

# “Recycle Me”

Grade 2 (30 minutes)

## Lesson Objectives

Students will learn about why, where and how they can reduce, reuse, and recycle many materials in their lives. Students will learn about how recycling is helpful in maintaining good water quality in our environment.

## Lesson Overview

Students will decide the best means of disposal for items we often throw away as they sort the items. Using a groundwater model, students will view how improper disposal of hazardous materials can affect our groundwater quality.

## Materials Needed

- Plastic tub containing the following materials:**
  - 4 signs (with back props) -- *Garbage/Landfill, Regional Collection Center, Goodwill or Salvation Army, Recycle at Curb or Take to Recycling Center*
  - sample product with hazardous label
  - Food coloring
  - Groundwater model with pump
  - Clear plastic cup
  - bottle of water
  - landfill plastic liner material sample (made of same material as milk jugs)
- Large green Curb It!® tub**
- Garbage bag filled with items to be recycled:** paper, cardboard, pizza box, napkin, diaper, paper plate, orange peel, nonclear glass, Styrofoam cup, plastic juice bottle, milk jug, clear glass, old clothes, water base glue, perfume, etc.
- photos of landfill and Regional Collection Center**
- “Reduce, Reuse, Recycle” follow-up worksheet for each student**
- teacher follow-up packet**

## Procedures

1. Ask students to brainstorm different ways they get rid of things when they are done with them (*put in garbage/landfill, pour down drain, pour on lawn, burn, Curb It or take to recycling center, Regional Collection Center, Goodwill, take to auto shops, return for a deposit, etc.*) Any of these disposal means that are not mentioned by the students can be mentioned by you.
2. Tell students that the Regional Collection Center is a place that they can take hazardous materials. (*Show photo of Regional Collection Center.*) Ask students what the word “hazardous” means (*can cause harm to people or environment*) and how they might know if something is a hazardous material (*container might say poisonous, harmful, corrosive, flammable, toxic, explosive, or reactive- show a couple products with these terms on labels*).
3. Tell students a little bit about how garbage is taken to a landfill (*show photos of Metro Park East*), is placed in the ground inside a huge area lined with a special and expensive plastic liner. This liner keeps hazardous chemicals from leaking into the ground where it could pollute groundwater. These hazardous chemicals have to be pumped out so they can be treated (cleaned up). They are piped to several wetlands that were just constructed at the landfill and are able to filter out harmful chemicals (leachate used to be sent to the Wastewater Treatment Plant to be cleaned). At the end of each day, the day’s garbage is covered with 6 inches of dirt.
4. Ask students if they know which of the ways they mentioned at the beginning are not very good ways to dispose of any materials (*pour on lawn, burn*). Ask students why burning and pouring waste materials on the lawn or ditch can be harmful (*burning pollutes the air, waste materials poured on the ground can sink down through the layers and pollute groundwater*). Tell students that they will get a chance to see how groundwater pollution happens at the end of the activity.
5. Ask students why people recycle rather than throwing everything into the garbage (*saves resources, saves energy, reduces pollution, saves money, helps the environment*). Tell students that it is good to know the proper ways to recycle materials because pollution can happen if we don’t.

6. Tell students that they are going to take part in a recycling activity to help them find out proper ways to recycle. Prop up the signs and set the Curb It!<sup>®</sup> bin on a table or desks. Show your trash bag filled with items to be discarded. Tell the students they are going to decide the **best place** for each item to go. Tell students that if a container has a lid on it, you want to know where the stuff inside it should go, and if it doesn't have a lid, you want to know where the empty container goes. Distribute an item to each student to take to the front and place it behind the correct sign or in the CurbIt!<sup>®</sup> Bin to show the best place for disposing of it. Make sure everyone gets a turn. After all of the items have been placed, discuss each item's placement and correct any mistakes with an explanation (*e.g. hazardous chemicals should never go down the drain, most cardboard can be recycled, but food boxes cannot because of bacteria on food, etc.*). If time, have students discuss how specific items they see in their classroom would be recycled or disposed of.
  
7. Share the groundwater model with students so they can see how pollutants poured on the ground's surface can pollute groundwater, which may be the water we want to drink in our wells and at DMWW treatment plant. Fill a plastic cup with water, and mix a small amount of food coloring with it. Tell students that the colored water represents a hazardous chemical. Have a student pour colored water on the surface of the model at the end opposite the pump to stand for dumping a hazardous chemical on the ground's surface. Then have the student pump the well, collecting the water in the clear, plastic container. Looking at the water in the container, students will see that the pollutant has reached the groundwater and traveled to the well that someone could be using for drinking water. Ask students what should be done with hazardous chemicals instead of pouring them on the ground.

Proper recycling can make a difference in both our groundwater around our homes and at landfills.

8. If time, call on student volunteers to tell you how one of the now-sorted items could be reused (*e.g. use both sides of a paper, make a pencil holder from a tin can, etc.*)

9. If time, call on student volunteers to tell how they could reduce the amount people use of various sorted items. (e.g., use cloth napkins instead of paper, make own cleaners instead of buying them, use regular plates instead of paper plates, use lunch box instead of paper sacks, etc.). Reducing the amount of garbage we throw away has a positive effect on our landfills. Less garbage means they don't fill up as quickly so they can be used longer and more land won't have to be found to construct new landfills.

Offer the follow-up worksheets and follow-up information packet and evaluation form to the teacher.

## Possible Items to Sort

### Garbage/Landfill

- pizza boxes
- diapers
- nonclear glass
- fast food
- Styrofoam
- phone book
- paper plate
- aerosol cans
- solidified nail polish
- napkins
- orange/banana peels

### Recycle at Curb/Recycling Center

- newspapers
- magazines
- metal food cans
- clear glass
- misc. paper
- paper sacks
- pop cans
- milk jug -- #2 plastic
- cardboard
- plastic juice bottle -- #1 plastic

### Regional Collection Center (RCC)-hazardous materials

- pesticides
- metal polish
- button batteries
- rechargeable batteries
- fertilizer
- paint
- oil
- oven cleaner
- moth balls
- epoxy glue
- rat poison
- antifreeze
- varnish
- paint thinner
- pool chemicals
- windshield washer fluid

**Pour Down Drain (most items should be diluted first)**

- glass cleaner
- perfume
- aftershave
- bathroom cleaners
- expired medicine
- disinfectants
- water-base glue
- toilet bowl cleaner

**Goodwill or Salvation Army**

- old clothes
- old books
- old dishes
- misc. old usable
- old games
- old toys
- household items