

# Habitat Detectives

## GENERAL INFORMATION

### THEME

Insects have some unusual adaptations to help them survive in an ecosystem.

### SUB THEMES

1. Every living thing depends upon an ecosystem for its survival.
2. Insects have developed unique adaptations to deal with different habitats.

### VOCABULARY

Ecosystem, habitat, niche, population, community, adaptations, defense strategies, biodiversity, predator, prey

### ACTIVITY MATERIALS

Clipboards, Environments and Organisms data sheets; pencils, leaf litter sampling trays, insect sampling nets, aquatic critter viewing buckets, aquatic sampling nets, identification keys

## METHODS

### INTRODUCTION

Introduce yourself and state the title of the activity. Preview the main points of the activity and give the students an idea of what they will be doing. Conversationally state the theme and sub themes. Ask: **What is an ecosystem** (it is the combined living and non-living things that interact within a specific area)? Invite students to guess what other types of ecosystems are located here. Ask: **Can someone explain to me what a habitat is and give an example?** Explain that a habitat is a place where something lives. Habitats come in all shapes and sizes. Point out that they are sitting on top of a tiny habitat right now, the yard. Within a habitat, there are different populations. Explain that a population is made up of members of the same species. Give an example, such as a flock of geese at a pond. Ask: **If a population is made up of members of one species, then what is a community** (a community is made up of different populations)? Give an example, such as the community of fish, frogs, and insects living in the pond on the property. Ask: **Do all habitats have the same communities of organisms living within them? For example, would you expect to find the same types of animals in a forest that you would find in a grassy area** (no, because different animals are adapted to live in different environments)? Explain that each type of organism, or species, has adaptations that allow it to do a specific job within a habitat. This

## Teacher's Corner

### Grade Level(s)

6<sup>th</sup> and 7<sup>th</sup>

### State Performance Indicators

#### SPI 0607

- Inq.2: Select tools and procedures needed to conduct a moderately complex experiment.
- 2.1: Classify organisms as producers, consumers, scavengers or decomposers according to their role in a food chain or food web.
- 2.4: Identify the environmental conditions and interdependencies among organisms found in the major biomes.

#### SPI 0707

- Inq.2: Select tools and procedures needed to conduct a moderately complex experiment.

# Habitat Detectives

## INTRODUCTION (cont.)

job is also called a niche. Discuss the idea of adaptations survival in different habitats and have the students discuss some differences in the organisms present among the habitats at Butternut Valley or other areas with which they are familiar.

## ACTIVITY

Divide the students in teams of two to four and sample at least two to three different habitat types as time allows. Use a combination of the forest leaf litter, rotting log, or field habitats. Other alternatives can include a tree or shrub. Before each habitat type, discuss what insects the students might find. The students will identify their insects to general orders. Give them the data sheet and a pencil. Explain how to use the data sheet. Inform the students to keep a running tally of each organism in the appropriate habitat type column designated on their data sheets. Between each set of habitat types, gather the students and discuss what insects they found and what adaptations they possess to live in that environment. Based on these adaptations, ask: **What type of niche do they think the insect may have? Is it a predator or prey? Why is it important to have both predators and prey in a habitat?** After all habitats have been sampled, have the students tally their findings and discuss any differences and similarities among the different environments.

## DISCUSSION

Review the following points: What types of habitats did we explore today? What is a population and what populations did we encounter today? Did each habitat have the same community living in it? Why or why not? What types of adaptations did we find? What is a niche? Did we find any predators? Any prey? What happens if we had very many or very few predators?

## WRAP-UP

Allow students to replace anything they have collected. Let the group know that the activity is coming to an end. Conversationally review the theme and sub themes. Collect the data sheets.

## BRINGING IT TO THE CLASSROOM

Using the data sheets, discuss how populations can be studied and why it is important to have that type of information. Using one student's sheet as an example, calculate the population density for one species using an estimated unit area (Population density = # individuals/unit area). Have students complete their own calculations. Discuss ways they might have underestimated diversity (techniques, insect camouflage, time spent sampling, and disturbance from students and other classes).

## ACKNOWLEDGEMENTS

- Copyright © 2008 Healing Stones Foundation. All rights reserved.
- Activity developed by Allison Mains updated by Melissa Squirlock January 2007.
- Project Learning Tree: Environmental Education Pre K-8 Activity Guide, 2001, American Forest Foundation.
- Project Wild: K-12 Curriculum & Activity Guide, 2004, Council for Environmental Education.