TAKING OUT THE TRASH

Subject Matter: Science
Grade Levels: 3-5
Time Allotment: Two 50-minute class sessions
Master Teacher: Merrie Hensley

Overview

This lesson provides students with an opportunity to learn about recycling. They learn what they can do to help reduce the amount of garbage that goes to landfills and why this is important.

Learning Objectives

Students will be able to:

- Determine actions that generate lunch trash.
- Identify waste reduction techniques.
- Realize that solid waste is almost anything a person throws away, including trash and garbage.
- Understand some of the problems created by solid waste.
- Understand the differences between renewable and nonrenewable natural resources.
- Discuss how garbage is disposed of, with a particular focus on the role of sanitary landfills and how such landfills function.
- Evaluate how their own practices and actions contribute to solid waste problems.

Oregon Standards Available at:

http://www.ode.state.or.us/cifs

Earth and Space Science

Understand physical properties of the Earth, how those properties change and the Earth's relationship to other celestial bodies.

- Understand the properties and limited availability of the materials which make up the Earth.
- Recognize that the supply of many resources is limited and that resources can be extended through recycling and decreased use.
- Recognize that discarded products contribute to the problem of waste disposal.

Media Components

Video

Check the link at http://www.opb.org/edmedia/trs/ to find access to the video(s) from unitedstreaming™ referenced in this lesson plan.

- "Reducing, Reusing, and Recycling: Environmental Concerns" (26:00)
  - **Clip:** "Garbage: Not a Pretty Sight" (00:49)
  - **Clip:** "What is Solid Waste?" (02:09)
  - **Clip:** "How Much Solid Waste do We Create?" (00:42)
  - **Clip:** "Valuable Trash: Things Made from Renewable and Non-Renewable Natural Resources" (03:37)
  - **Clip:** "Sanitary Landfills" (04:23)
  - **Clip:** "The Three R's: Reduce, Reuse, Recycle" (01:07)
  - **Clip:** "Reduce" (03:30)
  - **Clip:** "Reuse" (01:21)
  - **Clip:** "Recycle" (04:37)
  - **Clip:** "Solid Waste and Environmental Solutions: A Review" (01:56)

Web

- **Quest of the Ring Leaders**
  Quest of the Ring Leaders is an environmental education program set in an adventure game format. By completing the game, students will gain an understanding about current environmental problems as well as methods to decrease environmental degradation. In addition, students will learn how they can personally protect the environment.
  http://www.ringleader.com/

Materials

Per Class and/or Group:

- **Lunch A**
  Lunch box containing a thermos filled with a drink, a piece of fruit such as an apple, pear or plum, a sandwich container, chips and/or carrots and celery sticks in a reusable plastic container, napkin.

- **Lunch B**
  Paper bag containing juice carton, sandwich wrapped in plastic wrap, bag of chips, Twinkie or fruit pie, banana, carrots or celery sticks wrapped in plastic wrap, and a pudding cup, napkin and spoon.

- A scale that measures weight in grams

Prep for Teachers

Prepare two lunches as described in "Materials" above. Try your best to pack them so that they weigh the same.

When using media, provide students with a **Focus for Media Interaction**, a specific task to complete and/or information to identify during or after viewing of video, Web sites or other multimedia elements.

Download the video clips. You can obtain a free copy of the Windows Media Player on the Web that will make viewing the downloaded clips much more convenient and versatile. QuickTime Player can also be downloaded and used for viewing most video clips.

Bookmark the Web site you will be using in the Culminating Activity. Set up the Web site in Portaportal on the school server or in a desktop folder so students will not need to type in the Web address. Portaportal (http://www.portaportal.com/index.php) is an online "favorites" Internet resource that can be accessed from any computer that is connected to the Web.

Day 1

Introductory Activity

Step 1: Share that today we will be discussing the individual decisions we make in everyday life that contribute to the solid waste (or trash) that goes into our landfills.

Step 2: Present two lunches. Talk about how these lunches represent the kinds of foods people eat every day. But, as students will soon see, one of these lunches has a characteristic that is alarmingly different.

Step 3: Weigh each lunch using the scale. Note their weights on a surface where all students can see.

Step 4: Examine the contents of Lunch A. Discuss and estimate the amount of trash that will be generated by this lunch.

Step 5: Record your estimate in grams.

Step 6: Allow students to eat Lunch A. Possible ways of doing this are through random drawings for food items or dividing each item into small pieces and sharing.

Step 7: Weigh the non-recyclable/reusable waste from Lunch A.

Step 8: Record your results.

Step 9: Examine the contents of Lunch B. Discuss and estimate the amount of trash that will be generated by this lunch.

Step 10: Record your estimate in grams.

Step 11: Allow students to eat Lunch B. Possible ways of doing this are through random drawings for food items or dividing each item into small pieces and sharing.

Step 12: Weigh the non-recyclable/reusable waste from Lunch B.

Step 13: Record your results.

Step 14: Discuss the following questions:

- Why did one lunch produce more trash than the other?
- Why would students choose not to bring lunches that produce less trash to school?
- How might you alter your lunch so that it produces less trash?

Learning Activities

Step 1: Make sure the video clip, "Garbage: Not a Pretty Sight" (00:49), from the video, "Reducing, Reusing, and Recycling: Environmental Concerns" (26:00), is ready to play.

Step 2: Before playing the video, provide students with a **Focus for Media Interaction** by asking them to pay attention to some of the problems that garbage causes. They should take notes and be prepared to share when the video is done.

Step 3: Play the video and **pause** at the end of the clip (00:49), asking for students to raise their hands if they can name a problem caused by garbage. Write the list of problems on a surface where all students can see.

Step 4: Give a new **Focus for Media Interaction** by asking students to watch for examples of solid waste.

Step 5: Play the next two video clips, "What is Solid Waste?" (02:09) and "How Much Solid Waste do We Create?" (00:42), from the video, "Reducing, Reusing, and Recycling: Environmental Concerns" (26:00). **Pause** the video and have students name as many examples of solid waste as they can. Answers should include: litter, anything we put in trashcans, construction debris, and materials thrown away by restaurants, schools or factories. Continue to list these items on a board where all students can see.

Step 6: Before **playing** the next segment of the video, give the students a **Focus for Media Interaction** by asking them to watch for examples of nonrenewable and renewable resources. **Play** the video clip, "Valuable Trash: Things Made from Renewable and Non-Renewable Natural Resources" (03:37), from the video, "Reducing, Reusing, and Recycling: Environmental Concerns" (26:00).

Step 7: Pause the video and check for understanding by asking students to name renewable resources (trees) and examples of nonrenewable resources (bauxite and oil).

Step 8: Provide students with a **Focus for Media Interaction** by asking them to listen for problems created by sanitary landfills.

Step 9: Play the next video clip, "Sanitary Landfills" (04:23), from the video, "Reducing, Reusing, and Recycling: Environmental Concerns" (26:00).

Step 10: Pause the video and ask students to share problems caused by landfills. Answers might include pollution of water around the landfill, pollution caused by gases and the need for land to put in new landfills.

Step 11: Before **playing** the next two video clips, provide a **Focus for Media Interaction** by asking students to watch for ways they can reduce the amount of trash they or their families throw away.

Step 12: Play the video clips, "The Three R's: Reduce, Reuse, Recycle" (01:07) and "Reduce" (03:30), from the video, "Reducing, Reusing, and Recycling: Environmental Concerns" (26:00).

Step 13: Pause the video to discuss ways we can reduce trash in our homes.

Step 14: Before playing the next clip, ask students for ways they can reuse things rather than throw them away. Their **Focus for Media Interaction** during the next segment of the video will be to listen for ideas they already use or new ideas that were not mentioned during the class discussion.

Step 15: Play the video clip, "Reuse" (01:21), from the video, "Reducing, Reusing, and Recycling: Environmental Concerns" (26:00), then **pause** the video and lead a discussion on how to reuse items instead of just throwing them away.

Step 16: The next video clip is about recycling. Before viewing it, provide a **Focus for Media Interaction** by asking the students to listen for items that can be recycled and for ways that different communities collect recycled materials.

Step 17: Play the video clips, **"**Recycle" (04:37) and "Solid Waste and Environmental Solutions: A Review" (01:56), from the video, "Reducing, Reusing, and Recycling: Environmental Concerns" (26:00). Check for understanding by asking students to name as many items as they can which can be recycled. See if anyone knows how their community collects items to be recycled.

Step 18: Conclude the day's lesson by checking for understanding. Have the students complete the multiple-choice worksheet that accompanies the "Reducing, Reusing, And Recycling:

Environmental Concerns" (26:00) video. (Check the link at http://www.opb.org/edmedia/trs to find access to the blackline master(s) from unitedstreaming™ referenced in this lesson plan.)

Day 2

Culminating Activity

Tell students they are going to do an activity that will give them a better understanding of how they can help protect the environment. Take students to the computer lab or do this activity as a class with the use of a computer and projector. Have students log on to http://www.ringleader.com . As a **Focus for Media Interaction**, ask students to think about aspects of our own environment and how they can play an expanding role in safeguarding it. Allow them most of the class period to work through this game where they learn about the benefits of recycling and reusing. After approximately 40 minutes, lead a discussion on what was learned from playing this game.

Cross-Curricular Extensions

Art

- Have students create sculptures from various pieces of "trash."

Language Arts

- Ask students to write letters to the editor of the local newspaper explaining the benefits of recycling and what kids can do to help to reduce waste.

Community Connections

- Invite the manager of your local landfill to come and talk to the students about problems the landfill encounters.

- Visit a recycling center so students can see firsthand what is collected and what happens to it.