



3. Resources: Natural to Man-made

Concepts

- Resources are anything that an organism gets from the environment.
- Resources can be nonliving or living. Some resources come from objects or materials that once were living, such as wood.
- People and other animals use some resources just as they occur in nature. Other resources are transformed into something else before they are used.
- Objects can be classified as natural or designed/changed.

Overview

Students will examine, compare, discuss and sort materials as natural or changed.

Standards

- Organisms can survive only in environments where their needs can be met.
- All animals depend on plants.
- All organisms cause change in their environments. Some changes are detrimental, others are beneficial.

Science, Math and Language Arts Skills

- Observing
- Sorting/Classifying
- Comparing
- Generalizing

Time

Setup: 30 minutes

Class: 30 minutes

Materials

Per student group:

- Container or bag containing four sets of natural materials and their matching designed/changed materials. Place loose materials, such as sand, in small, sealed plastic bags. See set-up.
- Set of cards, one labeled "Natural" and one labeled "Changed."

Per student:

- Hand magnifier

EXAMPLES

<u>Natural</u>	<u>Designed</u>
sand	glass marble
tree twig	craft stick, pencil, clothes pin
cotton boll	cotton fabric or cotton ball
seashell	shell button
wheat shaft	breakfast cereal, wheat flour
clay	clay pot or clay brick
limestone	chalk

Setup

Prepare a bag with four sets of materials for each group of students to observe and sort (included in kit). Make sure that each set contains a natural item and a man-made companion. Have students work in teams of two. Prepare a set of label titled "Natural" and "Changed" for each group.

Safety

1. Follow all district and school laboratory safety procedures.
2. Be aware of any contact allergies children may have before allowing them to handle materials.

3. It is good laboratory practice to have students wash hands before and after laboratory investigations.

Background

Resources are the things people and other organisms obtain from the living and nonliving environment. Resources provide for the needs and wants of a population (group of the same kind of organism). All plants and animals depend on the resources in their environments to live, grow and reproduce.

People use some resources without much modification. Examples of resources used in their natural states include air for breathing (although it often is filtered in buildings), fresh fruits and vegetables as food, and some spring water for drinking. People transform other resources to solve uniquely human problems. For example, we use cut timber and manufactured bricks for home building, process raw foods into a variety of cooked and manufactured foods, and process surface water to make it clean enough for drinking. "Processed" means that something has been prepared or converted by a special treatment. For additional activities in this series, see K-5 Teacher Resources at <http://www.bioedonline.org/k%2D5/>.

Procedure

1. Begin by explaining to the students that they will be doing a sorting activity. As an example, tell students you will sort them according to one specific attribute (e.g. sex, shirt color, etc.). Ask a few students with a particular attribute to stand up. Without revealing the attribute, ask all students who have that attribute to stand on one side of the room, and all other students to stand on the opposite side.

Ask the children if they can figure out how they have been sorted. You may want to repeat this process with several different attributes.

2. Without further discussion, pass out the bags of materials for groups of four (or teams of two) to sort.
3. Encourage students in each group to work together to sort their materials in any way they like. Suggest that students use a magnifier to observe the materials.
4. Tell students they will sort the materials again in a special way. Explain that they will sort the materials into two groups: natural (in the form in materials occur in nature) or changed/designed/processed (materials transformed or combined with something else to make a product that does not occur naturally in nature). Pass out or have the students create "Natural" and "Changed" labels to use for sorting. Monitor students and ask them about their groupings, making sure that they understand their task.
5. After sorting, have each group share one set of items (natural or changed) and explain why it thinks each item is natural or changed (designed). Have students describe where the item might be found and if the item has been changed, how it might have been processed. Have each student draw a picture or write a paragraph about the item on his or her paper.

Extensions

- Encourage students to bring items from home to add to the class collection of materials. Store these items in a sorting center in the classroom.

- Encourage students to research the process involved in creating a product of their choosing and report back to the class how that product is created.

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