



## 2. Resources and Animals

### Concepts

- Resources are things in the environment that people and other living things use to meet their needs and wants.
- Resources can be nonliving or living. Some resources come from objects or materials that once were living, such as wood.
- Most animals use resources just as they occur in nature.

### Overview

Students will observe, examine, discuss and draw an insect in its natural environment.

### Standards

- Organisms can survive only in environments where their needs can be met.
- An organism's patterns of behavior are related to the nature of that organism's environment.
- All organisms cause changes in the environment where they live.

### Science, Math and Language Arts Skills

- Observing
- Generalizing
- Describing
- Drawing and labeling
- Drawing conclusions

### Time

Setup: 1 hour

Class: 30 minutes

### Materials

Class:

- terrarium or aquarium
- 5 plastic flowerpots with the bottom removed and small doors (3X3) cut in top side of pot
- 10 lbs aquarium gravel (washed)
- 2-3 flat stones, aquarium tubing
- aquarium pump
- aquarium air stone
- aged water or chlorine remover
- turtle food pellets
- heavy duty foil or plastic plates
- medium-sized, hard-sided plastic children's wading pool

Per student group:

- plastic container (6 included)
  - crawfish (crayfish)
- (Option: Use insects, such as walking sticks. Check local regulations, as walking sticks may not be legal pets in different parts of the United States. These insects lay thousands of eggs and can become pests in some regions. If using insects, adjust materials list for the habitat (items 2- 11 under Materials for class). NOTE: Living organisms can be ordered from scientific supply companies if not available locally.

Per student:

- Hand magnifier

### Setup

Order animals from a biological supply company (OR see Materials list). For the walking stick, create a terrarium using about 5 cm of topsoil as the base. Place branches

for the insect to crawl on and mist the wall of the container daily. Use a screen-type cover.

If you use an aquatic animal, such as crawfish, prepare the aquarium in advance by placing washed river rock or gravel in the bottom, filling it with at least 5 cm of water and adding a few rocks above the water level. Let the water sit at least 24 hours or use de-chlorination tablets. (Keep a plastic gallon jug of water aging on hand for use as needed to refill the aquarium.) Install a small air pump with an air stone in the aquarium. Crawfish like to hide, so you may want to provide "burrows" by removing the bottom of plastic flowerpot and cutting small doors (3"X3") in the sides of the pot. Cover the top of the pot with aluminum foil or a plate. Feed crawfish only about 3 pellets per fish, 2-3 times per week. (Note that they usually like to eat when they are not being observed.) This food is fairly stable and will not contaminate the aquarium unless crawfish are overfed. Keep the animal habitat out of site until Step 5 of the activity.

If you do not have plastic containers, prepare a container for each group of four students by cutting off the top one third of a 2-liter soda bottle and placing masking tape around the top edge.

### **Safety**

1. Follow all district and school laboratory safety procedures.
2. Be aware of all student allergies. Some students who are allergic to iodine can have a reaction by touching crawfish.
3. If using crawfish, caution children to keep fingers away from the claws or "pinchers" (called chelipeds). Demonstrate how to hold the crayfish and encourage students to try, under your supervision. To hold a crayfish, CAREFULLY, but

QUICKLY approach it from the rear. Grasp it with your forefinger and thumb on either side of the body, just above the walking legs. Then the crayfish cannot reach around to pinch. If it has the opportunity, it will pinch, which can bring blood if you pull away. It is not harmful, but it could be frightening for young students, especially those who have no experience with the animal. Make sure students always wash their hands after handling any animal.

4. If using insects, check local regulations. Insects lay thousands of eggs and in some climates can become serious pests.
5. It is good laboratory practice to have students wash hands before and after any 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 and reproduce.

In most cases, animals use resources without modification. Examples of resources used in their natural state include air for breathing; plants, animals and other organisms as food; and water for drinking. An animal's place to be may be one of many specific environments that will meet its needs. However, some animals use readily available materials to create shelter or places to raise their young. For instance, a beaver builds a lodge and a bird builds a nest. For additional activities in this series, see K-5 Teacher Resources at <http://www.bioedonline.org/k%2D5/>.

## Procedure

1. Explain that our environment is the place where we get the things we need. Ask, *Are all environments the same?*
2. Give a plastic container to each group. Explain that you will be putting an animal in each container for the group to observe. Have students share what they know about the care of living things. Discuss the handling of animals. Emphasize that students need to respect the animal as a living organism. They may use the hand lens to observe the animal but should not put their hands inside the container.
3. After giving each group a living organism, ask them to draw the animal and label any parts with which they are familiar.
4. Ask, *Do you think the animal can live in this environment? Why or why not? What do you think it needs to live? Are its needs being met? How can we provide it with the basic needs?* Discuss what the students know about how the animal gets air, water, food and shelter.
5. Ask the students to come to a central area and leave their animals in the containers on their desks. Place the pre-prepared terrarium/aquarium in a central location with all the students around it. Ask them, *Do you think your animal could live in this environment? Why or why not? Does it have air? Water? Food? Space?* Discuss how the animal will get each need met. *Does it go to the grocery store, or grow its own food? Does it get water from the faucet or build its own house?* Note that some animals do create shelter, or at least a place to raise their young, but not like people do.
6. Your students may wish to mark their crayfish for future study. Crayfish can be identified by carefully drying their backs and using red nail polish to paint on an identification symbol. Each student group can select a name and help paint, but the teacher should supervise closely. One at a time, let each group bring its animal (in its container) to the terrarium/aquarium and carefully place the animal into the terrarium/aquarium. You may have to help students move it.
7. Encourage students to observe the animal daily and record its behaviors in their science journals using pictures and words.

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