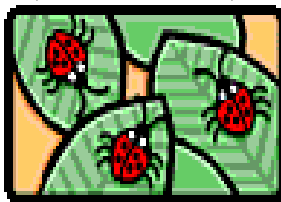


# HABITAT, SWEET, HABITAT



## **BENCHMARK and TASKS**

**SC.G.1.2.7** The student knows that variations in light, water, and soil content are largely responsible for the existence of different kinds of organisms and population densities in an ecosystem.

- The student organizes important levels for structure and function to include cells, organs, tissues, organ systems, whole organisms, and ecosystems.
- The student describes an ecosystem as a community of living and nonliving organisms and their immediate surroundings (e.g., air, rocks, soil) driven by the sun's energy.
- The student explores how the existence of different kinds of organisms and population densities in an ecosystem depends on variations in light, water, air, and soil content.
- The student determines that for any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

## **KEY QUESTION**

What evidence of plant and animal life can be found in the microhabitats in your schoolyard?

## **BACKGROUND INFORMATION**

Different types of **organisms** are adapted to different types of **habitats**. A habitat is a place where a plant or animal lives and can get everything that it needs (e.g., food, water, oxygen, shelter, space, sunlight, appropriate temperature, humidity levels it can tolerate). Habitats come in all sizes and types of conditions. Some habitats may be huge, like deserts or forests, and some habitats may be small, like backyards or ponds.

Smaller areas of a habitat in which the temperature, humidity, light, and other conditions are significantly different from the rest of the habitat are called microhabitats. The microhabitats will have variations in light, moisture, temperature, and soil content, but the variations might be only slight. The different conditions may make it possible for certain living things to grow and survive but keep others from doing so. Most plants and animals are able to survive in only a very specific habitat, where conditions are suited to them. For example, earthworms live in moist soil because they have delicate, moist skin. Organisms, such as beetles found in drier habitats, often have thick, hard, outer shells to prevent them from drying out.

## **MATERIALS**

### **Per group**

1 thermometer  
sticks or spoons for digging

### **Per student**

*Habitat, Sweet, Habitat* observation sheet  
clipboard (optional)  
1 hand lens

### **Per class**

camera (optional)

### **Per teacher**

*Under One Rock: Bugs, Slugs, and Other Ughs*, Anthony D. Fredericks, 2001, Dawn Publications  
*Field Detectives: Investigating Playground Habitats*, 1998, AIMS Education Foundation

### **TEACHING TIPS**

1. Before starting the activity, walk along the school property and look for different types of microhabitats. Look around trees, rocks, water faucets, shady areas, and close to buildings. Check for potential hazards such as stinging insects or dangerous debris.
2. Encourage respect for living organisms by reminding students not to disturb organisms or destroy their homes.
3. If a camera is available, students can take pictures of the microhabitats they are exploring and add them to their science journals. Pictures can be taken at various intervals if the same habitat will be observed over a period of time or throughout the school year.
4. The AIMS publication, *Field Detectives: Investigating Playground Habitats*, 1998, AIMS Education Foundation, [www.aimsedu.org](http://www.aimsedu.org) would be a useful resource for the whole Ecosystems unit of study.

### **ENGAGE**

1. Discuss:  
*What kinds of animals might live in our schoolyard?*  
*Can you describe the kind of environment in which they might live?* (e.g., dry, sunny, wet, sandy)  
*Can you think of any evidence we might find that would indicate that living things are present or have been around – even if we don't see them?* (Clues might include nests or holes in the ground, chewed leaves, tracks, droppings, etc.)
2. Read *Under One Rock: Bugs, Slugs, and Other Ughs* by Anthony D. Fredericks.

### **EXPLORE**

1. Divide students into groups and distribute materials.
2. Take students outside to the schoolyard. Walk around and point out various areas that may be good microhabitats for exploring. Each group should select a microhabitat for exploring.
3. Ask student volunteers to use a thermometer to find the temperature of the outside air while on the playground. Students should record this on their observation sheets.
4. Encourage students to sit quietly near the chosen microhabitat and use their senses to observe for a short period. Ask: *What clues can you find by looking, listening, smelling, and touching?*
5. Students should write down everything they see and make a detailed sketch of the area.
6. Have students record the temperature in the microhabitat. They need to be certain that they place the thermometer directly in the microhabitat being observed (e.g., in a tree, under a log).
7. On the observation sheet students should describe the area in detail, including light (e.g., shady or sunny), moisture (e.g., wet, dry, or moist area), and soil (e.g., compact or loose; sandy or mostly clay).
8. Students should use their hand lenses to explore the microhabitat they have chosen. Remind students that their observations will require patience because they are not only looking for plants and animals, but for evidence of life as well (e.g., nests or holes in the ground,

chewed leaves, tracks, droppings, etc.) Caution students not to place their hands anywhere they can't see, such as under rocks.

9. Ask students to use the sticks or spoons to gently move soil, rocks, etc. to observe more closely in an area but to take care not to damage the habitat. After examining the soil, they should return it to its original place.

**EXPLAIN**

1. As students report their findings, construct a class data table summarizing the different microhabitats found and the evidence of organisms found in each.

<b>Type of Microhabitat</b>	<b>Organisms</b>	<b>Evidence of Organisms</b>
sunny, moist area	green plant with small leaves	droppings, chewed leaves
oak tree near the building	2 birds, 1 squirrel, oak tree	droppings

2. Discuss:

*Describe the types of microhabitats you observed in the schoolyard.*

*How were the conditions in the microhabitat different from the larger habitat?*

*What are the essential elements of a habitat? (e.g., food, water, oxygen, shelter, space, sunlight, appropriate temperature)*

*What kinds of organisms did you actually see in the microhabitat you explored?*

*What was the dominant kind of plant in the microhabitat?*

*How many different types of plants did you observe?*

*What kinds of animals did you observe?*

*What evidence did you see that animals had been there but were not present in the microhabitat you observed? (nests or holes in the ground, chewed leaves, tracks, droppings, etc.)*

*Was there any evidence of humans in the area?*

*What can we do to protect the different microhabitats we discovered? (walk on the sidewalk, do not litter)*

**EXTEND/APPLY**

Have students observe microhabitats in their yards at home and report their findings. Encourage them to think about how the microhabitats in their yards are different from those they observed on the school grounds.

**EXTENSION**

Have students visit the same microhabitat at different times of the day and/or year and in different weather conditions to see what changes they notice over time.

# HABITAT, SWEET, HABITAT



**Habitat Observer:**

## Conditions in the Microhabitat

Temperature:

Outside air:

Microhabitat:

\_\_\_\_\_

Light:

\_\_\_\_\_

Soil:

\_\_\_\_\_

Moisture:

\_\_\_\_\_

## Animals Observed in the Microhabitat

Include the kinds of animals and the number of each.

## Plants Observed in the Microhabitat

Include the kinds of plants and the number of each.

## Evidence That Organisms Had Been in the Microhabitat but Were Not Present at the Time of the Observation