

# REUSE, REDUCE, AND RECYCLE IT!



## BENCHMARKS AND TASKS

**SC.D.2.1.1** The student understands that people influence the quality of life of those around them.

**SC.G.2.1.2** The student knows that the activities of humans affect plants and animals in many ways.

- The student recognizes that humans are an integral part of the ecosystem.
- The student classifies and justifies changes humans make in the environment as positive and negative.
- The student identifies resources as things we get from the living and nonliving environment.
- The student recognizes and explains why some resources are limited.
- The student recycles materials that can be used again, sometimes in different forms.
- The student creates a plan for being more personally responsible about caring for the earth.

## KEY QUESTION

How can we use our resources better?

## BACKGROUND INFORMATION

The trend to recycle is based upon an important factor: landfills, which have been the traditional source of waste disposal for the last 50 years, are filled to capacity and we are running out of space to dispose of our waste materials. Paper and other wood products have traditionally taken up a great deal of this space. Recycling efforts center today around newsprint and cardboard products, which can be easily recycled. However, the average family consumes 1½ trees per year just in junk mail that is not recycled. A very small amount of landfill waste is composed of organic matter.

To **reuse** materials is to use a material again, perhaps in a new or different way. Fabric scraps from shirts or dresses are made into quilts; wheels from wagons are used to create new toys; greeting cards are cut up and used in scrapbooks; assorted materials are used in art work, jewelry, or in other creative ways.

To **recycle** is to collect materials and transform them to a state in which they may be used in a similar manner again. Paper can be collected and processed to be used as paper again. Glass can be melted, plastics can be transformed into new plastics, and tires can be shredded and used to create new materials.

To **reduce** requires that decisions are made and actions are taken to lower the consumption of materials: being aware of the packaging of materials and making choices based upon the amount

of waste; eliminating most “junk” mail; and choosing to use recyclable versus disposable materials whenever possible.

### **Materials**

#### **Teacher**

“gift” wrapped in tissue paper and placed in a gift box, wrapped in wrapping paper with a large bow.  
newspaper and recycled drawing paper  
2 different plastic soda bottles  
a piece of clear glass and a piece of stained glass  
a small object placed in a large grocery bag  
milk jug  
*Saving Our Planet* (Dominie Press)  
Benchmark Education Co. books:  
    *Riches From Nature*  
    *Clean Beaches*  
    *Reduce, Reuse, and Recycle*  
    *Are We Hurting the Earth?*  
*Can Kids Save the Earth?* (Ranger Rick)

#### **Per group**

box of found materials (e.g., articles of clothing, paper, wood products, metals, wire, plastic)  
To make paper:  
3 pieces of used paper  
3” x 3” piece of window screen  
flat pan (cookie pan)  
2-4 pieces of newsprint or drawing paper (blotting paper)  
bowl  
egg beater or wire whisk  
rolling pin or cylindrical container  
newspaper  
2 tsp. liquid starch  
2 cups hot water  
small box of cereal  
various sizes of containers

### **TEACHING TIP**

This activity has numerous sections and will take several days to complete.

### **ENGAGE Part 1**

Show the students the elaborately wrapped gift box. Open it and throw away the tissue paper, the wrapping paper, the bow, and the box. Keep only the gift.

Say: *Think about what I just did and we’ll talk about it after the activity.*

### **EXPLORE**

Give each group of three or four students a box of found materials.

Ask them to sort the materials into two groups: useable and not useable. Allow the groups to explain their groupings.

### **EXPLAIN**

Tell the students that some materials are considered waste and should be thrown away. This is because there is no other possible use for these materials.

Tell the students that some materials may be reused in new ways. An example might be scrap wood that can be used to create something new.

Ask: *Would this action be positive or negative for our environment? Are there materials in the boxes that can be reused?*

As a class, generate a list of materials that can be reused. Write on chart paper and label the list as *reusable*.

Ask: *Why do you think we usually throw things away rather than reusing them?*

## **EXTEND/APPLY**

Each group will choose an item from their box of found materials and write/draw in their science journals how they would reuse the item.

Ask:

*After unwrapping the gift, could I have done something differently rather than throwing away the tissue paper, wrapping paper, bow, and the box?*

## **ENGAGE Part 2**

1. Show the students some materials that may be recycled: milk jug, soda can, white paper, etc.

Ask:

*What do you think these materials have in common?* Allow them to respond.

2. Show the students sets of original and recycled materials (e.g., newspaper and recycled drawing paper; a plastic soda bottle and a plastic soda bottle that has been recycled; a clear piece of glass and a piece of stained glass).

Discuss how the recycled materials are alike and different from the original materials.

Explain that the original materials are changed to create the new recycled materials.

3. Tell the students they will be making paper out of used paper.

## **EXPLORE**

- Ask students what materials in their community are recycled. These materials can be reformed into the same, or a similar material, for use again. Generate a list of possible materials that can be recycled. Write on chart paper and label the list as *Recycle*.
- Guide the student groups to make paper.
  1. Tear the 3 pieces of used paper into very small bits in the bowl. Add 2 cups of hot water and beat the paper and water with the beater to make paper pulp.
  2. Add 2 teaspoons of starch to the pulp.
  3. Pour the pulp into a flat pan.
  4. Slide the screen into the bottom of the pan and move it around until it is evenly covered with pulp.
  5. Lift the screen out carefully. Hold it level and let it drain for a minute. Then put the screen, pulp side up, on a blotter, then on a thick layer of newspaper.
  6. Put another blotter over the pulp, more newspaper over that, and roll the rolling pin over it to squeeze out the rest of the water.
  7. Take off the top newspaper. Turn the blotter sandwich over so the screen is on top. Then take off the blotter and screen carefully. Don't move the pulp! Put a dry blotter on the pulp and let the pulp dry. You have just made paper from paper.

## **EXPLAIN**

Share the following: It takes 17 trees to make one ton of paper from wood. Recycled paper is made from other paper, not wood. If people buy paper made from paper instead of wood, they will be saving trees. Many kinds of paper can be used to make new paper. Some companies use old newspapers, some use office paper, and some even use old milk cartons. Not all recycled paper is alike. Some paper looks and feels just like the original. Some has the ink taken out, some leaves the ink in. If you tear a piece of cardboard at the corner, you will see all sorts of

specks of ink and coloring from the old paper and maybe even short pieces of paper mashed together. Making new paper is like cooking. Each type of new paper requires a special recipe.

Ask:

*When we recycle materials, is this positive or negative? Explain.*

*What materials are recycled at school and at home now?*

*Are there materials we could recycle in our classroom?*

### **EXTEND/APPLY**

1. Ask students to look at items they have at home that say they are made from recycled materials. Generate a list of recycled materials in our homes.
2. Share the book, *Can Kids Save the Earth?*

### **ENGAGE Part 3**

Show students the large grocery bag with a small object (e.g., pencil, candy bar, bag of pretzels) in it.

Ask: *Is this the best packaging for this item? Why or why not?*

Tell the students they will be looking at items to find unnecessary waste.

### **EXPLORE**

Give each group of students a small unopened box of cereal and several different sizes of containers. Ask them to predict which container would best hold the contents of the cereal box. Tell the students to open their cereal box, bring out the plastic bag containing the cereal, and to pour the cereal into the container they've chosen.

### **EXPLAIN**

Ask:

*Is paper wasted in cereal packaging? Explain your answer.*

*What are some other ways that we waste paper?*

*What else do humans waste besides paper?*

*Is being wasteful positive or negative for our environment?*

### **EXTEND/APPLY**

1. Challenge the students to go home and find examples of unnecessary waste and record their findings in their science journals.
2. Have students create posters showing materials that can be reused or recycled.
3. Make a class 3 R's (reuse, recycle, reduce) chart to remind everyone not to be wasteful.
4. Sing the following song to the tune of "Bingo."

We all should be responsible

For caring for our planet.

We must keep it clean!

We must keep it clean!

We must keep it clean!

Reduce, reuse, recycle!