6. Class debate on recycling

1 hour

Children make recycled paper from newspaper by following the recycling process. They consider the forces involved and the efficiency.

OBJECTIVES

- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations

RESOURCES

(Per group of 4 children unless otherwise stated)

- Activity sheets 14 - 18, one copy per class
- Activity sheets 19 - 20

ADVANCE PREPARATION

Activity sheets 19 - 20 can be prepared as cards and laminated.

INTRODUCING THE ACTIVITY

Provide each group with a copy of a different material recycling process outline (Activity sheet 14 - 18).

Allow the children time to read through the information, discuss the recycling processes of different materials with their group, and think about how it links to what they have done so far in this topic.

Children briefly feed back to the class to outline key parts of the recycling process for their material.

Discuss the similarities and differences between the processes in the recycling procedure: e.g. sorting, crushing, baling, shredding, cleaning, purifying, breaking down, melting, remoulding, etc. Identify processes that may be unique to recycling a particular material.

MAIN ACTIVITY

Explain that some materials can be recycled over and over and others can only be recycled a limited number of times.

Provide children with the cards from Activity sheets 19 - 20, or ask them to cut them out. Children then match the correct statements to the correct material (some statements are written more than once because they may apply to more than one material).

The children then rank the materials in order from those most suitable to those least suitable for recycling. In discussion, ask each group to put forward reasons for their choices, e.g. aluminium, steel and glass are very good for recycling because they are 100% recyclable with little loss of quality and much cheaper than producing them from raw materials (aluminium 95%, steel 75%). Steel is one of the easiest materials to separate from its impurities.

Paper is easy to recyle but the quality reduces each time it gets recycled (the fibres are shortened in the recycling process). Plastics are harder to recycle, often requiring processes that may be inefficient, expensive, damaging to the environment and produce material of a lower quality.

For the debate, organise groups according to the children's views on the benefits and drawbacks of recycling particular types of materials. The outcome of the debate should be agreement on which materials are the most important to recycle. A presentation from each group could be followed by either an individual or a group vote.

Re-read the e-mail from the company (Activity sheet 5). Discuss the findings from all the activities.

Ask the children:

- Have the company's queries been answered?
- Why do we need to recycle?
- What affect does waste have on the environment? Why is efficiency important?

Discuss different ways in which the information could be reported back.

The children reply to the company e-mail (Activity sheet 5), answering the questions and explaining what they have discovered in one of the following ways:

- powerpoint presentation
- writing a letter or e-mail
- a written report
- an individual or group poster
- a cartoon strip
- a video or audio presentation
- a public awareness poster

Depending on the class, they could be given the freedom to choose one of the above methods, or the choice could be limited. This provides an ideal opportunity for assessment.

FURTHER DEVELOPMENT

The children compile a list of questions that they would like to find out about recycling plants and the role of scientists in these companies.

A site visit could be arranged to a recycling plant or a packaging manufacturer (e.g. producer of cans, cartons, bottles, plastic packaging, etc.). Here the children could observe the recycling process, find out what the scientists do in the company, and compare these to the investigations they set up and carried out in the classroom. Some of the children's work could be passed on to the company. The children could try and find the answers to any questions. Or, if this is not possible, a representative from a recycling plant or the council could visit the school to describe the roles of scientists and how they recycle products.

If a link with industry is not possible, the children could research answers to their questions on the internet or in the library.

EXTENSION ACTIVITY

The children could investigate how much waste is recycled in Britain compared to other countries. They could find out reasons why there is not more recycling when the technology is available. (E.g. It is expensive to change processes; some recycling processes use lots of energy and it may be cheaper to make products from raw materials; some recycling requires chemicals that are more damaging to the environment, recycling may produce material that is of lower quality than newly made). Explore what are the forces that are driving the move to recycle more (Pressure groups, National government targets through legislation and taxation, European Union targets, International targets, etc.). With more focus and impetus the technology will get better, and recycling will produce better quality products. In addition awareness should be raised so people know what they can do to help (e.g. kerbside schemes, use recycle banks more; sorting carefully, buying recycled materials more and buying products with recyclable or less packaging).

Prepare and hold a school debate

Give children time to formulate ideas as recycling pressure groups. Have some groups representing different target groups, suggestions could include, large companies using lots of packaging, supermarkets that multi-wrap products, advertising companies that distribute junk mail. Allow them time to create a campaign poster and/or a speech. Children can use prompt cards from Activity sheet 20.