

# *Reducing, Reusing, and Recycling Environmental Concerns*

## Teacher's Guide



**Grade Level:** 4-6

**Curriculum Focus:** Life Science

**Lesson Duration:** Two class periods

### **Program Description**

*Reducing, Reusing and Recycling: Environmental Concerns* – Each year, Americans throw away millions of tons of paper, glass bottles, plastic containers, aluminum cans, yard clippings, and other types of solid wastes. Increasingly we are realizing that we are running out of places to put this waste as our landfills fill up. *Reducing, Reusing, and Recycling: Environmental Concerns* is designed to alert students to the environmental consequences of the solid wastes we throw away. The program also offers practical steps to resolve this environmental dilemma.

---

### **Discussion Questions**

- What does the term “solid wastes” mean?
  - What is the difference between renewable and nonrenewable resources?
  - What are the *Three Rs* that will help alleviate our solid waste problems?
  - Discuss examples of reducing, reusing, and recycling.
- 

### **Lesson Plan**

#### *Student Objectives*

- Understand problems created by solid waste.
- Learn about the *Three Rs* that will help alleviate solid waste problems: reduce, reuse, and recycle.
- Complete a project and written report that demonstrate how solid wastes can be repurposed.

#### *Materials*

- *Reducing, Reusing, and Recycling: Environmental Concerns* video
- Computer with Internet access
- Print and Web resources about recycling and environmental responsibility

## Procedures

1. Review with students the definition of solid wastes. Discuss examples from the video, such as litter, cans, bottles, food, plastic containers, paper, construction debris, and other trash. What is the difference between litter and garbage? Do all types of litter and garbage decompose at the same rate? Are there types of rubbish that might not decompose at all? What environmental problems do these solid wastes cause? How many pounds of waste does a typical American family throw away in a year?
2. Ask students the difference between renewable and nonrenewable resources. Discuss examples from the video, such as aluminum and petroleum-based plastics (nonrenewable resources) as well as paper products, wool clothing, and plants used for food (renewable resources). What happens to these resources when they end up in a landfill? How does a sanitary landfill reduce pollution hazards? How many trees must be cut down to make 1 ton of paper?
3. Ask students to provide examples of the *Three Rs*: reduce, reuse, and recycle. Record their responses. Examples include:
  - Reduce – Avoid using paper or polystyrene plates and cups, change our buying habits, cut down on items with excessive packaging, repair broken toys and furniture instead of throwing them out
  - Reuse – Use plastic tubs to store items, use plastic bags and paper as packing material, use paper bags to store stuffed animals or clothing, give unneeded or broken items to others who can use or fix them
  - Recycle – Separate newspapers, glass, aluminum cans, and plastic containers into recycling bins for pickup, or deliver recyclable items to the local recycling center
4. Ask students to investigate different ways they can reduce, reuse, and recycle in their own homes. Challenge the students to think about garbage disposal and recycling in their homes. Are all recyclable items set aside, or are some items thrown into the trash? Are there paper and plastic containers that can be reused for other purposes? Are broken toys and furniture repaired or discarded? How can each family reduce the amount of solid wastes generated in their home?
5. Have students research the *Three Rs* using print and Web resources. The following Web sites are a good starting point:
  - Environmental Kids Club (Garbage and Recycling)  
<http://www.epa.gov/kids/garbage.htm>
  - Kids Recycle Page  
<http://www.ecy.wa.gov/programs/swfa/kidspage/>
  - Kid's Recycling Corner  
<http://r4.ucdavis.edu/Kids/>
  - Kids Recycle!  
<http://www.kidsrecycle.org/index.php>

- Trash4kids  
<http://www.trash4kids.org/about.html>
  - Recycling Facts and Info for Kids  
<http://www.thomasrecycling.com/kids.html>
  - Recyclezone  
<http://www.recyclezone.org.uk/>
  - NIEHS Kids Page  
<http://www.niehs.nih.gov/kids/recycle.htm>
6. Ask students to gather several items that would normally be thrown in the garbage at their home. Have the students repurpose these items into something else so they can show them to the rest of the class. Students should write a one-page report about the item they repurposed, telling how they decided what new purpose the item could be made to serve, and mentioning at least three interesting facts about their family's garbage disposal and recycling habits during their presentation.

### Assessment

Use the following three-point rubric to evaluate students' work during this lesson.

- 3 points: Students were highly engaged in class discussions; produced a complete project and report, including all of the requested information; accurately cited three interesting, relevant points.
- 2 points: Students participated in class discussions; produced an adequate project and report, including most of the requested information; satisfactorily cited two relevant points.
- 1 point: Students participated minimally in class discussions; created an incomplete project and report with little or none of the requested information; were not able to report or recall any interesting, relevant points.

### Vocabulary

#### **compost**

*Definition:* A mixture of decomposing yard or food wastes that can be used as fertilizer or soil

*Context:* Many people create compost heaps for leaves and grass clippings in their backyards.

#### **decompose**

*Definition:* Break down into small pieces and turn into soil

*Context:* Yard waste decomposes into mulch that is beneficial to garden plants.

#### **incinerate**

*Definition:* Burn to ashes

*Context:* Incinerating solid wastes contributes air pollution.



### **nonrenewable resource**

*Definition:* A resource that, once used up, cannot be replenished

*Context:* The oil used to make plastics is an example of a nonrenewable resource.

### **recycle**

*Definition:* To separate something from trash or garbage so that it can be reprocessed and used again

*Context:* Many American cities have programs that allow homeowners and apartment dwellers to recycle old newspapers, cans, and bottles.

### **renewable resource**

*Definition:* A resource that, once used, can be replenished, such as trees and other plants

*Context:* Trees are a renewable resource, which means new trees can be planted to replace the ones that have been cut down to produce paper or build homes.

### **sanitary landfill**

*Definition:* A site for depositing garbage and other solid wastes that reduces hazards from pollution and disease

*Context:* Many sanitary landfills are filling up quickly, and most people don't want a new landfill established near their communities.

### **solid waste**

*Definition:* All solid or semisolid waste, including garbage, trash, construction debris, discarded furniture, appliances and industrial wastes

*Context:* Reducing the amount of solid waste will help protect the environment.

## ***Academic Standards***

### **National Academy of Sciences**

The National Academy of Sciences provides guidelines for teaching science in grades K-12 to promote scientific literacy. To view the standards, visit this Web site:

<http://books.nap.edu/html/nses/html/overview.html#content>.

This lesson plan addresses the following national standards:

- Science in Personal and Social Perspective: Populations, resources, and environments
- Life Science: Organisms and their environments

### **Mid-continent Research for Education and Learning (McREL)**

McREL's Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education addresses 14 content areas. To view the standards and benchmarks, visit <http://www.mcrel.org/compendium/browse.asp>.

This lesson plan addresses the following national standards:

- Science – Life Sciences: Understands relationships among organisms and their physical environment
- Health – Knows environmental and external factors that affect individual and community health
- Language Arts – Viewing: Uses viewing skills and strategies to understand and interpret visual media

### **The National Council for the Social Studies (NCSS)**

NCSS has developed national guidelines for teaching social studies. To become a member of NCSS, or to view the standards online, go to <http://www.socialstudies.org>.

This lesson plan addresses the following thematic standards:

- Production, Distribution, and Consumption
- 

### **Support Materials**

Develop custom worksheets, educational puzzles, online quizzes, and more with the free teaching tools offered on the DiscoverySchool.com Web site. Create and print support materials, or save them to a Custom Classroom account for future use. To learn more, visit

- <http://school.discovery.com/teachingtools/teachingtools.html>
- 

### ***Credit***

Robyn Kurth, freelance writer