



EARTH DAY NETWORK

*Recycling and Waste
Reduction*

INTRODUCTION

This lesson introduces students to the concept of recycling and waste reduction. Students will investigate how materials are recycled, what materials can be recycled and why recycling is so important to protect our environment. Through a hands-on activity students will be able to create their own recycled paper using old newspapers.

LESSON OVERVIEW

Grade Level and Subject: Grades 5-8: Science, Social Studies, Language Arts, and Art.

Length: One class period

Objectives:

After completing this lesson students will be able to:

- Identify what basic materials can be recycled.
- Identify some of the environmental benefits of recycling.
- Examine their own personal activities that create waste and impact landfills and resource usage.
- Make personal changes to their waste output so that they can create a positive impact on the environment.
- Conduct a hands-on experiment using old newspapers and office paper to make their own recycled paper.

National Standards Addressed:

This lesson addresses the following National Science Education Standards¹

- Content Standard: [NS.5-8.5: Science and Technology](#)
As a result of activities in grades 5-8, all students should develop
 - Abilities of technological design
 - Understanding about science and technology

MATERIALS NEEDED:

- Newspaper, scrap paper
- A square of window screen that fits inside a pan
- Pan
- Blender
- Water
- Measuring cup
- Iron or rolling pin
- Towels or scrap pieces of fabric

Activity ONE: Discussing and Estimating Daily Recycling

1. Discuss the key vocabulary terms and concepts, focusing on recycling as the process of using old items to make new items. Tell your students that when they recycle old notebooks and newspapers, they are used to make new things instead of simply sitting in a landfill. Plus, virgin resources, such as trees, do not need to be used to make new products. Tell your students that paper isn't the only material that can be recycled; plastic, aluminum, steel, and glass can be reused too.
2. As a class, brainstorm different types of recyclable items that they might encounter on a daily basis. Discuss their daily activities and the recyclable items involved in each. For example: eating (*plastic cups and dishes, aluminum food and drink containers, cardboard cereal boxes, plastic milk jugs...*), doing school work (*paper, printer ink cartridges, electronics...*), purchasing products from the store (*plastic packaging, cardboard boxes, plastic containers...*), etc.

Activity TWO: Building Knowledge of Recycling

1. Talk to your students about recycling and waste in more depth.. On average, a person in the United States uses more than 700 pounds of paper every year-- which is a lot of paper! Mention that because of the success of the recycling industry; 63% of that paper (45 million tons) was recycled. However, paper can only be recycled if each person makes an effort to dispose of it properly in recycling bins. Talk about how great it would be if 100% of all paper could be recycled and we no longer needed to cut down trees!
2. Segue into this activity by telling your students that you can make your own recycled paper! The following experiment demonstrates the simplicity of the

recycling process. When students collect old newspapers and classroom papers, they become more aware of the amount of materials in their lives that can be recycled. When they complete this project, they will have tangible proof of the process of how materials are recycled.

1. Students should rip newspapers and old office papers into tiny pieces. Put the ripped pieces of paper in a blender and add warm water to the blender.
2. Mix the paper and water until it becomes well blended, making paper pulp. Add more water or paper to get a thick consistency.
3. Pour 3 cm of water into a pan. Place your screen into the pan and then pour one cup of paper pulp onto the screen.
4. Spread the pulp evenly in the water with your fingers. It should feel mushy.
5. Lift the screen out of the water slowly, allowing the water to drain.
6. Place the pulp-covered screen face down on a piece of cloth or in between newspaper. Lift the screen away, leaving the paper pulp on the cloth or paper. Cover with another cloth and iron with a hot iron, or use a rolling pin to flatten and press out excess moisture.
7. Let the pulp dry for at least 24 hours.
8. Slowly lift the pulp, leaving behind the fabric—this is your sheet of paper!

Wrap Up: Recycling Discussion

Ask students to name what types of materials they learned could be recycled, and why it is important to recycle these items. Discuss other ways that they can reduce their waste, both at school and at home (buy items with less packaging, use items completely before replacing, only buy what you need, etc.). Encourage students to recycle, and answer any questions they may have about how to recycle at school and at home. Empower them to take what they've learned home and share how important recycling is with their parents and friends!

