

Making Recycled Paper

eco-cycle

Snapshot

The classroom becomes a paper recycling factory when students create recycled paper from their discarded worksheets and paper scraps.



<https://bit.ly/eco-cycle-zero-waste-schools-guide>

Objective: Students will learn about the paper recycling process by making their own sheets of paper.

Age Groups: K-12th grade and adults

Setting: Classroom

Project Duration:

- Preparation: 30-60 minutes
- Activity: 45 minutes

Materials:

- Used classroom paper
- Framed screen(s) (purchased or hand-made)
- Cloth towels
- Sponges
- Plastic bins for holding water
- Blender with lid
- Access to water
- Access to electrical outlet
- Measuring cup
- Newspaper (one sheet per student)

Why This Project Matters:

Paper products make up the largest portion of the waste stream generated in the United States. In addition, billions of trees are cut down each year to make paper for the world's consumption. Considering that a paper fiber can be recycled up to 12 times, recycling paper drastically reduces waste and the cutting of forests to produce new paper.

Project Summary:

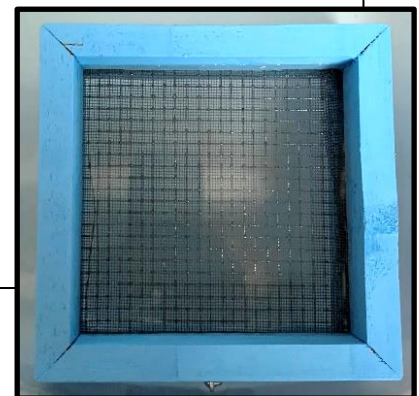
For this project, instead of sending used paper to the recycling centers and paper recycling factories, students will each make a new piece of paper from use scrap paper in their classroom. This hands-on project gives students a close look at how new paper can be made from old paper.



Implementation:

Gather materials (1-7 days prior to activity):

1. Collect used paper from the paper recycling bin. If the school does not have a recycling program, establish a collection box in the classroom for students to deposit their used notebook paper and graded worksheets.
2. Purchase papermaking frames at a local craft supply store or construct some by using deep, wooden-edged photo frames (remove glass and other inserts) and soft hardware cloth (screen fabric). Cut the screen material slightly larger than the size of the frame. Using a staple gun, staple the material tautly along the interior of the frame. Another hand-made option is to use an embroidery hoop and hardware cloth. Cut a round piece of material slightly larger than the hoop and secure it tautly in place between the inner and outer loops using the tightening screw.



- Each papermaking station should have the following: 1 screen, 1 cloth towel (size of a hand towel), 1-2 sponges, and 1 plastic bin. Gather your materials based on the number of stations you need.



Activity:

- Set up the papermaking station(s), clearing table or desk surfaces of items that you do not want to get wet. Fill the plastic bin with water deep enough to just submerge the screen. Have students tear the used paper into 1-inch pieces. Demonstrate steps 2-8 below before placing students in small groups. If you have enough stations for each group to work simultaneously, you can have older students assist each other at their assigned station. If you only have 1-2 stations, have small groups take turns working at the papermaking station while other groups do seat work as they wait their turn.

- Create paper pulp by placing a handful of 1-inch paper pieces into the blender jar and add water until it is about 2/3 full. Blend at medium speed until paper and water are thoroughly mixed. Continue adding paper in small amounts and blend until pulp looks like watery oatmeal.



- Place the screen flat onto the surface of the water in the plastic bin, making sure any latch is secure. Measure 1 cup of paper pulp from the blender jar and pour into the center of the screen, swirling the pulp gently with your fingertips to make sure the pulp has spread evenly over the surface.

- With both hands, lift the screen out of the water, letting the water drain off. Place the screen flat on the tabletop, paper pulp facing up.

- Open the latch or screw (if there is one) and lay the towel flat along the pulp's surface. Gently, but firmly, press the sponge on top of the towel to absorb water from the paper pulp, wringing water back into the bin. Make sure to lift and press the sponge evenly on all portions of the pulp, do not rub. Repeat until most of the water has been removed.



Extensions:

- Have students estimate how many sheets of used paper it took to make one sheet of recycled paper.
- Encourage students to make posters or signs (on reused paper, of course) about ways to conserve, reuse and recycle paper at school.
- Papermaking can be a starting point for implementing (or improving) a recycling program at your school. Students can make signs to be displayed throughout the school featuring statistics and facts about paper consumption and recycling. Contact your local recycling company to inquire about how much paper recycling is collected from your school. (Continued next page.)



6. To remove the pressed paper pulp from the screen, start at one corner and carefully peel back the towel making sure the pulp fibers are adhered to it. Continue until fully removed. (Hint: If the pulp sticks to the screen instead of the towel, lay it back down and continue pressing water out with the sponge, then try again.)

7. Lay the towel with the pressed paper pulp facing up on the table. Place a piece of newspaper on top of the pressed pulp. Slide one flat hand under the towel, palm up, and place the other hand on top of the newspaper. Gently flip the 'paper sandwich' until the newspaper is on the bottom. Place it flat on a dry area of the tabletop.
8. From the corner, carefully peel the towel off the top of the pressed pulp. This time it should stick to the newspaper. (Hint: If the pressed pulp sticks to the cloth towel, gently loosen it from the towel with your fingers as you pull it away.) The pressed paper pulp will need to dry for 24-48 hours on the newspaper, after which the new piece of recycled paper is ready for use!
9. After the demonstration is complete, have small groups of students work together to make their own sheets of paper at designated stations, or on rotation through one papermaking station using steps 3-8 above.
10. Have students write their names on their newspaper sheets for easy tracking. After the new recycled papers have dried, students may peel them off the newspaper and decorate with markers or paints, cut them into shapes, make cards, create bookmarks, and/or use them for another follow-up activity.



Extensions: (continued)

- To decorate your new paper, add any of the following to the wet pulp on the screen before applying the towel and pressing:
 - small pieces of dark or bright-colored paper
 - dark or bright-colored paper pulp shaped by cookie cutters
 - seeds
 - dried flowers
 - leaves



Assessment:

Have students draw a diagram or write a paragraph about the materials and steps needed to make new paper from old paper. Have then write an additional paragraph about why recycling paper is good for the environment.

Related Activities:

- Eco-Wise School Supplies – Chapter 1
- “One or None” Paper Towel Campaign – Chapter 5
- Paper Reduction Campaign – Chapter 6
- Reducing Junk Mail – Chapter 10
- Schoolwide Recycling Collection – Chapter 18
- Creative Crayon Recycling – Chapter 20

