Environmental Education

How Waste Affects Our Resources

Provided by Youth Environmental Program,
part of the West Virginia Department of Environmental Protection

Objective

To allow students to investigate sources of different objects in and around the classroom and learn about natural resources.

Grade Level	Upper Elementary
Duration	30 to 55 minutes
Group Size	Any
Setting	Indoor or Outdoor

Vocabulary
Natural Resources, Renewable, Nonrenewable, Sustainable, Fossil Fuels

Materials

- Examples of items made from various resources (i.e. glass, wood, plastic, rubber, tin)
- Paper
- Pencils
- Dry-erase board/classroom board

Introduction

Opening questions:
Where does metal come from? (Answer: underground)
Where does cardboard come from? (Answer: trees)
What are resources? (Answer: wood, gas, air, water)

Announce to the group: "Today we are going to learn about resources, where they come from and why they are important."

Warm-up

Step 1

Ask students to help come up with a list of different items that they use and throw away each day. Write the list on a board. Examples include candy wrappers, paper towels, plastic water bottles, leftover food.

Step 2

Next, ask students to discuss those items and trace them back to their original sources. Examples: Paper comes from wood and trees, which are traced back to Earth. Glass is made from sand, which comes from rocks, which comes from the Earth. Metals are minerals that come from rocks, which are traced to Earth. Plastic is made from petroleum, which comes from fossils, which are traced to Earth. Food is traced to animals and plants, which are traced to Earth. Where do the objects around you come from? Food is traced to animals and plants, which are traced to Earth.

Step 3

Introduce the following terms:

Natural Resources- materials or substances such as minerals, forests, water and fertile land that occur in nature and can be used for economic gain. Discuss examples with the group.

Renewable- able to replenish or restore.

Nonrenewable- not able to be restored or replaced.

Sustainable- able to be maintained at a certain rate or level for a long time.

Environmental Sustainability- meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Fossil Fuels- a natural fuel such as coal or gas, formed in the geological past from the remains of living organisms. Non-renewable.

Step 4

Encourage students to think more about these terms and discuss the following questions:

What are the natural resources in the list on the board?

Why are natural resources important?

Are these resources in endless supply?

What will happen if we continue to waste our natural resources?

Activity

Step 1

Distribute items or pictures of items that would be included in the waste stream. Include examples of products from natural resources that can and cannot be renewed.

Step 2

Have students identify the raw materials used to make each item and decide whether they are renewable or nonrenewable.

Step 3

Review students' answers.

- Discuss that aluminum, tin, steel and petroleum are all nonrenewable resources.
- Help students to understand that some materials are not renewable because they are the result of geological processes that take millions of years to complete.
- Nonrenewable supplies are in limited supply. Once they are used up, they are gone forever.
- Paper and cardboard come from a renewable resource of wood/trees, but wood is being used at a faster rate than it can be produced commercially.

At the conclusion of the discussion, students will be able to place any piece of solid waste into categories of renewable and nonrenewable resources.

Closing

- Talk with students about how they can reduce their impact on natural resources by implementing the 3Rs: Reduce, Reuse, and Recycle
- Encourage students to take a pledge to reduce their environmental impact, by using less of a natural resource.

Additional Activities

Assign individual students or small groups a natural resource

Have students research how much of a particular resource is used daily or yearly and compile three ways use of this resource can be reduced or renewed. Example: Trees are renewed by planting and we can reduce how much we use by using materials like hemp.

Conduct a waste inventory

Assign a waste inventory to individual students or work together as a classroom. Students will write down how much of each natural resource is thrown away daily. Assign students to weigh or estimate amounts of paper, plastic, metal, etc., that are thrown away each day for a week. Discuss how much that adds up to per year. Afterward, compare data, and ask students to compile a list of ways to reduce waste in their homes or classrooms.

Additional Resources

YouTube Videos

Learn Bright | Natural Resources for Kids | Teach your kids and students about Earth's natural resources
https://www.youtube.com/watch?v=dsTgyb_ITtk

Kids Academy | Saving Earth's Resources | How to conserve natural resources: water, air, and land
https://www.youtube.com/watch?v=B_5xwQndoK0

Turtlediary | 2 types of natural resources on Earth *explained* science for kids
https://youtu.be/Qw6uXh9yM54

Websites

Online games:
https://www.Brainpop.com/games/sortifynaturalresourcesjr/
https://www.wordwall.net/resource/9806976/science/natural-resources
https://www.calacademy.org/educators/lesson-plans/natural-resources-bingo
Natural resource books:
https://www.getepic.com/collection/196884/natural-resources

Worksheets/Handouts: see attached

West Virginia YOUTH Environmental Program

Learn more about the West Virginia Department of Environmental Protection's Youth Environmental Program or to schedule a presentation visit our website: https://dep.wv.gov/environmental-advocate/YEP/Pages/default.aspx

Worksheet A

Name_____ **Date**_____

Conserving Natural Resources

Here a list of items that are common classroom needs! Below each item are two choices for how to meet the need. Circle the choice that would be the best way to conserve natural resources.

1. **Note to parents:**
   - a. **Paper copies**
   - b. **Emails**

2. **Disposal for Used Papers:**
   - a. **Recycling Bin**
   - b. **Trash Can**

3. **Light Source:**
   - a. **Fluorescent Light**
   - b. **Energy Efficient Lights**

4. **Folders and Notebooks:**
   - a. **Made from non-recycled paper**
   - b. **Made from recycled paper**

5. **Stapler:**
   - a. **Manual**
   - b. **Electronic**

6. **Calculators:**
   - a. **Battery Powered**
   - b. **Solar Powered**

7. **Room Temperature**
   - a. **Windows Open**
   - b. **Air Conditioning**

8. **Water Bottles:**
   - a. **Plastic single-use bottle**
   - b. **Reusable Bottle**

Worksheet B

Name_____ **Date**_____

Conserving Natural Resources

Draw a line from the Item we use to the Natural Resource it is made from.

bricks

clothes

washing

gasoline

meat

plants

soil

fossil fuels

animals

water

Worksheet B

Name_____ **Date**_____

Conserving Natural Resources

Draw a line from the Item we use to the Natural Resource it is made from.

paper

balloons

sunlight

tools

milk

minerals

forests

air

animals

solar energy