

# LESSON 1: What Are Natural Resources?

## LESSON'S CONCEPT

Natural resources are things that come from nature, such as plants, animals, soil, minerals, energy sources (e.g., sunlight, fossil fuels), air, and water. These natural resources are used to meet the needs of all living things, including people.

### PURPOSE

Students will learn about natural resources and the products people make from these resources. Students also prepare for the unit by making journals.

### OVERVIEW

In this lesson students will:

- Make journals.
- Observe models of categories of natural resources.
- Identify natural resources on the school grounds, record them on a chart, and describe them in their journals.
- Determine natural resources used to make various items on the school grounds and in the classroom.
- Compare items made from different natural resources.

### CORRELATIONS TO CALIFORNIA'S CONTENT STANDARDS AND FRAMEWORKS

- Students work together to identify the natural resources used to make objects outside and inside the classroom.
  - "Properties of materials can be observed, measured, and predicted. As a basis for understanding this concept, students know objects can be described in terms of the materials they are made of and their physical properties." (*Science Content Standards, Grades K-12; Kindergarten; Physical Science, Standard 1a*)
  - "Humans use air, fresh water, soil, minerals, fossil fuels, and other sources

of energy that come from the Earth." (*Science Framework, page 97*)

- "Students collect information about objects and events in their environment." (*Mathematics Content Standards for California Public Schools, Kindergarten Through Grade Twelve, page 3*)
- "To participate effectively in society, students need to: Develop personal skills. . . group interaction skills (and) . . . social and political participation skills." (*History-Social Science Framework, page 24*)
- Students describe in their journals some natural resources outside and inside the classroom and determine the natural resources used to make certain products.
  - Students "write brief expository descriptions of a real object, person, place, or event, using sensory details." (*English-Language Arts Content Standards for California Public Schools, Kindergarten Through Grade Twelve, page 8*)

### SCIENTIFIC THINKING PROCESSES

observing, communicating, comparing, classifying

### TIME

45-60 minutes to prepare for the lesson; 60 minutes to implement the lesson

### VOCABULARY

Crude oil, fossil fuels, icon, minerals, natural resources, organisms

### PREPARATION

- \_\_\_ 1. Read the “Background Information for the Teacher” at the end of this lesson.
- \_\_\_ 2. Obtain used paper (blank on one side) for students to use for journals. (Sources of used paper include printers, real estate offices, school’s office or classrooms, and parents.)
- \_\_\_ 3. Start collecting “clean” classroom trash to use for Lesson 3 (nothing toxic or potentially dangerous; no food that can get spoiled). Keep it in a box or bag. Make sure to notify the custodian of your plan. Try to include paper towels, candy wrappers, short pencils, small pieces of chalk, bent paper clips, paper used on one side and used on both sides, aluminum can or tray, plastic container, milk carton, polystyrene meat tray, dried-up markers and glue sticks, nuts with hard shells, and fresh orange peels.
- \_\_\_ 4. Make a copy of the “Natural Resources Chart” for each pair of students (page 9).

## MATERIALS

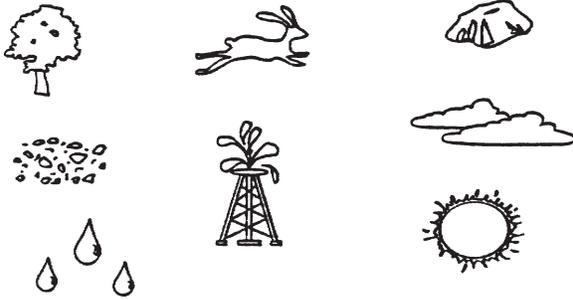
- \_\_\_ Items that can represent different categories of natural resources:
  - \_\_\_ Potted plant (to represent trees and other plants)
  - \_\_\_ Stuffed animal (to represent animals)
  - \_\_\_ Bag of soil (to represent soil)
  - \_\_\_ Rock (to represent minerals)
  - \_\_\_ Molasses or chocolate syrup (to represent crude oil, a fossil fuel which is an energy source)
  - \_\_\_ Empty jar and a jar full of water (to represent air and water)
- \_\_\_ A pocket folder for each student (If you plan to have students make their own journals, see “One Way to Make Your Own Journal” in this lesson.)
- \_\_\_ A copy of the “Natural Resources Chart” for each pair of students
- \_\_\_ Clipboard (Heavy cardboard cut to 9 by 12 inches can be used as a clipboard, and a large paper clip can keep the paper on the cardboard.)
- \_\_\_ A file folder for each student for the “Assessment Portfolio” (If possible, use reused ones or those made from recycled materials.)
- \_\_\_ Optional: a file box to keep the “Assessment Portfolios”

## PRE-ACTIVITY QUESTIONS

- A. Tell students that they will each make a journal. In the journal they will write and draw information about what they are studying. Students should know that people write and draw in journals to record observations, thoughts, ideas, and information about certain topics.
- B. Provide a pocket folder and ten sheets of paper for each student. (If you do not have access to pocket folders, students can make their own folders by following the directions on “One Way to Make Your Own Journal.”) To model conserving paper, distribute paper that was used on one side.
- C. Ask students to draw or describe in their journals something that comes from nature.
- D. Ask students to share the entries from their journals as you write their responses on the chalkboard.
- E. Ask students what they know about the word *natural* and the word *resources*. Encourage them to create a class definition of *natural resources*.

## PROCEDURE

- A. Show the following items, each representing a category of natural resources: potted plant, stuffed animal, soil, rock, and molasses (to represent crude oil, an energy source).
  - Tell students that things that come from nature are called *natural resources*. Natural resources are things that all living things need in order to live.
  - Help students identify each category of natural resources as you list them on the chalkboard: plants, animals, soil, minerals (rocks), energy sources (sunlight; fossil fuels, such as crude oil).
  - Ask students what else they cannot live without. Lead them to say “water” and “air.”
- B. Ask students to draw an icon for each of the seven categories of natural resources. (Note: Help them write a definition for icon and include it in their journals.) This can be done in groups of seven, with each student drawing one icon and writing the category that the icon represents. (See the example on the next page for ideas for icons.)



- C. Provide a copy of the “Natural Resources Chart” for each pair of students. Note that students will focus on five categories of natural resources, because these are the ones most often used by people to make things (in addition to air and water, which we usually use in the manufacturing process of products): plants, animals, soil, minerals, and crude oil (from fossil fuels in the category of energy sources).

- Describe how to complete the chart. Students should write or draw what they see that comes from the natural resources listed on their charts.
- In preparation for a trip outside the classroom, ask each pair of students to bring a “Natural Resources Chart,” pencil, and a clipboard. (A clipboard can be made out of stiff cardboard.)
- Lead students outside.

**Note:** The answers in *italics* are possible students’ answers and might not reflect a correct answer.

- Help students identify things that are part of nature. *Trees, rocks, soil.*
- Ask them what natural resources they see (or feel, in the case of air). *Plants, animals (people), minerals, crude oil (asphalt), air.*
- Ask students what they see that people have made from natural resources. For example, “What do you see that is made from a plant?” *A wooden bench is made from wood from a plant.* “What do you see that is made from minerals, such as rocks and steel?” *The building, the road, the poles supporting the swing.*
- Select one item on the school grounds and help students complete their charts.
- Lead students on a walk on the school grounds to look for natural resources and help them to complete their charts.

- D. Back in the classroom, ask students to write or draw the following in their journals:
1. I saw \_\_\_\_\_
  2. \_\_\_\_\_ is part of nature.
  3. One thing that I saw that was made by people is \_\_\_\_\_
  4. The natural resource or resources from which this thing was made is \_\_\_\_\_
- E. Ask students to share their journal entries. Then discuss some ways that natural resources are used by people.

## DISCUSSION/QUESTIONS

- A. Have students locate in the classroom objects made from natural resources. Ask students from which category of natural resources this object was made.
- B. Ask students to review their original class definition of natural resources and ask whether they wish to change any of the words to make the meaning clearer and more accurate.
- C. Discuss with students:
- Which items that were seen indoors and outdoors were different but came from the same natural resource? *Buildings and the sidewalk; desks and bench.*
  - Which items that were seen indoors and outdoors were similar but came from different natural resources? *Wooden bench and plastic bench.*

**Note:** In Lesson 2, students will learn more about ways people use natural resources.

## APPLICATION

- A. As a class, make a drawing (mural) linking an item in the classroom to the natural resource that was used to make this item; e.g., wooden chair—plant.
- B. Ask students to draw or write in their journals what they learned about natural resources.
- C. Ask students to share their journal entries.

**Homework Assignment:** Ask students to select an item at home and to be prepared to tell the class the following day what the item is and what natural resource or resources it came from.

- D. Ask students to share their homework assignments.
- E. In addition to journals, it is recommended that students make an "Assessment Portfolio" to keep samples of their work from each lesson or unit. This will provide an authentic assessment of performance-based student work.
1. Introduce the idea of a portfolio. Explain that a portfolio contains information that illustrates a student's work. Discuss the following reasons for a student to select items to be placed in a portfolio:
    - It is the student's best work during the lesson or unit.
    - It represents something that the student learned.
    - It represents something that was challenging to the student.
    - It is something that took a long time and effort to complete.
    - It was something the student greatly improved upon. (The student could submit "before" and "after" examples of work.)
  2. Provide a file folder for each student.
    - Ask each student to write his or her name on the tab of the file folder. (You might need to help the younger students with this task.)
    - Ask students to select products (drawings or writings) from their journals.



Submitted by Beth O'Neal, kindergarten and first-grade teacher, Marguerite Hahn Elementary School, Cotati-Rohnert Park Unified School District.

- Have students answer the following questions verbally about the work they selected (could be shared with the class if the students agree to do so):
  - Why did you choose this piece to include in your portfolio?
  - Why is this your best work (drawing, writing, project)?
  - What did you learn from this work?
  - If you ever did this project (or other work) again, what would you do differently?

**Note:** It is recommended that a file box be provided to keep the students' "Assessment Portfolios."

**Note:** Students can select examples of work from their journals and from any projects that they completed at the end of each lesson. Or, instead of selecting a product from each lesson, students can select one or two from the entire unit, once the unit has been completed.

## EXTENSION

Make a class list of things in the room according to the natural resources from which they were made. Graph things in the room by categories of natural resources. Discuss:

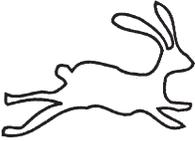
- What is the most common natural resource used in the classroom?
- Why is it the most common natural resource used?



Submitted by Debby Carter, kindergarten and first-grade teacher, Coyote Valley Elementary School, Middletown Unified School District.

# NATURAL RESOURCES CHART

Names: \_\_\_\_\_ Date: \_\_\_\_\_

Natural resource	Object made by people
<p><b>Plants</b></p> 	
<p><b>Animals</b></p> 	
<p><b>Soil</b></p> 	
<p><b>Minerals</b></p> 	
<p><b>Energy sources (fossil fuels, like crude oil)</b></p> 	

# ONE WAY TO MAKE YOUR OWN JOURNAL

## Supplies Needed

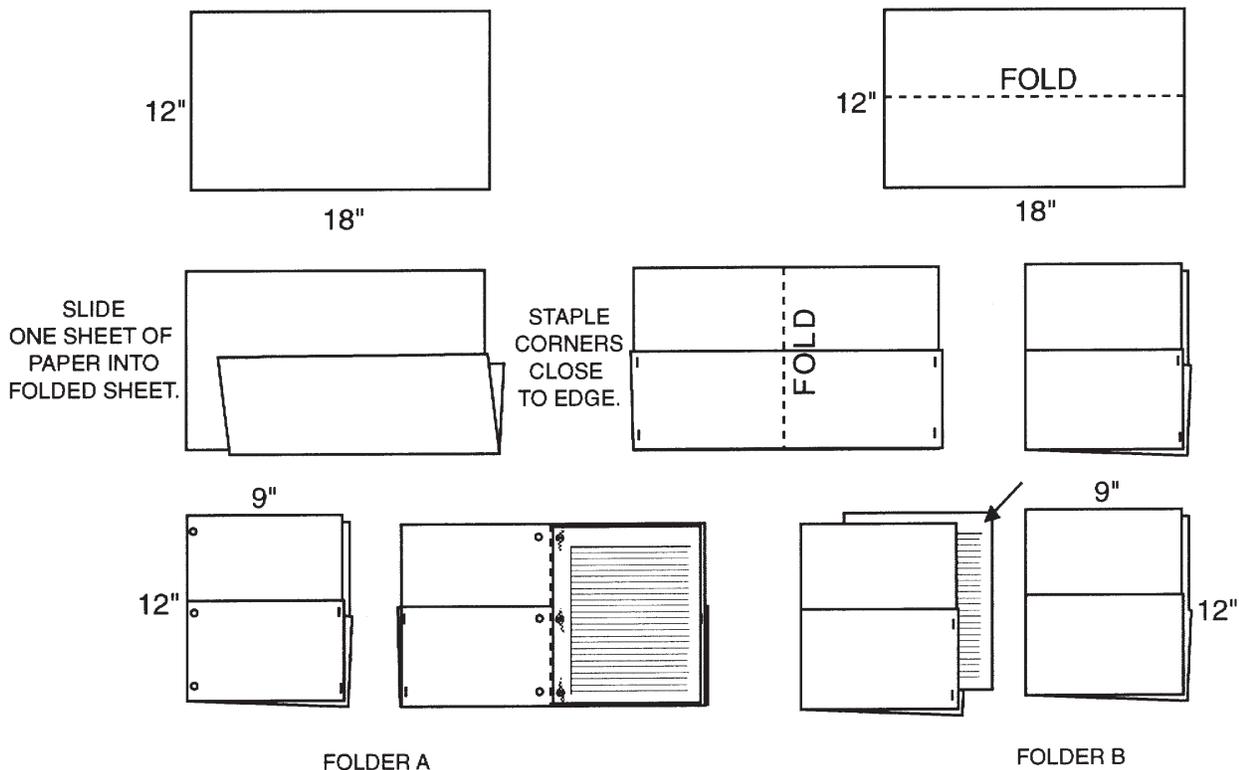
- 12- by 18-inch tagboard or construction paper (two sheets for each student)
- Stapler
- Three-hole paper punch and brass fasteners (three for each student) (If these are not available, the pages can be stapled.)
- Lined and unlined paper (15 sheets per student: 5 lined and 10 unlined) (To model reusing, use paper that has been used on one side.)

## Directions

1. Distribute two sheets of 12- by 18-inch tagboard or construction paper to each student.
2. Have students make their journals by doing the following (see illustrations below):
  - Fold one sheet of tagboard or construction paper in half lengthwise.

- Slide one sheet of paper into the folded sheet.
  - With the folder open, staple the left side and the right side of the folded sheet onto the unfolded sheet, as close to the edge as possible. The folded sheet will make pockets on the inside and outside of the front cover.
  - Fold the entire journal cover in half so it closes like a book.
3. **A.** If you have brass brads, punch three holes in the left margin with a three-hole punch. (See Folder A.) Place the brass fasteners through the back of the folder and through the lined and unlined pages but not through the front cover. This will make the front cover easier to open.
  - B.** If you do not have brass brads, staple the journal pages to the journal cover. (See Folder B.)

## TWO 12" X 18" SHEETS OF TAGBOARD OR CONSTRUCTION PAPER



# BACKGROUND INFORMATION FOR THE TEACHER

Natural resources are things that come from nature (the natural environment) and are the living and nonliving components that support life on Earth. They can be classified into seven categories: plants, animals, soil, minerals, energy sources (e.g., sunlight, fossil fuels), air, and water.

All products that we use everyday come from Earth's natural resources, which provide the raw material for the products that people make. For example, iron ore is the raw material in the natural resources category mineral, and people use iron ore to make steel. Steel is used to make cars, appliances, and many other products. Trees are natural resources classified as plants, and people use trees for lumber to build houses and other structures; they also use a tree's pulp to make paper.

This unit introduces students to different categories of natural resources and ways some natural resources are used by people to make a variety of products (which often end up in a landfill). Since natural resources are required by all living things, humans are also totally dependent on natural resources, such as air, water, plants, and animals, for their survival.

In this unit, natural resources are classified into seven categories, which are briefly described below. The category of energy sources can be further subdivided into sunlight, fossil fuels, and other energy sources (e.g., wind, hydro-power). Ways that people depend on these categories of natural resources are further described in Lesson 2.

**PLANTS**—Plants are living things that can produce their own food. Trees, shrubs, grasses, seaweed, and some microscopic algae are examples of plants. Green plants produce oxygen. They also produce food for animals that eat plants.

**ANIMALS**—Most animals can be defined as living things that rely on other organisms for food. Animals have a nervous system and can usually move on their own. Examples of types of animals are: mammals (includes humans), birds, reptiles, amphibians, fish, and invertebrates, such as insects, spiders, and worms. Some microscopic living things are also classified as animals.

**SOIL**—Soil is a mixture of minerals from weathered rock and decaying plant and animal matter. It also consists of microscopic living things, such as bacteria and fungi. Most plants that live on land need soil in which to grow, and soil provides water and nutrients to plants. Many animals live on or in soil.

**MINERALS**—Minerals are naturally occurring substances that originally came from rock, such as phosphorous, bauxite, iron, salt, gold, silver, copper, and potassium. Many minerals are essential for the healthy growth of plants and animals, and plants absorb minerals that are dissolved in water. Animals must obtain needed minerals by eating plants or by eating other animals that have eaten plants.

**AIR**—Animals need oxygen in the air to breathe, and plants use carbon dioxide in the air in the process of photosynthesis. The gases are recycled through plants and animals.

**WATER**—Plants use water when manufacturing their food, and animals drink or absorb water to maintain bodily functions. Some animals live in water, and some use it as a place from which to get food, to seek protection, or to cool off. Fresh water on land is replenished by the water cycle and is essential to all living things.

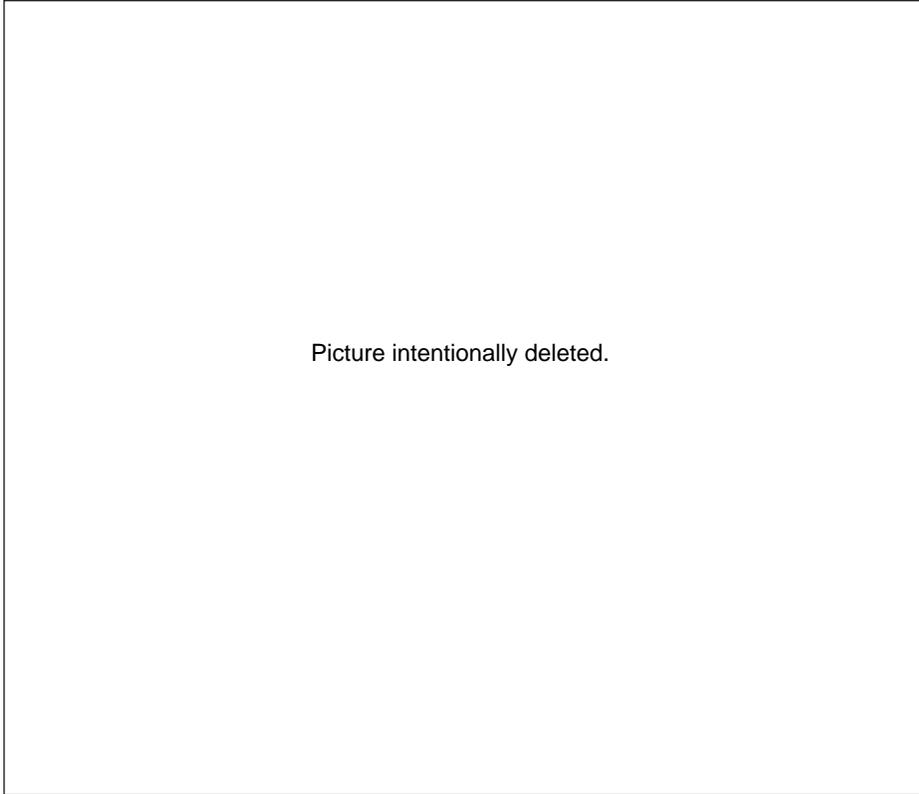
## ENERGY SOURCES

- **Sunlight**—The energy derived from sunlight is used by green plants for photosynthesis. Sunlight also powers the water cycle by evaporating water from land and surface water. Note that “sunlight” is not addressed in this unit, because the lessons focus on the connections among natural resources, manufactured items, and solid waste.

- **Fossil Fuels**—Fossil fuels include crude oil, coal, and natural gas. The fossil fuels we are using now originated from partially decayed plants and animals that lived millions of years ago. In this unit students are introduced to crude oil. The crude oil that we are presently using came from marine plankton that lived millions of years ago. These marine plants died, and through time and tremendous pressure and heat created by layers of rock that trapped the plants, crude oil was formed.

- Other Energy Sources—Other energy sources include wind, hydropower, geothermal, and tidal energy. These are not addressed in *Closing the Loop*.

*Note:* For information and activities on renewable and nonrenewable natural resources, see the 4–6 Module, Unit 1, Lesson 4.



At the Solar Community Housing Association, Homestead CO-OP, children look for examples of natural resources and objects that people made from natural resources.

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## NOTES