculum.
Is it inclusive and accessible?

By law, schools must ensure that no learner is disadvantaged because of:
- physical, sensory or cognitive impairment
- ethnic or social background
- gender.

You will need to be sure that any digital resources you use are accessible to learners and will enhance the learning experience. The way you do this may differ depending on learners’ individual needs, but generally your digital learning resources should:
- have an easy-to-use interface which presents information clearly. The teacher or learner should be able to adapt features such as font size and colour
- offer guidance and relevant information on the resource’s accessibility features (this should be included with technical specifications).

There should be evidence that the resource has been tested with an indicative range of the people who might use it, including those with different access needs. You should also consider whether the content itself is inclusive, in terms of the people and the situations it depicts.

You may need to think about using different resources for different learners: the abundance of digital resources makes such differentiation feasible.

In some cases, a digital learning resource may not be appropriate for a particular individual and the teacher will need to find an alternative approach.

Find out more
Making software accessible: a guide for schools, Becta, 2007
www.becta.org.uk/publications

Find out more
Software accessibility: legal requirements for schools
Meeting diverse learning needs: Noisy Things

*Noisy Things* is an easy-to-access collection of activities featuring colourful animated screens exploring music and sound. Children click to animate the objects and generate a spectrum of musical effects and rhythms. The sequences of cause and effect encourage further experimentation and creative play.

The activities develop early learning skills such as matching and pattern recognition. They also provide opportunities for communication and language work.

*Noisy Things* offers children the opportunity to learn by exploration and experimentation. Each colourful, bouncing cartoon character makes a sound. Children can choose to move the characters about to make patterns and learn how to organise musical sounds.

There are no text or spoken instructions, so *Noisy Things* can be useful for learners with special needs of any age. Learners can enjoy the activities in a variety of ways, including mouse click, space bar or touch screen. The design is easy to follow on every screen, encouraging interaction and play.

Facilities for customisation can be set by the learner or teacher.

---

**Find out more:**
Watch the video about Noisy Things
**Espresso Primary** is a library of cross-curricular digital learning resources for use in the classroom at Foundation, Key Stage 1 and Key Stage 2. **Espresso** modules feature full-screen video, multimedia activities, printable worksheets, websites, and other resources.

Each module covers a particular curriculum topic. The strong visuals can help children with impaired hearing (for instance) while for learners with English as an additional language the text can be read aloud. There are also photographs and videos, and a glossary to support new vocabulary. The learners in the videos reflect the likely diversity of children’s own cultural backgrounds.

**Espresso Primary’s** flexibility means it allows different learners to control their own learning, supporting learner autonomy. For example, teachers can control the layout for learners with special needs as well as for those who are gifted and talented. Learners can use the presentation tool to create their own work.

The software offers strong visuals featuring young people from a variety of cultural backgrounds. Children can watch videos on different topics, and then take a short test to see what they have learnt.

**Find out more:**
Watch the video about Espresso Primary

---

**Teaching sustainability in an inclusive way: Espresso Primary**

**Example**
Is it inclusive and accessible?

Teaching sustainability in an inclusive way: Espresso Primary

Children can assemble resources to create their own presentations, containing their own insights on issues such as conservation: it puts them in control of their learning.

Find out more:
Watch the video about Espresso Primary
Does it engage learners and promote effective learning?

A quality digital learning resource will have worthwhile educational aims and will not simply focus on occupying and entertaining learners. It should be challenging, motivating, enjoyable to use, with an appropriate mix of media, and encourage a culture of learning. You should also be able to personalise a resource, tailoring it to meet individual needs.

A good quality digital learning resource will help you promote cognitive and behavioural development by:

- offering a variety of approaches, allowing individual learners to choose the best learning path for them
- producing evidence of learning outcomes
- supporting learner autonomy
- encouraging higher order thinking and reflection
- enabling collaboration

- placing learning in an authentic context (for example, if you are learning a language it can help to have examples of speech from someone speaking that language in everyday situations, for instance depositing money in a bank or buying fish at a supermarket)
- offering multiple perspectives on a topic, for instance in a lesson on colonisation offering viewpoints from both indigenous populations and settlers.
Hands-on experience is an important part of Focus on Bee-Bot: Lesson Activities. The software brings Bee-Bot into an on-screen virtual three-dimensional world. Students use the mouse to select control buttons, including a 'go' key that sends Bee-Bot on its way, according to the instructions children give.

There are seven virtual worlds to choose from. The on-screen Bee-Bot worlds match vinyl mats, which you can use on the classroom floor. Evidence of learning outcomes is available immediately.

Learners can use Focus on Bee-Bot to build, save and print their own environments as well as experiment with different scenarios themselves. They have to use higher order skills to think in advance how they are going to use the software.

The software also offers new perspectives for the whiteboard and so challenges teachers to present materials in new ways. Overall it provides a wealth of different ways to enable collaboration and multiple approaches to learning.

Alongside the play mats, Bee-Bot provides the perfect bridge between a hands-on experience and the application of key skills in a more abstract setting.

Find out more:
Watch the video about Bee-Bot
Focus on Bee-Bot: taking a hands-on approach

Bee-Bot navigation in 2D mode

Find out more:
Watch the video about Bee-Bot
A good resource should not be complicated to use. It should have:

- clear icons
- easy navigation
- systems that follow generally used conventions
- appropriate visual and auditory cues and feedback.

The design should be welcoming and enjoyable to look at, encouraging learners to explore what can be done with the resource.

In other words you should be able to concentrate on the content itself without having to think about the processes you need to make the resource work. If the resource comes with helpful instructions that may be useful, but neither teachers nor learners should need further ICT training to be able to use the resource.

NB: Teachers may need some training to use digital learning resources, but this should focus on teaching and not on technological requirements.

This series of CDs offers ready-to-use activities for learners. Topics covered include shapes, colours, opposites, time, sequencing and counting. Each CD includes more than 20 graded activities in a question and answer format. Questions are written on the screen and spoken out loud.

The program also provides visual feedback and reinforcement for correct answers. There are statistics about the time children have spent and the accuracy of their answers.

Activities can be adapted for individual learners. There is a read-out of how many questions learners have answered. Learners themselves are rewarded with sounds and animations when they get a question right.
Choose It!: an easy to use approach

Learners can get lots of positive reinforcement when they get an answer right with Choose It! Select whether to include sounds and animations. You can also determine how long the reward lasts.

Find out more:
Watch the video about Choose-It!

The software gives teachers individual reports on learners’ achievements. There are clear icons and easy navigation.

Example

Is it easy to use?
Ease of use is a notable characteristic of 2Paint a Picture painting software, designed for primary children. It allows learners to recreate styles of well-known artists. From the Foundation Stage, children can experiment with a variety of brush styles and pattern-making templates. Older children will be able to use different tools and special effects. Icons are clear and conform to generally used conventions. Navigation is easy and visual cues offer simple directions.

Learners can produce an elaborate piece of artwork in a short space of time. Even those who are not confident in art can create pictures quickly. They learn by seeing the process occur on their screens, and pupils’ attention span becomes greater because they are motivated to carry on using the software.

Using 2Paint a Picture, learners can experiment with colour, drawing and brush styles. Children can explore styles including Impressionism, Mosaic, Pop Art and Modernism.

The software offers help with learning how to draw. There are templates and special videos that show children how to use various techniques, quickly and easily. These are linked to both the ICT and Art QCA Schemes of Work.
Does it offer effective formative assessment?

Digital learning resources can be designed to give rapid feedback on the accuracy of factual answers, providing useful evidence for teachers when assessing learner progress. A good quality learning resource should incorporate some type of formative assessment based on what has been learnt or understood, without necessarily demanding a formal test. A useful approach to formative assessment will:

- provide rapid feedback, specific to learners’ individual needs and helping them to see how they can improve
- point to activities that can help with this improvement
- offer opportunities for peer and self-assessment.

The learner should always understand the learning objectives beforehand.

**Smart Cat Profiling** is an online tool that encourages children in the Foundation Stage to make their own decisions. It assesses them in the process with minimum adult intervention.

**Smart Cat Profiling** is a suite of 13 games, each focusing on a different set of abilities such as fine motor skills, phonological awareness, speech, spoken language comprehension, colour vision, spatial awareness, mathematical development, empathy and short-term memory skills.

Each game is designed to assess children’s ability or need. Learners enjoy the games and are keen to try again if they get it wrong. For teachers, it is easy to load, easy to control and manage within a classroom environment.

The software keeps a record of what each child has done and gives a profile on how they have progressed. Reports use a traffic light system that helps you see whether a child has achieved a statement or is working towards it.

This tool does not replace other means of daily informal assessment, but it will support class work and it takes away some of the burden of paper work.

The **Magic Pictures** game assesses how well a child can follow instructions that vary in complexity. Other games help with personal and social development as well as mathematical understanding.
Does it offer effective formative assessment?

Smart Cat Profiling: keeping track of children’s progress

Example

Rapid feedback, prompts to try again and offers of help are all part of the software, together with rewards for getting it right.

The software shows how individual learners have achieved in relation to others in their age group.

Find out more:
Watch the video about Smart Cat Profiling
Does it offer robust summative assessment?

Summative assessment offers a summary of the level of development a learner has achieved, at a particular point in time. Not all digital learning resources will have this facility. Where they do, it is best to check beforehand that the results are reliable and consistent.

The resource should be able to address a wide range of achievement levels, rather than a narrow band. It should also be easy to use by everyone involved including teachers, learners, parents and employers (for instance, as part of a work-based learning programme). Learners should also be able to look at this assessment as evidence of their progress.

**MAPS eQualifications from TAG**
Learning is an online e-portfolio tool designed to help teachers manage learners’ work. Learners can upload work such as documents, presentations and spreadsheets to their personalised web space. Learners can manage their own customisable web-based e-portfolio, accessible anytime, anywhere, anyplace.

You can then mark this work electronically. All marks are collated by the system.

The software supports GCSE students preparing their coursework in a number of subject areas. In some instances, MAPS is being used by pupils of all ages, from Key Stage 1 through Key Stage 5.

When used by an education authority in all of its schools the software provides the option for work to be transferred between schools with a record of the assessors’ comments. This applies to all key stages and can include galleries of exemplar work and banks of assessment tasks.

Some of the features of the software include:
- integrated mark sheets for a variety of exams
- on site training, tutorial videos, online help files and a detailed printed user guide
- task banks and mark sheets
- a quiz player with automated marking.
Does it offer robust summative assessment?

MAPS eQualifications: evidence to support progress

Example

MAPS Administration.

MAPS Calendar

Find out more:
Watch the video about MAPS
Does it offer robust summative assessment?

MAPS eQualifications: evidence to support progress

Example

MAPS Task Bank

Find out more:
Watch the video about MAPS

MAPS Messages
Digital resources offer rich multimedia materials: from quizzes to games and animations, from single images and sounds to full learning packages, engaging and interactive presentations and written or photographic reference materials. These rich resources can help bring learning to life for children of all abilities.

Exploiting digital learning resources in an imaginative and creative way can make learning more engaging and effective. Such innovation is nurtured in a supportive environment which allows for surprise and risk-taking.

Likewise resources presenting innovative approaches in their design can inspire learners and be effective.

*SimVenture* allows students to set up and run a virtual company for up to three simulated years. It is an experiential learning tool which provides a safe environment for students to take risks and learn from their mistakes. Learners make the decisions and the simulation plays them out. The learner then deals with the consequences. It models all aspects of running a small business.

Every month learners are given the opportunity to change their business strategy. The simulation calculates the effect of these decisions. A virtual business adviser provides guidance.

The software gives an overview of how a business is run. For instance, there is a scoring system which includes profit and loss as well as the number of hours you are working and whether your contracts are in place.

You can change your premises and your suppliers. You can get feedback from customers and other market information.
Does it encourage innovation?

SimVenture: experimenting in a safe environment

SimVenture offers teachers clear guidance on how to use the software. Find out how to get started, evaluate performance and set up competitions.

Find out more:
Watch the video about SimVenture

What does SimVenture aim to achieve?

The purpose of SimVenture is to help people learn about the practical realities of business in a hands-on, vocational manner. By setting up and running a company for 3 simulated years, users learn about all aspects of business and how all the underlying issues relate to each other. Since SimVenture is a not-for-profit learning resource, users are able to build a big picture understanding of the world of business. Central to the whole ethos of SimVenture is the fact that users must absorb and understand issues in order to make good business decisions. However, because students can exit the game at any stage, they can continually learn from their mistakes.

Importantly, since there are thousands of variations, users can play and replay the game and never stop learning. Not only do users learn about business but they also gain an understanding of what it’s really like to be the leader of a company.

The software has been designed and supported by business experts and as such mirrors reality as closely as possible. SimVenture forces users to make decisions and then see the consequences of their actions and as such involves them in a deeper learning process. By understanding how business works, students develop a much stronger grasp of how all the taught elements fit together.

Since SimVenture contains a wealth of business information you can also use the software as an information resource. You will also find that the software contains a large number of links to websites and other sources of rich information that support student learning.

Detailed advice topics give feedback and direction in progressing the business adventure.

Find out more:
Watch the video about SimVenture
A well designed digital learning resource should support you by:

- having help functions that identify common problems and their solutions
- having navigational actions that can be undone
- giving quick, visible and audible responses to what you have done
- allowing you to exit at any point.

A learning resource should not be adversely affected by experimentation and error. If you or learners make a mistake, you should be able to recover quickly and, ideally, be told what went wrong.

By choosing learning resources with such features you can use them with the confidence that nothing you do is likely to leave you with an irreversible problem.
Any assets (for instance, videos, audio tracks and images) used to create and enhance your learning materials should be fit for purpose. They should be:

- accessed easily
- technically stable so that (for instance) soundtracks are easy to hear
- provided in a commonly accepted or open file format
- well-chosen with respect to the learning objectives.

The resource should have a clear statement about any licence terms and conditions, for example whether its assets can be modified and re-used.

The blending of the media used in Focus on Film is a real strength of this website, which is part of the National Archive’s Learning Curve project.

The Focus on Film site considers the pros and cons of using film as a source of evidence for the past. It helps learners begin to evaluate film as evidence. They start by considering how films are produced, which then enables them to ask what the film can tell us. Typical questions include:

- why and when was this film produced?
- who is the target audience?
- what is the filmmaker trying to tell the audience?

The archive provides film in a commonly accepted format; some film is authentic old footage, some modern reconstructions with good technical audio and visuals. There is also a free editing tool which learners can use to cut and reassemble film in the timeline.

The site offers many activities for teachers. Some encourage learners to compare dramatic reconstructions with original sources. As part of these activities, students can see clips of actors discussing their research for the role. Students can explore whether reconstructions are a useful source of information compared with documentary evidence.
A visual approach to historical analysis: Focus on Film

Here a short film describing the role of one of William I’s Domesday commissioners is being edited. It is the first of four clips filmed to illustrate the process of collecting information for the Domesday survey in 1086.

Find out more:
Watch the video about Focus on Film
Can it work with other systems?

Ideally the learning resource will adhere to technical standards that support interoperability between different systems. Interoperability is about making it easy to transfer content and information between products, systems or even organisations. Interoperability standards continue to develop, but the principle has potential benefits across many aspects of the education system. For example, learners will want to populate their own e-portfolios on the school’s learning platform* to take with them from school to college or to an employer.

Digital learning resources should:

- use appropriate and recognised terminology
- be stored so that content is available to all
- be easily found through resource discovery services
- use recognised standards so that content runs in the identified environment, for example, a web browser or learning platform
- be adaptable and shareable wherever possible, and have any copyrights described in common and agreed ways.

*A learning platform is a collection of resources that work together to provide communication, assessment, content delivery, tracking and learning management. Learners and others can access these from school or elsewhere.
Any good digital learning resource will be supported by appropriate information about its use. You will find this somewhere within the resource or in a separate manual or guidance notes.

Things you need to know include:

- the resource’s learning objectives and their relevance to a curriculum and age range
- information about the specific learning contexts for which the resource has been designed – for example, it may support self-directed use in the home or workplace
- details about inclusion and accessibility features together with any known issues for inclusion or gaps that the resource does not cover
- information about how effective learning can be assessed in relation to the contents of the resource
- technical information about the ICT infrastructure required to use the resource and key technical features
- clear statements about the licence terms and conditions.
Sharing resources within schools or departments is easy and good practice. It can save everyone valuable time by reducing duplicated efforts. There are many free digital learning resources available online. They can be shared between colleagues and adapted to different classroom situations.

### TEEM

[www.teem.org.uk](http://www.teem.org.uk)

TEEM is the UK’s longest established evaluator of educational multimedia. This free service is aimed at teachers seeking independent advice on the latest software for the classroom. Titles are given two evaluations: a content evaluation that analyses the curriculum relevance and extent of the product and its suitability for its intended audience. The classroom evaluation describes how the product was integrated into the evaluator’s teaching.

Teachers use the TEEM service to get an informed view written by teachers, for teachers. Publishers’ information is also available, enabling users to buy products that they like.

### Schoolzone

[www.schoolzone.co.uk](http://www.schoolzone.co.uk)

Schoolzone lists over 40,000 educational sites reviewed by teachers, as well as over 6,000 educational suppliers and thousands of educational products and services. It also offers other services such as market research and content development.

Schoolzone mails a newsletter to UK schools every month, highlighting useful resources for particular subjects or themes.

The service was set up by a group of enthusiastic teachers and parents in Oxford in 1997. They could see the need for safe, differentiated internet material which teachers, students and parents could access easily. It was devised with the help of over 400 UK teachers.
## Teacher Resource Exchange

[www.tre.ngfl.gov.uk](http://www.tre.ngfl.gov.uk)

The Teacher Resource Exchange (TRE) is a moderated database of resources and activities created by teachers. All resources are checked by subject specialists to ensure they meet certain quality criteria.

Resources are free to use and you can also add your own resources to share with other teachers. To find out more, look at the Getting Started section of the site. [www.tre.ngfl.gov.uk/server.php?navId=002003](http://www.tre.ngfl.gov.uk/server.php?navId=002003).

## Tes Resource Bank

[www.tes.co.uk/resources](http://www.tes.co.uk/resources)

The TES Resource Bank lets you share materials with other teachers and recommend your favourite teaching resources. You can also rate and review other teachers’ recommendations. You can upload your own files and download resources from the bank. The Resource Bank is free (you do need to register) and in its first year more than 72,000 teachers downloaded resources from the site.

## National Education Network (NEN)

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

The Regional Broadband Consortia (RBCs) have created the National Educational Network (NEN), which among other features offers teachers opportunities to share resources. The website offers teachers a secure network for creative and personalised e-learning. There is a range of learning resources along with an easy-to-use resource search engine and tools such as videoconferencing. The site aims to encourage closer collaboration between teachers.

## National Digital Resource Bank (NDRB)

[www.nwlg.org/projects.html](http://www.nwlg.org/projects.html)

This is a bank of free digital learning resources. The resources have been tagged, ready to use with learning platforms. There are tutorials, activities and interactive games covering entire courses. There are also images, audio clips and worksheets. Membership is free with either a contribution to the bank’s resources or to the work of the bank, such as tagging materials.

## Ictopus

[www.ictopus.org.uk](http://www.ictopus.org.uk)

Ictopus (ICT online primary user support) is a free support service for primary teachers, to help them develop their use of ICT. Every week, the site offers new lessons in different subjects for different age groups. These include ideas on using the technology across the curriculum. There are activities including word searches and puzzles. The lessons usually require access to an internet linked computer and involve children in using ICT to develop their skills, such as word processing and problem solving. In many instances, the technology simulates a problem that could not be solved in the classroom by conventional means.

Ictopus is run by a voluntary group of educators. They are building a community of teachers who will share good ICT practice through the Ictopus website and its electronic publications.
If you have any further questions about this toolkit please contact:

Becta, Digital Learning Resources

Millburn Hill Road
Science Park
Coventry CV4 7JJ
Tel: 024 7641 6994
Fax: 024 7641 1418
E-mail: becta@becta.org.uk
www.becta.org.uk

© Copyright Becta 2008

You may reproduce this material, free of charge, in any format or medium without specific permission, provided you are not reproducing it for financial or material gain. You must reproduce the material accurately and not use it in a misleading context. If you are republishing the material or issuing it to others, you must acknowledge its source, copyright status and date of publication. While great care has been taken to ensure that the information in this publication is accurate at the time of publication, we accept no responsibility for any errors or omissions. Where a specific product is referred to in this publication, no recommendation or endorsement of that product by Becta is intended, nor should it be inferred.