

4-6 MODULE

Unit 1: Managing and Conserving Natural Resources

Overview

UNIT 1'S CONCEPTS

- Natural resources are the living and nonliving components that support life on Earth.
- While humans use natural resources to satisfy their needs, they should conserve all materials they consume.
- Natural resources can be reused and recycled into new and useful products.

The five lessons in this unit are described in the outline that follows.

LESSON 1: DEFINING NATURAL RESOURCES

Lesson's concepts:

- Natural resources are things from the natural environment, such as plants, animals, soil, minerals, energy sources (e.g., sunlight, fossil fuels), air, and water. They are the living and nonliving components that support life on Earth.
- While humans use natural resources to satisfy their needs, they should conserve all the materials they consume.

In Lesson 1 students will:

- Make journals.
- Observe and record information on natural resources found on the school grounds.
- Listen to the story *Just a Dream* by Chris Van Allsburg, and identify categories of natural resources described in the story.
- Compare scenes in *Just a Dream* by Chris Van Allsburg to those that could have represented a natural environment before it was changed by people.
- Work as a class to develop a rubric to assess the projects they will be completing.
- Design a project by selecting a natural resource to research, gathering information from different sources for a report, and making a mobile or collage on ways that the specific natural resource is used by people.

- Present their projects to the class.

LESSON 2: AWAY TO THE LANDFILL

Lesson's concepts:

- Solid wastes are made from a variety of natural resources. Once these wastes are placed in a landfill, they are no longer available to be reused or recycled, and the natural resources used to make them are wasted.
- Landfills are the most common sites used for waste disposal.
- Landfills take up space and are located in areas that are, or once were, habitats for people, wildlife, and other living things.
- Modern landfills are designed to protect the environment.

In Lesson 2 students will:

- Construct in a bottle a model of a landfill.
- List what goes into a landfill and determine what happens to the natural resources used in objects that end up in a landfill.
- Demonstrate that waste takes up space in a landfill and that some waste can be diverted from a landfill by being reused or recycled.
- Classify items in their models of landfills according to what can be reduced, reused, or recycled.
- Observe over time the changes occurring in the waste in their models of landfills.
- Analyze school waste that has been placed in a landfill.
- Discuss alternatives to putting school waste in a landfill.

LESSON 3: KEEPING ITEMS CYCLED

Lesson's concepts:

- Everything people make, use, and discard comes from natural resources.
- Most products made by people can be kept out of landfills and kept in a cycle through reusing and recycling.

In Lesson 3 students will:

- Classify objects they brought to class according to the category of natural resources from which the objects were made.
- Develop a list of questions to find out what natural resources were used and the steps that it took to make a particular object.
- Work in groups to do the necessary research to answer their list of questions about an object they select and the ways that object can be kept out of a landfill.
- Determine how reusing or recycling extends the "life cycle" of an object.
- Present to the class their reports on how to keep an object out of a landfill.

LESSON 4: RENEWABLE AND NONRENEWABLE NATURAL RESOURCES

Lesson's concepts:

- Renewable natural resources are those which can be replaced naturally or through human-assisted actions within a relatively short amount of time (e.g., within a human lifetime). Examples of renewable natural resources are plants, animals, water, air, and some energy resources, such as sunlight.
- Nonrenewable natural resources are those available in limited amounts and take millions of years to be replaced; therefore, people can rely only on those deposits already in existence. Examples of nonrenewable natural resources are most minerals (e.g., iron ore) and some energy resources (e.g., fossil fuels).

In Lesson 4 students will:

- Determine which natural resources are considered renewable and which are considered nonrenewable.
- Classify items found in the outdoors and in the classroom as being made from renewable natural resources, nonrenewable natural resources, or both types of resources.

- Write a pledge to avoid wasting one specific material at school or at home.
- Design posters or a bulletin board featuring pictures of renewable and nonrenewable natural resources.

For Part I younger students (grade four) will:

- Identify the location of some mineral reserves, such as bauxite, iron ore, and tin.
- Read a chart to determine how long certain mineral resources are likely to last.

For Part II older students (grades five and six) will:

- Search the classroom for various colored beads that represent finite mineral resources.
- Compare the numbers acquired in a simulation game to the actual global reserve base of specific mineral resources.
- Analyze charts and graphs concerning mineral resources.
- Arrange in order some mineral resources that are most abundant to those that are less abundant.

LESSON 5: WAYS TO CONSERVE NATURAL RESOURCES

Lesson's concepts:

- Reducing, reusing, and recycling materials help to conserve natural resources.
- The quality of the lives of future generations may depend on people's use of natural resources today.

In Lesson 5 students will:

- Write a letter from the viewpoint of a person living in the future, thanking this generation for conserving natural resources.
- Conduct a class meeting to obtain and select ideas to conserve natural resources in the classroom.
- Write an advertisement or design a poster to encourage people to conserve natural sources.
- Implement the plan they agreed on to conserve natural resources in the classroom.
- Identify some ways that natural resources can be conserved at the entire school.

Required Books to Implement Unit 1

- **For Lesson 1:**
Van Allsburg, Chris. *Just a Dream*. Boston: Houghton Mifflin Company, 1990.
- **For Lesson 5:**
Why the Sky Is Far Away. Retold by Joan-Mary Gerson. New York: Little, Brown and Company, 1992.

PROJECTS

Projects provide hands-on experiences for students. Some lessons in Unit 1 are project-based and encourage students to apply what they have learned in the classroom. Some project-based lessons are service-learning oriented in which students participate in improving the environment in their school and community. For more information on projects and project-based learning, see “Tips for Implementing Projects” at the beginning of this curricular guide.

The following are descriptions of projects and examples of schools that have completed projects that address this unit on managing and conserving natural resources. Teachers are encouraged to help students select one of these projects or to have their students develop one of their own. If students implement an applicable project, they and their teachers are encouraged to send a description of the project to the Office of Integrated Education, MS-14A, California Integrated Waste Management Board, 1001 I Street, P.O. Box 4025 (mailing address), Sacramento, CA 95812-4025.

- **Project 1:** Students select a natural resource in their community and develop a plan to share its importance with community members. (Lesson 1)
- **Project 2:** Students research the location of the landfill where their garbage goes and identify any nearby streams or other bodies of water. They find out the source of their community’s drinking water. If the landfill is not located in their community, students can find out the source of the drinking water of the community in which the landfill is located. They discuss how the landfill might impact the community’s drinking water. (Lesson 2)

- **Project 3:** Students collect and analyze water samples of surface water surrounding a landfill. They share their results with community members. (Lesson 2)
- **Project 4:** Students bring in clean pieces of old clothes and braid a class throw rug. (Lesson 3)
- **Project 5:** Students write a class pledge that describes how to avoid wasting natural resources. They organize a school assembly and share the pledge along with information about natural resources.

Top of the World Elementary School, Laguna Beach Unified School District¹

Fourth- and fifth-grade students in Sandy Gravely’s class at the Top of the World Elementary School have organized school assemblies where they shared pledges that describe how to help the environment and distributed recycling bags for students to use to clean the campus. They also set up a mini-landfill in a glass aquarium and demonstrated how to make 100 percent recycled paper. The class also donated their time by participating in a beach cleanup. As part of their research, the class surveyed local restaurants regarding recycling and offered to help establish a recycling program for the restaurants if they were interested.

- **Project 6:** Students design posters or a bulletin board showing pictures of renewable and nonrenewable natural resources and ways they can be conserved. These can be displayed at school and in other public areas. (Lesson 4)
- **Project 7:** Students develop and implement a plan to reduce waste at school. (Lesson 5)
- **Other Projects**

Monterey Road Elementary School, Atascadero Unified School District²

Students in Dian Shervem’s fifth-grade class raised money through a recycling program they initiated at their school. With the money raised, along with donations from parents and local businesses, the class purchased trees and planted them on the school grounds. Then they built and installed

¹“Jiminy Cricket’s 1997–98 Environmental Winners.” E-mail from Deidra Bennett, Senior Environmental Programs Representative, Environmental Policy, The Walt Disney Company, Inc., October 15, 1998.

²“Jiminy Cricket’s Environmental Heroes 1994–97.” Burbank, Calif.: The Walt Disney Company, Inc., and the State of California’s Environmental Education Interagency Network, 1999, p. 29.

birdhouses in the trees. Their actions provide habitat to wildlife.

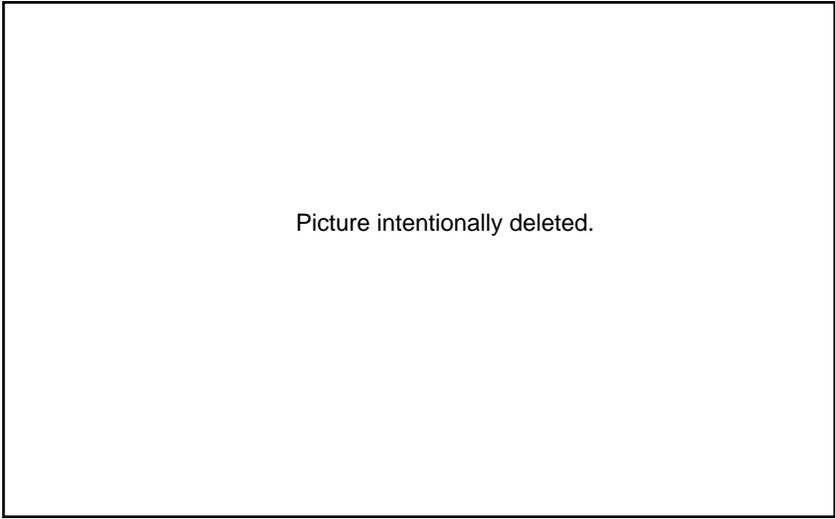
Ridgeview Elementary School, Yucaipa–Calimesa Joint Unified School District³

Students in Susan Ramsay’s fifth-grade class learned about the potential hazardous effects of landfills to the groundwater. They began a recycling program to reduce the amount of trash going to the landfill. They

began educating others by producing a video, which included two songs they wrote. They also planted a tree on the school grounds.

Note: See “Appendix F–1, Awards and Activities websites” for ideas for projects.

³“Jiminy Cricket’s Environmental Heroes 1994–97.” Burbank, Calif.: The Walt Disney Company, Inc., and the State of California’s Environmental Education Interagency Network, 1999, p. 28.



Two students from Janet Cohen’s sixth-grade class at Gold Trail Elementary School braid pieces of cloth to make a throw rug.