

MAGNETISM is the word used to describe magnets and their working. The word magnet comes from Magnesia, the name of a place near Aydin in Turkey where the mineral lodestone is found as a natural magnet. Most magnets are not natural but have to be made.

# Using **web-based resources** in **Primary Science**

# Using web-based resources in Science lessons

The internet has many useful resources to support primary science. You can bookmark them and use them offline, or download them and adapt them to meet the teaching and learning of specific key objectives. The examples given here describe a number of lessons in which ICT is used effectively to support the teaching and learning of science to children in Key Stages 1 and 2. The examples given here are just that – examples of how the sites could be used. You will have your own ideas on how a site may be used which will be just as relevant as the examples given here.

All web addresses have been checked and were correct at time of printing.



## Welltown KS1

Welltown is aimed at Key Stage 1 pupils, aged 5 to 7 years, and covers the main areas of personal, social and health education (PSHE) and citizenship.

URL: <http://www.welltown.gov.uk/school/dining.html>

Relevant to the following:

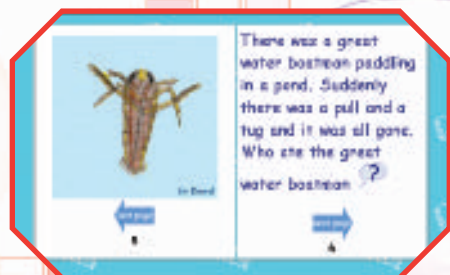
*Science Scheme of work for KS1 and KS2*

*Unit 2A (Year 2) Health and growth*

*National Curriculum KS1*

*Sc1 2h make simple comparisons and identify simple patterns or associations*

*Sc2 2b, 2c*



## Infant explorer KS1

This is an online resource big book from Kent NGfL with a story covering a food chain in a pond.

URL: <http://www.naturegrid.org.uk/infant/chiuniweb/bksp.html>

Relevant to the following:

*Science Scheme of work for KS1 and KS2*

*Unit 2B (Year 2) Plants and animals in the local environment*

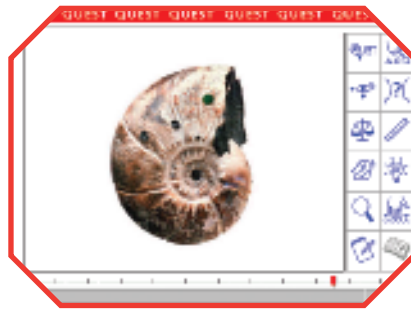
*National Curriculum KS1*

*Sc1 2g, Sc2*

A Year 2 teacher used the online big book 'Pond Web' with the whole class for literacy. He asked different children to read different sections of the story.

For science the teacher focused on the different creatures found in the pond. He asked the class to suggest answers to the questions 'Who ate the .....?' testing their knowledge of pond animals. He copied some of the images from the site and created worksheets with pictures of the different creatures. Each worksheet had spaces for children to write the name of the creatures. Each sheet had one creature missing to allow the children to draw their own picture.

When planning the science lesson, you will probably want to start with NC statements or learning objectives from the DfES/QCA exemplar scheme of work. ICT should be chosen as a resource only if it will support the teaching and learning of these objectives. When used appropriately, ICT can enhance teaching and learning by, for example, providing animations and video of the concepts, which can help pupils to understand scientific phenomena. ICT can also give pupils and teachers an opportunity to use a model to change variables and investigate the effects in situations that are impossible to carry out in the classroom.



## QUEST - Natural History Museum KS1

This is an online activity from the Natural History Museum which allows children to virtually examine a number of objects by weight, length, age and even touch.

URL: <http://www.nhm.ac.uk/education/quest2/english/index.html>

Relevant to the following:

*Science Scheme of work for KS1 and KS2  
Unit 2D (Year 2) Grouping and changing materials*

*National Curriculum KS1*

*Sc1 2f, 2h*

*Sc3 1a, 1b*

A Year 2 teacher used this site with the whole class using a computer and data projector. She demonstrated the food groups to the children and encouraged them to identify the foods with her. She asked the children to name the foods on the screen and asked questions about other foods that would be in each of the groups.

The teacher made a worksheet with a table showing the five food groups with room for the children to write the names in the columns.

The class was split into groups: one group worked at the computer 'playing' the food game. The children in each group discussed which food group each example belonged to and recorded them on the worksheet.

A Year 2 teacher had been carrying out a practical activity with her class, grouping familiar materials according to their weight, length and colour. The children had been asked to arrange their objects in order in terms of weight and length and group objects of the same colour.

She used the site to allow the children to investigate more unusual objects. Using a data projector she showed the children how the site worked and how it could be used to measure the length and weight of the objects and how they could 'feel' the object. She used the 'Ask a scientist' button to show the children how they could judge the scale of the object. She pointed to the Butterfly, Coco de mer, Whale bone, Ammonite fossil and Coral and asked the children to put them in order in terms of weight and length. She asked them to predict how long each object was and how heavy by comparison to the objects used on the site, such as feather, melon, person. Is it heavier or lighter than .....?

If you have access to a large-screen display or LCD projector, ICT can enhance the learning of a whole class, as children can now have access to a shared experience. You can demonstrate the use of a datalogger to collect and analyse data, displaying the information graphically, or model concepts and ideas using software simulations and video. Children can benefit from the interactive nature of the technologies to explain and present their work.

The role of the teacher is paramount in raising standards in science. When ICT is used as a demonstration tool, it allows the teacher to demonstrate scientific concepts and models, to explain and ask questions, to stimulate discussion, invite predictions and interpretations of what is displayed and to encourage individual children to give a response or explanation. ICT can also be used to enhance individual learning, with structured tasks and activities focused on the scientific ideas. ICT can be used just as effectively in the plenary session where children can demonstrate and explain what they have learned and showcase their work.

Just as you select appropriate science activities for your pupils, you need to select computer activities that require appropriate levels of ICT skills. If the children are struggling with a new aspect of the technology, this may have a negative effect on their learning in terms of science. The science lesson should not normally be used for the teaching of new ICT skills – with the possible exception of datalogging.

You can view all of the web-based resources online at:

[www.ictadvice.org.uk/webbasedresources](http://www.ictadvice.org.uk/webbasedresources)

## Manchester Museum - Grow a plant KS2

This online activity needs a plug-in which is available from the site.

URL: <http://museum.man.ac.uk/botany/grow.htm>

Relevant to the following:

*Science Scheme of work for KS1 and KS2*

*Unit 3B (Year 3) Helping plants grow well*

*National Curriculum KS2*

*Sc1 2d, Sc2 3a*



A Year 3 teacher used this online simulation to stimulate the class to plan an investigation. Using a data projector linked to the class PC she demonstrated the simulation and invited some members of the class to 'grow a healthy plant'.

This led to a class discussion on what is needed for a healthy plant and how we can investigate this. Each group in the class was then given one variable to investigate: light, water or temperature. The investigations had a quantitative element to them e.g. the groups investigating water measured the volume of water and measured the growth of the plant.

Following the investigations the groups presented their findings to the rest of the class.



## Discover Petroleum KS2

This website has information and activities (games) on topics related to the discovery and production of petroleum.

URL: <http://www.schoolscience.co.uk/petroleum/index.html>

Relevant to the following:

*Science Scheme of work for KS1 and KS2*

*Unit 3C (Year 3) Characteristics of materials*

*National Curriculum KS2*

*Sc1 2i, Sc3 1a*



A Year 3 teacher working on a materials topic had children following a circus of activities which included one group using the computer working online. The children had carried out a survey on materials around the school and their use.

Game 1 on the site asks children to sort out everyday objects into those that are made from oil and those that are not. The teacher showed the class the activity and explained how it worked.

When the children had sorted the objects into the appropriate groups they recorded their results in a table: objects made from oil and objects not made from oil. Reviewing the game lists all the oil-based objects; children can print this page to help them complete the table.



## The Virtual Body KS2

This is an online resource which can be adapted by the teacher. Children construct a human skeleton.

URL: <http://www.ehc.com/vbody.asp>

Relevant to the following:

*Science Scheme of work for KS1 and KS2*

*Year 4A Moving and growing*

*National Curriculum KS2*

*Sc 2 2e*



A Year 4 teacher used this program with an interactive whiteboard. The resource was useful, as the school does not have a model skeleton.

She asked the children to explain the function of their limbs and how they carried out different tasks. This led to a wider discussion on the structure of the body and the functions of the skeleton.

The children were invited to construct the skeleton using the whiteboard. Different children were asked to label the diagram on the board while the others in the class copied the labels on to a worksheet, showing a diagram of the skeleton downloaded from <http://curriculum.becta.org.uk/biologyclipart>

Using the zoom function, the class were able to check the labels of their skeleton.

## Sciencezone KS2

This site, produced by a practising teacher, covers several areas of the science curriculum.

URL: <http://www.cosgrove-taylor.freemove.co.uk/science/lifecycles/lilly.htm>

Relevant to the following:

*Science Scheme of work for KS1 and KS2*

*Unit 5B (Year 5) Life Cycles*

*National Curriculum KS2:*

*Sc2 3d*

A Year 5 teacher used this site to introduce the class to the parts of a flower. Using a computer and data projector, she was able to project a large image for the whole class to see.

She showed the class the dissected daffodil on the next page of the site in preparation for the class doing this dissection themselves.

The class were then given a daffodil and in pairs were asked to cut up the flower and identify the parts of the plant. The dissected flower was then displayed, by sticking the parts on paper, and labelled.

## Nature explorer KS2

Naturegrid from Kent NGfL enables a virtual investigation of three different habitats – pond, woodland and grassland.

URL: <http://www.naturegrid.org.uk/explorer/index.html>

Relevant to the following:

*Science Scheme of work for KS1 and KS2*

*Unit 4B (Year 4) Habitats*

*National Curriculum KS2*

*Sc1 2i, Sc2 5b*

In teaching the topic of habitats, a Year 4 teacher had studied the animals and plants found on the school field with her class.

She used this site to enable the children to compare the animals and plants they had found on the fields with that of another habitat. Groups were allocated to investigate either the pond or woodland. They were asked questions such as:

- Which of the animals/plants that we found on the field do you think you will find in the pond/woodland?
- Are there any animals or plants found in both habitats?

## Great Barr School Science KS2

Great Barr School Birmingham -  
Science: Biology.

URL: <http://web.greatbarr.bham.sch.uk/science/sciencelab.htm>

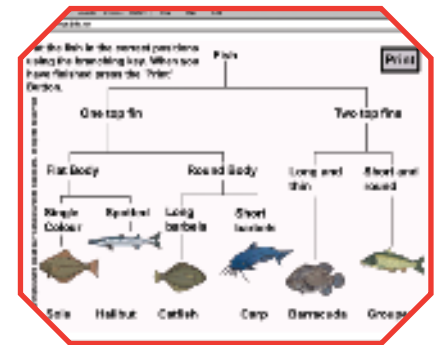
Relevant to the following:

*Science Scheme of work for  
KS1 and KS2*

*Unit 6A (Year 6) Interdependence and  
adaptation*

*National Curriculum KS2*

*Sc1 2i, Sc2 4a, Sc2 4c*



A Year 6 teacher used this site as the ICT activity in a circus covering making and using keys. She included practical activities using keys to sort animals and plants into groups.

Working in groups, pupils took turns in using the computer. They selected Branching Key 1 and identified the fish using the key. The children discussed the features which enabled them to identify the fish and dragged and dropped each fish into the correct position; they then printed the screen.

Groups who worked quickly were given the opportunity to try Branching Key 2 – identifying tiny creatures.

## Skeleton Jigsaw KS2

Part of the BBC's Walking with Beasts section. Pupils are asked to construct the skeleton of different 'beasts'.

URL: [http://www.bbc.co.uk/beasts/fossilfun/skeletal\\_jigsaws/](http://www.bbc.co.uk/beasts/fossilfun/skeletal_jigsaws/)

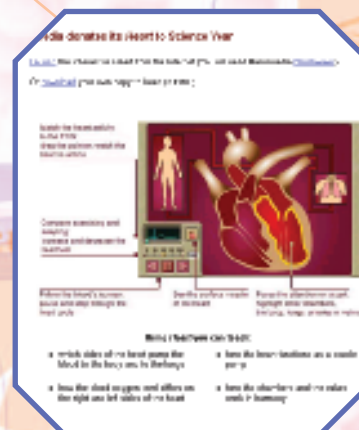
Relevant to the following:

*Science Scheme of work for KS1 and  
KS2*

*Year 4A Moving and growing*

*National Curriculum KS2*

*Sc1 2i, Sc2 2e*



## Science Year -The heart (New Media) KS2

Free software through Scienceyear from New Media. This is an online or downloadable activity where children can examine the structure and the function of the heart.

URL: <http://www.newmedia.co.uk/scienceyear/heart.asp>

Relevant to the following:

*Science Scheme of work for KS1 and KS2*

*Unit 5A (Year 5) Keeping Healthy*

*National Curriculum KS2*

*Sc2 2c*

One Year 4 teacher had been working with her class comparing a human skeleton and the skeleton of other animals.

The class had identified the main parts of the human skeleton. As part of a circus of activities, groups were given the opportunity to try the online skeleton jigsaw. While doing the activity the children had to answer questions such as:

- Do beasts have ribs?
- What similarities are there between skeletons?
- What parts of the skeleton are similar to that of humans?
- Do all animals have skeletons?

A Year 4 teacher, covering the unit on Keeping Healthy, downloaded the software to her machine in class. Using a data projector she was able to demonstrate to the class:

- the structure of the heart
- the path the blood takes through the heart
- how the heart rate is linked to pulse rate using the ECG.

She asked the children questions such as:

- Which side of the heart pumps blood to the lungs/body?
- How is the blood different after passing through the lungs?
- What do the valves do?
- What happens to the heart when the pulse rate increases?

## Keeping healthy - Spreadsheet KS1 & 2

This is a downloadable spreadsheet to record the pulse rates of the class.

URL: <http://curriculum.becta.org.uk/keepinghealthy>

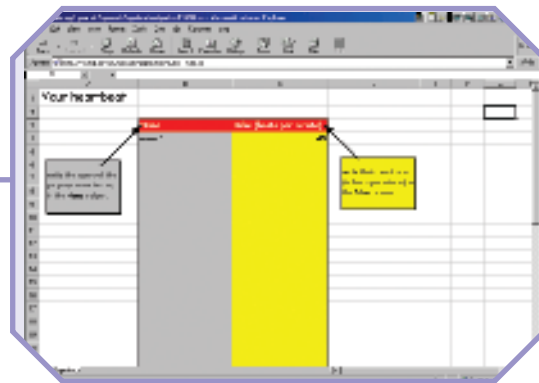
Relevant to the following:

*Science Scheme of work for KS1 and KS2*

*Unit 5A (Year 5) Keeping Healthy*

*National Curriculum KS2*

*Sc1 2h, Sc2 2d*



When studying the heart and how it works with her class, one Year 5 teacher decided to record the children's pulse rates. As the children measured their pulse rate they inserted their result with their name into the spreadsheet.

The class were then asked to produce a bar chart from the spreadsheet and asked questions such as:

- *What was the highest result? Did many people have a pulse this high?*
- *What was the lowest result? Did many people have a pulse this low?*
- *Do boys have higher or lower pulse rates than girls?*
- *What happens to your pulse rate when you sit still/exercise?*

Further suggestions are given on the site along with the spreadsheet.



## BGfL - What shape is the moon? KS2

This is an online resource from the Birmingham Grid for Learning in which a series of activities are suggested to explain the ideas of the children in the cartoon.

URL: [http://www.bgfl.org/bgfl/activities/intranet/ks2/science/what\\_shape\\_the\\_moon/notes.htm](http://www.bgfl.org/bgfl/activities/intranet/ks2/science/what_shape_the_moon/notes.htm)

Relevant to the following:

*Science Scheme of work for KS1 and KS2*

*Unit 5E (Year 5) Earth Sun and Moon*

*National Curriculum KS2*

*Sc1 2b, Sc4 4a, 4d*

A Year 5 teacher studying the Earth, Sun and Moon with her class used this site to introduce a class discussion on why the moon appears to change shape. She used a computer and a large screen TV to show the class the site. She asked her pupils to read the comments of the 'cartoon children' and discuss whether their ideas were good ones.

Some of the class tried the investigations suggested on the site to explain the science concepts. After trying the activities they then shared what they had found with the other children. The teacher then asked them about the opinions of the 'cartoon children' and whether or not they agreed with them.

A Year 5 teacher had been working with her children on practical work to demonstrate the properties of condensation and evaporation.

She used this site with the whole class. She chose individual children and asked them to explain what happens when water is heated and cooled.

The teacher downloaded a worksheet for the activity from

<http://curriculum.becta.org.uk/watercycle>

In the computer suite the class accessed the site and completed the worksheet. As part of the activity the children are asked to read the explanation that accompanies each diagram. The children then decide the order of the pictures that make up the water cycle. They drag and drop the pictures to complete the diagram online.

## E4S Water Cycle KS2

This is an online resource which can be used by the teacher in whole-class teaching or by the children individually or in groups.

URL: [http://www.e4s.org.uk/frame\\_3.htm](http://www.e4s.org.uk/frame_3.htm)

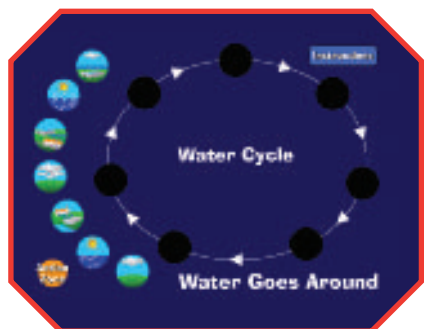
Relevant to the following:

*Science Scheme of work for KS1 and KS2*

*Unit 5D (Year 5) Changing state*

*National Curriculum KS2*

*Sc1 2i, Sc3 2d, 2e*



## ScienceYear – Crocodile clips KS2

Free software through ScienceYear from Crocodile clips. This is free, downloadable simulation software, so you can construct your own model circuit.

URL: [http://www.crocodile-clips.com/m6\\_4\\_1A.htm](http://www.crocodile-clips.com/m6_4_1A.htm)

Relevant to the following:

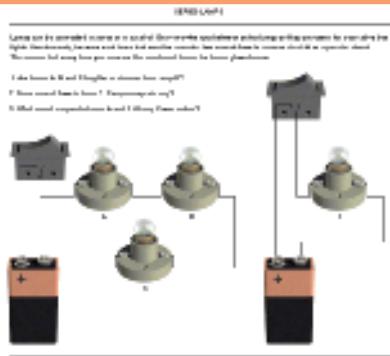
*Science Scheme of work for KS1 and KS2*

*Unit 6D (Year 6) Changing circuits*

*National Curriculum KS2*

*Sc1 2f*

*Sc4 1a, 1b, 1c*



A Year 6 teacher used this program as an extension to practical work. The class had already carried out practical work on simple circuits, constructing parallel and series circuits.

She demonstrated how the program worked using a computer and projector.

The program enabled the class to construct circuits which required more and different components than they had experienced practically.

The teacher had downloaded a worksheet from the Teacher Resource Exchange

<http://tre.ngfl.gov.uk/uploads/materials/8734/Y6CIRC.doc>

The children were set the problem of constructing different circuits with components in series and parallel. They were then encouraged to add different components to their circuits such as variable resistors and buzzers.

The children were then asked questions such as 'Which bulb lights when switch 1 is on? What happens to the buzzer as the slider on the variable resistor is moved?' The children recorded their circuits and their results on paper.

## Scienceweb – Earth, Sun and Moon KS2

For this online activity you will need the Flash plug-in installed with your web browser.

URL: [http://www.scienceweb.org.uk/html/f\\_5e.htm](http://www.scienceweb.org.uk/html/f_5e.htm)

Relevant to the following:

*Science Scheme of work for KS1 and KS2*

*Unit 5E (Year 5) Earth Sun and Moon*

*National Curriculum KS2*

*Sc1 2f*

*Sc4 4a*

As part of their study of the Earth, Sun and Moon a Year 5 teacher used this site to demonstrate to his pupils how the movement of the Moon around the Earth determines the phases of the moon.

He used a projector to go through the activity with the class. He asked the class questions such as 'What is the source of light at night? How does this light reach the Earth? What does the moon do to the sunlight?'

Over the next month the class recorded the phases of the moon and plotted the likely position of the moon as it orbited the Earth.



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