

Paper Making: A 2000-Year-Old Art

Activity Information

Level: junior

Subject: social studies, geography, language arts, environmental science, art

Duration: 2 classes [1 to introduce topic and do activity sheet, 1 for papermaking; additional time if you want to decorate your paper]

Group Size: full class

Setting: classroom

Preparation: Have everything ready beforehand and work in a place with water and where a bit of a mess is not a problem.

You will need:

- scrap paper, plant & vegetable scraps, cornstarch
- flat wooden frames [about the desired size of your sheet of paper], stretch a piece of nylon screen over the frame and staple in place to make your paper mould.
- water, a bowl, a blender, a large plastic basin, a sponge, 2 clean dish towels, an iron

Summary

Using the activity sheet, *A Brief History of Paper*, the students will look at the history of paper in different cultures and at the significance of its development. They will then make their own recycled paper using the same basic concepts that have been used since it was first invented.

Learning Outcomes

Students will:

- understand the process of papermaking based on firsthand experience
- be able to analyse and understand the movement and impact of a new idea based on the example of papermaking

Background

The process of papermaking has changed little in the 2,000 years since its discovery. It consists of two stages. In stage one, the raw material is broken down into fibres which are then suspended in water to form a thick soupy substance called pulp. In the second stage the pulp is then poured and pressed into the desired shape, thickness and size. This is dried, forming paper.

Extension: Visit a nearby paper mill to learn about large-scale paper production firsthand or explore the Canadian Pulp and

Paper Association's website: www.cppa.org/english/wood/tours.htm

1. **Discuss paper and papermaking** with the class and let them know that the basic process has remained essentially unchanged for centuries. Explain that the class will be making recycled paper using **post-consumer waste**. Ask them to save used paper for the next week. Remind them that all plants are made of fibre and, if they want to make colourful textured papers, they may choose to add plant material, scraps of coloured paper or fabric fibres.

2. **In Part 1 students will complete the activities** outlined on the activity sheet [see page 26]. [Draw a timeline of the history of paper linking it to historic events, and write a brief story about the role paper played in a specific place, at a specific time in history.]

To Make Paper

3. **Tear the paper into little pieces** and soak in a bowl of hot water for 30 minutes.

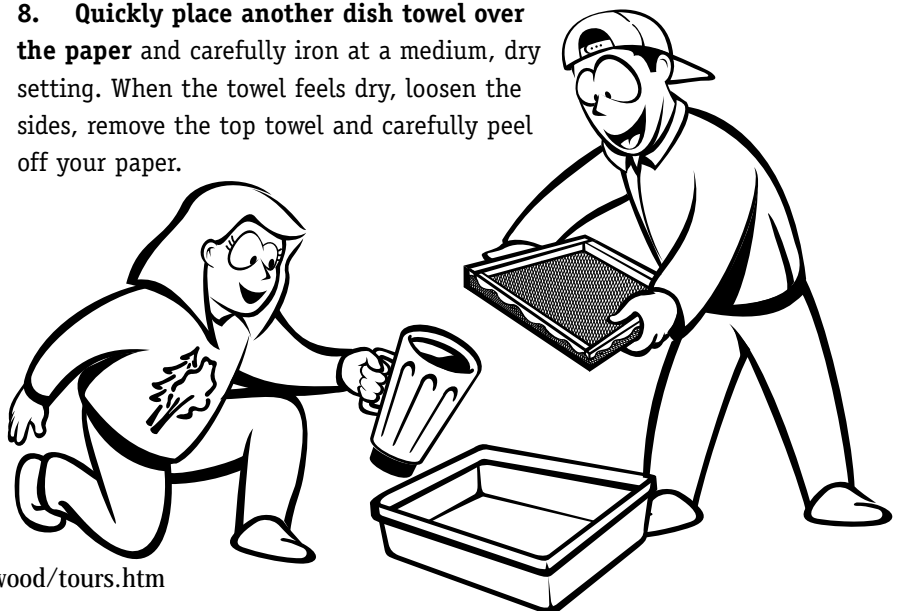
4. **Place a handful of your wet paper scraps into a blender** that is half-full of warm water. Blend at a medium speed until the paper forms a *mush*. Add some plant or vegetable scraps or, if you want, a few drops of non-toxic fabric dye for colour, and blend again.

5. **Pour the pulp into a large plastic basin**, half full of warm water. Add a small amount of cornstarch to help hold the pulp together when it is placed on the screen.

6. **Place the screened frame in the basin** and move it back and forth to collect the pulp. Once you have an even layer, lift it out and allow the water to drain away. [Hint: A thick layer of pulp = a thick piece of paper; thin pulp = thin paper]

7. **After the water has drained**, carefully lay the mould, upside down on a clean, flat dish towel or absorbent cloth. Use a sponge to absorb the excess water through the screening. Gently remove the screen so just the paper is lying on the towel.

8. **Quickly place another dish towel over the paper** and carefully iron at a medium, dry setting. When the towel feels dry, loosen the sides, remove the top towel and carefully peel off your paper.



A Brief History of Paper



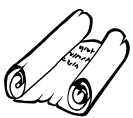
- 400 BC** Ancient Egyptians, Greeks and Romans write on scrolls of papyrus.
- 105 AD** 1st record of papermaking — by Ts'ai Lun, a member of the Chinese court.
- 150** Earliest known paper still in existence; for the next 500 years the art of papermaking is confined to China.
- 610** Paper introduced into Japan.
- 750** Paper introduced into Central Asia.
- 800** Paper appears in Egypt but is not manufactured there until 900 AD.
- 868** Oldest known printed book. Printed in China using wooden blocks.
- 1150** 1st papermaking mill [in Spain] — papermaking spreads through Europe.
- 1450** Introduction of movable type — making book printing practical and increasing demand for paper.
- 1495** First paper mill in England.
- 1690** First paper mill in North America.
- 1798** French inventor, Nicholas Louis Robert, designs machine to replace hand-moulding process in papermaking; refined in 1803 by the British Fourdrinier Bros. whose name is still on today's papermaking machines.
- 1803-05** First Canadian paper mill built at St. Andrews, Quebec.
- 1819** First paper mill in the Maritimes built near Halifax by Anthony Holland, to supply his newspaper with paper.
- 1827** Ontario's first paper mill started up by James Crooks near Dundas, followed, a few months later, by a mill in the Don Valley [Toronto].
- 1840** Development of process to create pulp — streamlines papermaking.
- 1850** First chemical process to create pulp.
- 1894** British Columbia's first pulp and paper mill at Alberni on Vancouver Island.
- 1901** In Canada, 53 pulp and paper mills employ 6,236 people. Most are small mills making a wide variety of products including: writing paper, newsprint, books, wrapping and bag papers, board and building papers.
- 1918** Canada becomes world's largest exporter of paper.
- 1997** 62 pulp and paper mills use recovered papers as a source of fibre.
- Today** Canada produces 34% of the world's pulp & paper, exporting to 100+ countries.
23 Canadian newsprint mills are set up for recycling — up from only 1 in 1989.
71% of the fibre used to make Canadian pulp and paper comes from sawmill residues and recovered papers that used to go into landfills.

Assignment



On a large sheet of paper construct an illustrated timeline using part, or all, of the information above. For comparison, find out something else that was happening on or about the dates listed. [e.g. What was going on in Egypt in 800 AD when paper first started to appear there? What was happening in England when the first paper mill was established?]

Based on your timeline, research and write a brief story about the role that paper played in a specific place, at a specific time in history. Be creative. Think about great documents that were written, maps that might have been drawn, or messages that might have been sent on the battlefield. Whose point of view are you using to tell your story? Is it written by a general or a playwright? Or is it the voice of a tattered and worn piece of paper?



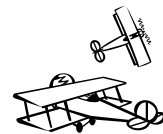
▲
400 BC



▲
868



▲
1827



▲
1900



▲
Today

