

Activity 5: Pulp to paper

Objectives

- To make recycled paper out of waste paper.
- To investigate forces involved in paper recycling.

Approximate duration

1 hour

Preparing resources

(per group of 4 children, unless otherwise stated)

Activity sheets 13 – 14 (each group to have a different activity sheet)

Waste paper e.g. newspaper

Water

Wooden spoon and/or whisk

Food colouring

Kitchen cloth, clean and absorbent

Gauze sheeting

Bucket or basin

2 wooden boards or baking trays

Weights

Aprons

Advanced preparation

The process of breaking apart the fibres will be much more successful if the shredded paper is allowed to soak overnight.

Introducing the activity

Look at Activity sheet 14 and talk through the process of recycling paper. Highlight the fact that similar processes are used in the recycling of many different materials. i.e. sorting – shredding – processing – finishing. Look at www.recyclenow.com/fun_stuff for video of the paper recycling process.

Main activity

Provide Activity sheet 13 and the other materials. In groups, the children follow the instructions to recycle newspaper.

Ask the children to think about the different stages of the recycling process and the forces involved while they are making the paper, e.g. the separating of impurities, magnetism, the shredding, beating, removal, pressing, etc.

Explain that colour is added to cover the ink and also that some recycling plants clean off the ink or use bleach to remove it. Further steps would then be taken to recover the bleach and prevent it from becoming a pollutant.

Plenary

Collect children's feedback about the recycling paper activity. Discuss any problems in the process.

Ask questions like:

- *Did the paper break down enough to form a pulp?*

If the paper being recycled is not shredded very finely there will be less chance of a uniform pulp being created.

- *Did some parts of the process take longer than others?*
- *How might this affect the recycling on an industrial scale?*

The materials would mount up at various stages. Design of the process may allow for larger quantities to be processed at some stages or storage may be needed. Sometimes there is more waste than sites can deal with, thus creating a waste mountain.

Give the children the opportunity to look at the listed websites in Appendix 2, showing the recycling processes of glass, steel aluminium and plastic. This could be an independent or whole class activity. Compare these processes to the recycling of paper.

Extension Activity

Create a paper recycling treatment plant. Each group takes on the role of a different stage in the recycling process:

- Sorting
- Shredding
- Extracting steel/iron with magnets (this may not be a major task in your classroom simulation)
- Pulping
- Dyeing
- Extracting the water

The diagram below shows part of the recycling process taken from the poster Paper Recycling Works which can be found at PaperRetriever.com

