

# Recycled Paper

Grade

6

Topic: Waste

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Duration: 2 x 50 minutes (ongoing observation & recording throughout the year)

*Students will keep track of the amount of paper they use on a daily, weekly and monthly basis. They will be encouraged to find ways to reduce this amount. Students will then create recycled paper from old newspaper and recycled school flyers. This paper could then be made into cards and wrapping paper to be used at a school EarthCARE Program Activity.*

## **Curriculum Expectations**

- 6s93: Make use of the physical and aesthetic properties of natural and manufactured materials when designing a product
- 6s95: Write a plan outlining the different materials and processes involved in producing a product
- 6e1: Communicate ideas and information for a variety of purposes (to inform, to persuade, to explain) and to specific audiences
- 6e2: Use writing for various purposes and in a range of contexts, including school work
- 6e47: Make reports, describe and explain a course of action, and follow instructions
- 6m106: Systematically collect, organise, and analyse data
- 6m107: Use computer applications to examine data in a variety of ways
- 6a35: Describe how the strengths and limitations of both traditional and contemporary art tools, materials, and techniques affect artistic choices
- 6a36: Identify the most appropriate tools, materials, and techniques for the size and scope of the work and identify the most appropriate tools, materials, and techniques for the size and scope of the work and use them correctly
- 6a38: Produce two- and three-dimensional works of art (i.e., works involving media and techniques used in drawing, painting, sculpting, printmaking) that communicate a range of thoughts, feelings, and ideas for specific purposes and to specific audiences

## **Background Information**

Forestry is a large industry in Canada. Canadians own the large majority of our forests through provincial governments. Provincial governments are responsible for 71% of Canadian forests. Federal governments look after 23% and private woodlot owners own the rest. There are 418 million hectares of forestland in Canada. Of this amount, 57% is classed as 'commercial forests,' capable of producing timber and non-timber benefits. Only one half of the area of commercial forests – about 117 million hectares – is under management for timber production and associated non-timber benefits. One in 15 Canadians depends directly or indirectly on the forest industry. Close to 330 Canadian communities depend almost entirely on the forest industry. The forest sector is a \$59-billion-a-year industry, employing over 880,000 Canadians.

Forests are the basis for much of the history, tradition and culture of Canada's First Nations. They believe the forest and the natural environment must be protected out of respect for past, present

and future generations. Federal Indian land programs work to integrate traditional land uses with modern forest management on reserve forests to promote the economic development of aboriginal communities. For many First Nations, forests provide a setting for self-sufficiency, economic growth and spiritual renewal.

The largest single component of household waste is paper that can make up as much as one half of the total garbage you produce. The wasteful consumption of paper destroys forests and makes it difficult for reforestation programs to keep up. Pulp and paper production is energy-intensive and is the largest source of water pollution in Canada.

### ***Accountability***

Students will examine their own personal use of paper and create a plan to reduce this amount.

### ***Teacher Notes***

1. Use this scenario with the students:

You have noticed that the school uses a lot of high quality paper. In the office, many flyers are put into each teacher's mailbox on a regular basis. The recycling bin in the office is often very full. You want to make better use of all this paper.

2. Students will need to be aware of the amount of paper they use so that they can then consider how to reduce their own consumption of paper. Make a log of this usage and keep track of the amount of paper used on a daily, weekly and monthly basis. Use a spreadsheet application.
3. Consider ways of reducing the amount of paper they use on a regular basis. Make a class list of these ideas – using both sides of all paper, sharing printed materials, using electronic media as an alternative (and not printing the email message!)
4. Revisit this list over a period of time to check on their progress of reducing this amount. This will be considered in the school audit for the amount of recycled materials that are collected at the school.
5. Find out if the school board uses recycled paper. Consider writing letters to find out why the Board is not now using recycled paper. Offer suggestions as to the benefits to the environment.
6. Phone local companies and inquire about the cost of using recycled vs. non-recycled paper. Find out what percentage of customers use recycled paper. Ask if they use non-toxic material in their dye and processing. Make a list of the local companies that use this approach to paper use.
7. Collect the flyers and paper that are put into the recycling bins at the school. Keep track of these data and work with the EC Team on strategies for changing attitudes about recycling.
8. Create recycled paper in the class to be used for a variety of activities. See the instructions below for making paper.
9. Use the paper in creative ways. Add decorative designs and make into greeting cards. You can collect wildflowers to press into the paper as it is drying.
10. Find out about making non-toxic paints and dyes to decorate the paper.
11. If your school were having an event such as a Rummage Sale or EC Trading Post activity, this would be an excellent opportunity to use this paper for advertising or for purchase.
12. The process of creating paper would be an excellent EarthCARE Fair presentation.

### ***Home Extension***

1. Keep a similar log at home about the amount of paper that comes into the home.
2. Look at all the junk mail that arrives at home on a regular basis.

3. Put up a notice at home that states that you do not want junk mail or flyers delivered to your home. Keep track to see if this approach cuts down on the amount of paper delivered to the home.
4. Encourage all members of the family to put all paper materials that are allowed into the recycling container. Check with your area on the kinds of paper products that will be accepted.

### ***New Paper from Old***

#### Materials

1. Scrap paper – collect from around the school
2. Plant and vegetable scraps
3. Non-toxic dye
4. Staples
5. Tacks of waterproof glue
6. Two wooden frames (20 cm by 15 cm)
7. Nylon screening
8. Kitchen cloths (porous types)
9. Blender
10. Sponge
11. Iron
12. Large plastic basin

#### Method

1. Staple nylon screening tightly to one wooden frame to make a paper mould. The second frame without the screen is the “deckle” which will help make the edges of the paper neater.
2. Remove any plastic or staples from the scrap paper and tear it into small pieces about 2 cm square. Soak it in hot water for about 30 minutes
3. Put a handful of the soaked paper into a blender half full of warm water. Blend at medium speed until you no longer have pieces of paper. Take out some of the paper if necessary and try again. Add small amounts of plant or vegetable scraps to the mixture (pulp) and blend again. Add fabric dye if you want coloured paper.
4. Pour the mixture into a large plastic basin half full of warm water.
5. Place the deckle on top of your screen. With both hands, dip the mould into the basin and scoop up some of the pulp. (The thickness of the paper will depend on the amount of pulp.) Gently shake the mould back and froth to get an even layer of fibres on the screen. When the water has drained through, place the mould to one side and carefully lift off the deckle, leaving the just-formed sheet on the screen.
6. Lay a clean kitchen cloth on a flat surface or tabletop and lay the screen face down on the cloth. Soak up any extra water from the back of the screen with a sponge. Lift the screen very gently – the paper should remain on the cloth.
7. Cover the paper quickly with another cloth and iron at medium dry setting. Once dry, pull gently on either side of the cloth to stretch it – this helps loosen the paper from the cloth. Gently peel the paper off.

#### Observations

1. Compare the strength, colour and texture of homemade paper to that of the different types of paper in the classroom. Note the similarities and differences.
2. Record your observations.

### ***Lesson Comments***

Teachers, feel free to add in your own comments for this lesson.