Paper Making

WHAT'S THE Big Idea?
Interdependence

Materials

- ***From Tree to Paper*** by Wendy Davis
- buckets
- wooded area with decaying trees
- rotten tree fibers (see directions for more details)
- blender that is no longer being used for food
- paper scraps
- 12" x 12" screen stapled on a wooden frame or duct taped around the edges, you can get creative and cut the screen into various shapes to make paper that is circular or diamond shaped, one per student
- plastic kitchen tubs
- newsprint
- sponges

Enduring Understandings

- Some plants provide other things besides food.
- Trees can be used to make paper.

Objectives

- Children show interest and curiosity in where paper comes from.
- Children discover that wood pulp can be turned into paper.
- Children experiment with ways to make paper.

Directions

On a hike in the woods with children (or if that is not possible go out on your own) find a dead, rotting tree. Try to crumble the inner tree with your hands. If you end up with a handful of a crumbly mass of fibers, you have the main ingredient to make paper!

1. Discuss with children where they think paper comes from. Many insist it comes from trees. Read *From Tree to Paper* and discuss the process explained in the book.
2. Invite your students to a papermaking challenge! If possible, hike into the woods where there are downed and decaying trees. Encourage students to try to scrape off handfuls of the rotting wood and collect it in buckets.
3. On returning to your classroom, soak the decomposing wood in water, just enough to cover the wood. Students should occasionally stir it with a wooden spoon or squeeze it with their hands to break down the fibers. Soak overnight for best results.
4. Once the fibers are soaked and in pieces of an inch or smaller, place two cups of this mixture into the blender along with two to three cups of water. Process the fibers and water in the blender for several seconds, reducing the fibers to a pulp with an oatmeal-like texture. The water and pulp combination is called slurry. If the slurry appears too dry, add small amounts of water to get it to runny oatmeal consistency.
5. Fill the plastic kitchen tubs ¾ full with the slurry. This is the main ingredient of paper. Have a student stir the slurry to keep the pulp particles suspended in the slurry and not sink to the bottom. Another student should lower a screen into the slurry and slowly raise it up, keeping the screen as flat as possible so it catches the pulp. If the pulp is too runny, drain off some of the water and try again. If it is too thick, dump it back into the tub, add more water and try again.
6. Hold the screen over the tub for a few seconds to allow the excess water to drip off. Take the screen and quickly and carefully flip the

screen over onto several thicknesses of newsprint.

7. Keeping everything in place, sponge off excess water from the screen until the paper feels fairly dry. The water will drain, leaving the pulp to dry into paper.
8. When the new sheet of paper is dry enough (may take several hours), it will separate readily from the screen and remain attached to the newsprint. Slowly lift one corner of the screen. If the screen and paper pulp separate, gently lift the screen from the paper. If the paper pulp and screen stick together, sponge off more water.
9. Set the new sheet of paper aside, still attached to the newsprint, in a safe place to dry.
10. While the paper is still damp, it may be covered with a piece of smooth cloth and ironed (with the assistance of an adult).
11. When the paper is fully dry, peel the newsprint off and think of ways to use your new sheet of paper!
12. Process and reflect on the experience with the children by engaging in a conversation guided by the discussion questions.

Discussion Questions

- Why is your paper the color it is?
- What other steps do you think need to happen to make paper like the paper you use in school?
- What other things can trees provide for humans?

Important clean-up note:

Do not put extra paper pulp down the drain as it will clog the drain. It can go in the compost or garbage.

Extensions

- Gather other natural objects on your hike such as wild flowers, pine needles, or leaves to use to decorate your homemade paper. Soak the natural objects overnight in a separate bucket of water. These soaked natural objects can be added to the slurry just before dipping the screen.

