

Making Homemade Paper



Summary

The art and business of paper-making dates back about 2000 years ago! At that time, a Chinese government official named Ts'ai Lun was the first to develop a paper-making method that is similar to the methods used by artisans and industrialists in the modern era. Although Ts'ai Lun used plant fibers and simple materials to make his paper, today's paper is made in mills using large machines, wood fibers and recycled paper materials.

Simple paper-making methods involve soaking plant or recycled paper fibers in water and then reforming the fibers to make a flat sheet. The water-soaked fibers make up a solution that paper-makers call **slurry**. The slurry is then formed into sheets using two frames that are called the **deckle** and the **mold**. The mold is a frame that has a mesh screen pulled over it. The screen allows the paper fibers to be separated from the water. The deckle is another frame, just like the mold, but it does not have a mesh screen. The deckle helps to shape the paper. This activity is divided into two parts. In the first part, you will learn how to make your own deckle and mold frames. In the second half of the activity, you will learn how to make slurry out of recycled paper. You will then be able to use your deckle and mold to make paper out of your slurry.

In this activity we will:

1. To make homemade paper from recycled materials using supplies found in the home
2. To learn the basic techniques used to make paper

Part I: Making the Deckle and Mold

Materials

Foam Board or Thick Cardboard
Acrylic Window Screening or Pantyhose leg
Duct Tape
Utility Knife or Scissors
Ruler

Safety

This portion of the activity requires the use of sharp cutting tools. Use caution when handling knives or scissors. Ask an adult to help you if necessary.

Preparation

1. Cut two pieces of board that measure about 8'' wide and 10'' long.



2. Cut out the center of each board leaving a 1-inch frame.



3. Cover the frames with duct tape. Make sure all areas of the board are completely covered to waterproof it.



4. Cut a piece of screening or pantyhose slightly smaller than 8''x 10''.



5. Tape the screening onto one of the boards with duct tape; making sure that the screening is pulled tight. This will be your **mold**. The frame without the screening is the **deckle**. Congratulations! You are now ready to begin making your own paper at home!



Part II: Making the Paper

Materials

- Mold and Deckle (Make in Advance, See Part I)
- Food Processor or Blender
- Paper Towels
- Large Baking Pan with Water
- Bowls with Water (for soaking paper)
- Flat Board (such as a cutting board)
- White Glue
- Absorbent Sponge
- Large Cup (for water transfer)
- Glitter (optional)
- Several sheets of different types and colors of used (or new) paper

Safety

Making your own paper can get a little messy, so make sure you cover your work areas with plastic to make clean-up a little easier and to protect your counters, tables and floors!

Read all the directions before beginning. Making paper is easier and more fun if you have another friend or family member help you. It also takes practice! If you don't get it exactly right the first time, don't give up! It may take a couple attempts to get your technique down, but you can always re-use the slurry if it doesn't come out right the first time.

Preparation

1. Tear your paper into small squares (about 1cm x 1cm). If you are using thicker paper, like notebook, magazine or computer paper, you should soak the pieces for a couple minutes. Tissue paper and newspaper do not need to be pre-soaked.



2. Fill your blender halfway with water. Transfer the pre-soaked pieces of paper into the blender. Blend in short intervals until you can no longer see the pieces of paper. If the blender becomes clogged with pieces of paper, add more water.



3. Your paper slurry should be about 75% water and 25% slurry. When the slurry is uniform and when you cannot see any more pieces of paper, pour the slurry into

your baking pan. Add about a tablespoon of white glue and stir. The glue will act as a binder for your paper and help to hold it together.



Activity

1. Place the deckle on top of the mold, screen side up. Hold them together tightly and submerge them in your paper slurry.
2. Lift the mold and deckle out very slowly. Let the water drain out very slowly into the baking pan for about a minute or two.



3. While still over the pan, carefully remove the deckle without disturbing the paper. Reach under the mold and sponge the opposite side of the screen (to remove excess water).
4. Take the mold to the drying area. Place the long edge of the mold on your cutting board and quickly flip the mold down onto the board so that the paper is sandwiched between the mold and the cutting board.
5. Sponge the back of the mold again to remove excess water.
6. Carefully remove the mold from the paper. This may require you to peel a small part of the paper, but the majority of the paper should stick to the cutting board.
7. Allow your paper to dry somewhat before removing it from the cutting board. You can finish drying the paper on some paper towels or other type of absorbent cloth. Depending on the thickness, your new paper will take about 2-3 hours to dry.

Extension Activities

1. Try adding different materials such as colored thread, string, glitter or paper to the slurry mixture after you add the glue. See if the addition of these materials changes anything about the make-up of the paper. Use your imagination to think of other materials that you could add to change the make-up of your paper.
2. Do you think that the thickness of the slurry will affect the outcome of your paper? To test this, you can make slurries of different thicknesses by blending them for longer or shorter amounts of time. Make paper from each of your different slurries. Once the paper dries, you can test the strength of each.

Wrap-Up

After completing this activity, you should have a good understanding of the simple methods of paper-making. However, that's not the end of the story! There are so many more ways in which you can experiment with paper-making. There are many books and internet sources out there that can help you continue your interest in the art of paper-making. Feel free to try out new ideas and keep practicing!

Resources

http://www.swe.org/iac/LP/paper_01.html

http://www.swe.org/iac/LP/paper_02.html

<http://www.tappi.org/paperu/welcome.htm>