

DESCRIBING “CLASSROOM COMMUNITIES”

OVERVIEW

Students will explore the process by which scientists identify and classify animals in the field. Students will observe and record *distinguishing characteristics* of classroom “animals” (pencils, pens, and crayons). They will record as many details as possible and use their notes as a field guide to help identify their organisms.

CONCEPTS

- *Species* are groups of the same kinds of organisms that can be described as having a unique set of distinguishing characteristics.
- Observing and recording distinguishing characteristics enables scientists to identify organisms.
- Correctly identifying organisms helps scientists define a system of species called a *community*, and to monitor changes within a community.

MATERIALS



- 1 Pencil, 1 ball-point pen, 1 crayon in a paper bag for each group of students (Optional: Use plastic fish of different sizes, shapes and colors that are slightly different from one another.)
- 1 Data sheet for each group
- Watch or timer

PREPARATION

Sort one pencil, one pen, and one crayon and place in a bag. All of the pencils, crayons, and pens used should be slightly different from one another. For example, pencils can have slightly different lengths, crayons can be the same color but have variations in the paper wrapper, and pens can have different colored caps.

In the general analogy being used, a red crayon would be an example of an individual organism, and all crayons would represent a species. Groups of pencils, pens, and crayons would represent communities.

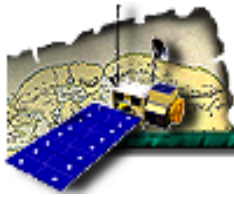
When the students have finished recording their observations of their different organisms, collect all of the pencils, pens, and crayons. Mix them up and set them out at several different locations around the room. The students will have to move from station to station and try to identify their organisms using their notes. Make sure that the students do not know about the identification part of the activity. This will prevent students from marking their objects during the first part of the activity beforehand.

Divide class into small groups.

PROCEDURE

Engagement

There are several different ways that a biologist can identify organisms in a particular *ecosystem*. They can use either a field guide or a *dichotomous key*. As a researcher, you need to correctly describe



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the community of organisms in your bag. In this activity, you will make and then use a field guide to help you to identify the subtle variations in different organisms in your “classroom community.”

Activity

1. Each group should collect a bag and a data sheet from the teacher. Within each bag is a community of classroom “organisms.”
2. Students should take one object (“organism”) out of the bag at a time. They should spend one minute observing and describing the object on the data sheet. It is a good idea for them to make a quick sketch of each organism to capture its details.
3. Continue this process with the second and third organisms. Have all students return the organisms to the teacher.
4. The classroom communities will be set out at different stations around the room. Students will move from station to station and find their objects (specific organisms) observed in steps 2 and 3. They may use only their observation sheets as a reference.
5. The ability to clearly communicate information is an important aspect of science. Test the student’s ability to communicate by having them exchange their data sheets with another group. See if anyone can identify their organisms using their notes.
6. What sets of objects from the various communities might be classified as the same species? In other words, what organisms might be put into one category because of shared characteristics, even though individual organisms vary slightly, for example, in size?
7. Discuss the role of observation in accurately describing fish. For example, when describing size, does it help to have accurate measurements using a standard unit of measurement? Why is it important to identify different organisms in a community?
8. When do scientists use field guides? Are there any instances when a field guide might not help to identify an organism?

Explanation

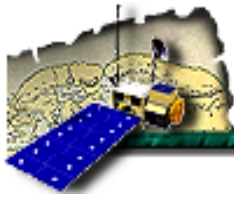
Life in the ocean is characterized by great diversity. Plants and animals exist in almost every possible shape, size, color, texture, and habitat. The fossil record indicates that great diversity has existed through much of geologic time. Knowing this, scientists try to create order out of all the observations about plants and animals that they have made.

Scientists identify plants and animals in the field by carefully describing all distinguishing characteristics (shape, color, size, etc.). They then look them up in field identification guides or “key them out” using a dichotomous key. In the case of fish, scientists record overall shape, coloration, fin shape, and even behavior to correctly identify each species. Correct identification of members in a habitat is important because it allows scientists to describe and monitor changes within and between species. Moreover, changes in a species’ population might indicate a change in the physical environment.

EXTENSION

Have students create field guides for animals and/or plants that they find on the school grounds, or around their houses, or in a park.

Conduct this activity in conjunction with the *Plankton Identification* activity or samples collected in *Building a Plankton Net*. Using the principles learned in this activity, can students easily group plankton by shape? Size? Color?



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LINKS TO RELATED CD ACTIVITIES, IMAGES, AND MOVIES

Activity *Dichotomous Keys*

Activity *Plankton Identification*

VOCABULARY

community

dichotomous key

distinguishing characteristics

ecosystem

species

SOURCE

Adapted from Long, Jennifer. *Science Television Curriculum*. Orange County Marine Institute. Dana Point, CA. 1993.

Data Sheet

Name(s) _____

Date _____

IDENTIFYING CLASSROOM COMMUNITIES - Use the data sheet to describe different classroom objects ("organisms").

APPROX. SIZE			
SHAPE			
COLORATION			
UNUSUAL MARKINGS			

SKETCH