

Recycling: Old Made New



SUMMARY OF CLASSROOM LEARNING

Young scientists sorted items to learn more about the physical properties of objects. Together, we sorted our recycling into paper, glass, metal, and plastic. The class discussed how recycling paper is helpful to the environment. Young scientists investigated a variety of paper products (tissue paper, newspaper, copy paper, paper egg cartons, cardstock, and toilet paper) with magnifying glasses and described their physical properties. Afterward, they participated in a lab to discover what would happen when water was added to each type of paper. To learn more about how paper is recycled, we made our own recycled paper in class.

OBJECTIVES

Students were able to:

- sort materials according to their physical properties.
- observe and describe what happens when different paper products are made wet.
- describe the changes that occur throughout the process of paper recycling.

BACKGROUND INFORMATION

Recycling helps make the best use of our planet's limited resources. Paper, plastic, glass, and metals such as aluminum and steel are all materials that can be recycled. Recycling programs will vary by community, so it is important to check with local resources to determine the rules for recycling in the young scientist's local community.

Paper recycling is the process of recovering waste paper and remaking it into new paper products. According to the American Forest and Paper Association, in 2020 two thirds of paper was recycled and transformed into new sustainable paper products and approximately 47 million tons of paper and paperboard were recycled for a recycling rate of 65.7 percent. Every ton of paper recovered for recycling saves 3.3 cubic yards of landfill space. Paper products that can be recycled include corrugated cardboard, magazines, printer paper, newspaper, junk mail, envelopes, and paperboard (e.g. cereal boxes).

Paper contains fibers that are shredded and mixed with water to make a pulp. This pulp is then dried and pressed to make paper. Each time paper is recycled, the fiber length decreases which impacts its strength. It is estimated that paper can be recycled up to 7 times.

Cutting down too many trees is bad for the environment in many ways—animals lose their habitat, deforestation can cause soil erosion, and trees provide the Earth with much-needed oxygen. However, it is important to note that paper is made from a renewable resource. While it may take many years for a tree to grow, the U.S. forest products industry plants an average of 1.7 million trees every day. That is 5 new trees for every tree that is harvested for paper products! Through a combination of recycling and replanting trees, we can use our resources responsibly to make sure they are available for years to come.

HOME ACTIVITY

Ask the young scientist to describe the process used to make the sample of recycled paper they have brought home. Families should work together to use the recycled paper sample to decorate a greeting card for someone special. Discuss some ways to reduce paper waste and recycle more as a family.

MATERIALS

- Recycled paper sample made in class
- Coloring supplies (crayons, colored pencils, markers)
- Paper
- Glue

VOCABULARY

Use the following words while having conversations with your young scientist.

- **Physical properties:** characteristics that can be observed, like appearance, texture, color, size, mass, and volume.
- **Recycling:** converting waste materials into new materials.
- **Renewable resource:** a resource that can be replaced through natural reproduction within a human life span like a tree.

THOUGHT/CONVERSATION STARTERS

- How is paper recycled?
- What items do we use at home that can be recycled?

STEPS

1. Ask the young scientist to share the steps/process that was used to create the sample of recycled paper.
2. Use the recycled paper sample and other art supplies available to create a greeting card for someone special. While decorating the card, discuss ways to reduce paper waste and recycle more.
3. Write a message for the recipient of the card.
4. Make plans to deliver or mail the card to the recipient.

DOCUMENT THE LEARNING IDEAS

- Take a photo of your young scientist with the finished product.
- Record a video of your young scientist with the card, explaining the process of making recycled paper and who they will be giving it to.

CONTINUE MAKING CONNECTIONS

Look for recycling symbols with the young scientist on outings.

On a future trip to a local store, stop by the school/office supply section. Search for paper products that have been recycled and recall the steps that were taken in class to recycle paper. What happens to the fibers each time paper is recycled? Do the physical properties look different? How is it the same or different?