Creative Teaching & Learning Literacy Lesson plans

Materials

These lessons have been specifically written to support the teaching of literacy through the theme of materials.

Literacy Lesson 1: Using materials (Key Stage 2)

Aims of the lesson: To locate information using contents, index, headings, sub-headings, page numbers and bibliographies.

Activity: Scientists are developing new materials all the time, but the basis of their knowledge is firmly grounded in the natural materials we already have (such as wood and iron). Before any scientist can create a new material they have to study existing materials, what their properties are and what they can be used for. With this in mind, explain to the pupils that they are going to locate information relating to materials. Using reference books and the Internet (if access is available) instruct the pupils to first select a material to be researched. Then under the different headings of properties and uses, they should list all the information they find. Remind the class that they should not only locate and present the information, but be able to write clear instructions as to how someone else could find the information (page numbers, headings etc).

Plenary: A good extension to this activity is to ask groups of pupils to present their findings to the class in a 'show and tell' format. For the show and tell, pupils could include pictures of physical examples of the materials they have researched (paper and rubber bands for example should be fairly easy for the pupils to locate in the classroom).

Differentiation: The type and number of materials to be researched can be adapted to suit the pupils' ability levels. For example, less able pupils could be asked to research one material (such as wood), whilst more able pupils could be asked to research some of the more complicated man-made materials (such as silicone).

Literacy Lesson 2: Solids, liquids and gases (Key Stage 1)

Aims of the lesson: To make a simple record of information from a given text relating to the properties of solids, liquids and gases.

Activity: At Key Stage 1, pupils need to be able to understand information in a variety of forms. This activity asks the pupils to read a given piece of text and select key words. Begin the lesson with a discussion of the properties of solids, liquids and gases. Do the pupils understand the differences and similarities? Can the pupils offer examples of a solid, liquid or gas? Then explain that the pupils are going to read the text displayed opposite on page **35**. Make sure the class fully understands the text and, if necessary read and discuss the text as a whole class before the main activity begins. Then ask the pupils to pick out the key words in the passage, noting them on a separate piece of paper. Ask the class to concentrate on the words that portray the essential meaning of the text. Alternatively, you could ask the pupils to list the main points of the text in sentence form or create a table representing the key information discovered under the headings of 'Properties of solids'; Properties of liquids'; and 'Properties of gases'.

Plenary: As an extension to this activity, ask the pupils to list all the solids, liquids and gases found in the school or their home or even in general. The list can be accompanied by pictures and could even be linked to the uses of the solids, liquids and gases they list.

Differentiation: This activity should be suitable for pupils of all ability.

Solids, liquids and gases






A **solid** is something that keeps its shape. It can be hard like wood or soft like rubber. It might also be flexible or fragile. But will always keep its shape and does not need to be kept in a container.


A **liquid** does not keep its shape and needs to be kept in a container. For example, if you do not keep water in a container (such as a cup) it will spill everywhere.


Gases need to be kept in a sealed container. The air that we breathe is made up from lots of different gases. Some gases are light (such as helium, which makes balloons float) and some gases explode when near fire (such as the gas used in cookers).



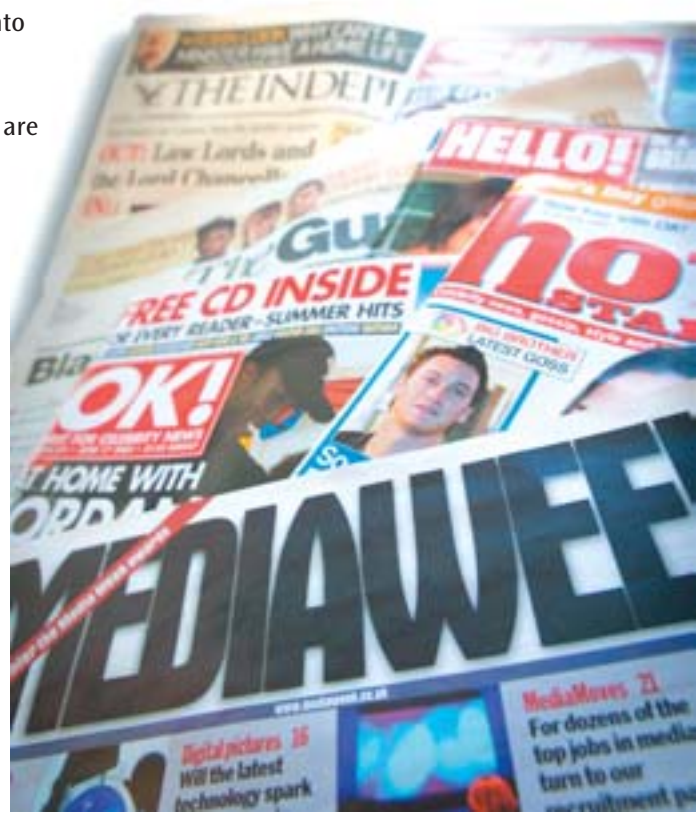




Literacy Lesson 3: Paper, paper everywhere… (Key Stage 2)

Aims of the lesson: To write a newspaper style report.

Activity: This lesson not only supports the development of an understanding of materials, but also links to citizenship (recycling) and geography (improving and protecting the environment). Begin by explaining to (and discussing with) the class that as a society we use a lot of natural materials. One of the most common materials we use is paper. Last year in the UK, more than 7 million tonnes of paper was produced. A further 8 million tonnes was imported. This is a vast amount of paper and whilst a lot is now recycled, there are still millions of tonnes of paper that are just being dumped into landfills. Although the raw material for making paper is predominantly trees, it is a common misconception that recycling waste paper saves trees. Trees for paper making are grown and harvested as a long-term crop with new trees planted to replace those cut down. Nearly all paper is made from wood grown in these 'sustainable' forests. However, this does not mean that we do not have to recycle more paper. As the demand for paper has increased more timber is needed and this has meant the loss of valuable wildlife habitats and ecosystems, as old forests have been replaced by managed plantations, usually of conifers. It is also a fact, that recycling paper saves thousands of litres of water, thousands of kilowatts of electricity and reduces air pollution (as paper in landfills rots it produces methane, which is a significant greenhouse gas). After discussing the importance of recycling paper and the effects that dumping waste paper has on the environment, explain to the class that they are going to write a newspaper report on why recycling is important.



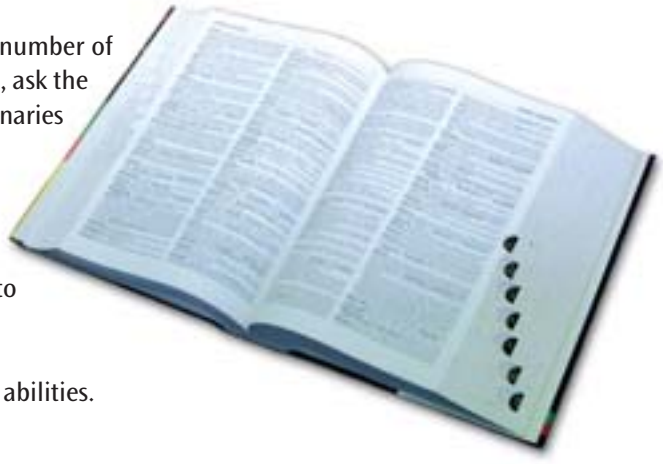
Plenary: As an extension to this activity, the class could investigate local facilities for recycling (what is available etc). Pupils could also design their own advertisement to encourage recycling in the school.

Differentiation: Less able children could be given more information to write their report from (requiring less research on their own). All children could be asked to produce their report on computer.

Literacy Lesson 4: To spell or not to spell (Key Stags 1 and 2)

Aims of the lesson: To identify mis-spelt words in a given text.

Activity: Give the pupils a copy of the sheet opposite (page **36**). A number of words have been mis-spelt. In the table found underneath the text, ask the pupils to list the words and then give the words spelt correctly. Dictionaries should be provided.



Plenary: The text given could be used to help the children develop their own spelling strategies and learn how to develop more words from words already given. The pupils could also use this activity to develop their own materials dictionary.

Differentiation: This activity should be suitable for children of all abilities.

Materials science

Name: Date:

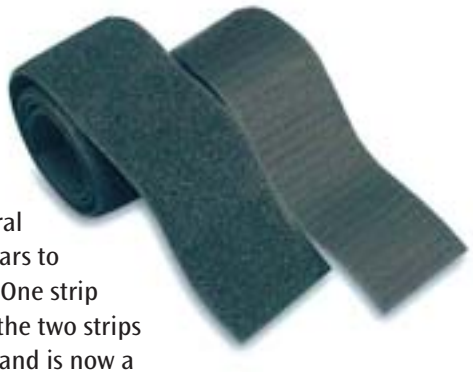
Glass is a man-maid material. It is made when a micksture of sand, soda, and lime is heeted to a high temperature. When the mixture gets very hot it turns into a likwid. This hot liquid can then be shaped to make glass. Once the glass is shaped it cools and as it cools it becomes hard.

Glass is a transparrent material, which means that it allows light through it. This means that we can see through it. Although glass is strong, it is also very frajile and breaks easily.

Mis-spelt words:	The word should be spelt:

Literacy Lesson 5: The story of VELCRO (Key Stages 1 and 2)

Aims of the lesson: To recount a story.



Activity: In 1948, an engineer called George de Mestral returned from a walk and found some burrs from a plant clinging to his jacket. This seemingly trivial event, set de Mestral's brain going and after pulling one of the burrs from his jacket he examined it under a microscope. He found that the burr had lots of thin strands with hooks on the end, which allowed it to cling to fabrics or animal fur. It was an amazingly simple principle and de Mestral realised that it could be used to develop a new kind of fastener. It took eight years to develop, and perfect the invention, which consists of two strips of nylon fabric. One strip contains thousands of small hooks. The other strip contains small loops. When the two strips are pressed together, they form a strong bond. The product was called VELCRO and is now a well-known brand. Tell the pupils about the story of how VELCRO was invented and then ask them to write the story in their own words. Explain that they need to include a description of the walk that inspired de Mestral, the burrs that VELCRO was based on and the uses that VELCRO has today.

Plenary: As an extension to this activity, the pupils could research and write about the invention of the paper clip. The story of its development is interesting with two scientists arguing that they invented it first.

Differentiation: As the pupils are writing their recounts in their own words, this activity should be suitable for pupils of all abilities.

Literacy Lesson 6: The invention of rubber (Key Stage 2)

Aims of the lesson: To write a bibliography or report on a famous person.

Activity: Throughout the centuries many famous scientists have invented new materials. None are more famous than Charles Goodyear, who invented vulcanized rubber. For this activity, ask the pupils to research the life and achievements of Charles Goodyear. For your own ease of reference, some basic biographical information on Charles Goodyear can be found below. The page opposite gives a picture of Charles Goodyear. Should you wish to be sent this picture digitally, please email the Editor on jsmith@questpub.co.uk

Charles Goodyear was born at New Haven, USA on 29 December 1800. When Charles was seven his father moved to Naugatuck and manufactured the first pearl buttons made in America; during the War of 1812 the Goodyear factory supplied metal buttons to the Government. Rubber is a natural substance that had been used for centuries before being introduced to western culture. Natural rubber was harvested from the sap that oozed from the bark of a tree. The name "rubber" comes from the use of the natural substance as a pencil eraser that could "rub out" pencil marks and is the reason that it was then re-named "rubber." Besides pencil erasers, rubber was used for many other products, however, they did not stand up to extreme temperatures and became brittle in winter. During the 1830s, many inventors tried to develop a rubber product that would last all year round and Charles Goodyear was one of those inventors. Although he was taken to court many times, eventually a court decided that he was the sole inventor of vulcanized rubber.

Plenary: The information gathered for this activity can be used as the basis for the writing of Charles Goodyear's Curriculum Vitae or a poster all about Charles Goodyear.

Differentiation: This activity should be suitable for children all abilities.

Charles Goodyear