

Habitat Detectives: Investigating the Site and Collecting Data

Activity Overview

Students as biologists will investigate a woodland (or other outdoor place) and collect habitat-value data.

Objectives

Students will:

- View the woods or place as home to the creatures and plants who live there
- Find clues that indicate that basic needs (food, water, shelter, companionship) are being met
- Recognize the food value of trees, shrubs, brambles, mushrooms, fungi, and flowers (even if food is not in season at the time of the activity)
- Recognize many forms of shelter (dens, nests, brush piles, nest-boxes, etc.)
- Recognize signs of creature presence (tracks, scat, feathers or fur, pellets, cracked nuts, woodpecker grubbing holes, etc.)

Subjects Covered

Science

Grades

3 through 12

Activity Time

30- 40 minutes for 1 acre (Depending on size and wildness of the habitat, and age of students. If habitat is the schoolyard, thoughtful data collection would probably require a similar amount of time.)

Season

Fall (when woodland flowers are dormant underground and the students can safely walk everywhere without causing damage).

Materials

Habitat Detectives worksheet, clipboard, pencil, field guides (trees, flowers, mushrooms, birds, mammals, insects, reptiles and amphibians), possibly a resource person

State Standards

Science:

Ask questions, plan investigations, make

Background

Learning to respect a place as home to the plants and animals who live there is an important step for students to make as they learn their role as stewards and community members of the natural world. This activity (and the 2 that follow) will help students appreciate the habitat needs of wildlife and how to support a wildlife community. Students may need to be prompted about what they should be looking for in their woodland. Brainstorming is usually the best way to accomplish this because everyone is actively engaged. First brainstorm the basic needs that are met in a human home: food, water, shelter, and companionship of family. Food sources and foods to look for in a woods include trees, shrubs, vines, brambles, flowers, sedges, mushrooms, fungi, leaves, seeds, nuts, nectar, insects, grubs, and prey creatures. Shelters include holes in the ground or logs, holes up in trees, nests in trees, and human-made shelters such as brush piles, and/or nest boxes. Signs of animal life could include tracks, scat, owl pellets, bits of fur, feathers, bones, gnawed bones, as well as actual sightings or vocalizations, insect holes in old logs, and woodpecker grubbing holes.

Many foods are seasonal. Students should look for food sources as well as actual food. (For example, maple trees provide seeds in May and June, bare fall brambles provided berries in July, etc.) One main feature of a healthy woods is its forest floor plants. Most woodland flowers will be dormant in Fall. How does this important plant group get counted? It can be done by doing a flower inventory in May with the students who will be doing the Habitat Detectives activity next fall. This works extremely well if it can be scheduled.

Something else to consider is the space needs for wildlife. Some tiny creatures might spend their lifetime within a 1-square-foot space. Birds and squirrels occupy vertical space as well as forest floor space. What about larger mammals like raccoons or deer? What kinds of wildlife could live within the actual space of the woodland (or schoolyard, etc.) ?

This activity works more smoothly and accurately if the teacher knows the place well and can identify its trees, shrubs, and plants. If the species can be listed on the Habitat Detectives sheet before the activity begins, then the species can be simply tallied during the activity. Student familiarity with the place is also helpful. (Our grade 3 students have three years of experiences with the woods before they do this activity.)

This all implies a good working knowledge of wood's lore on the teacher's part. If this level of knowledge is not available, it's time to find a resource person who can help with this activity. Local birders, gardeners, and sportsmen are often knowledgeable and willing to help.

Habitat Detectives: Investigating the Site and Collecting Data (cont.)

observations, predictions (C.4.2)

Select multiple information sources (C.4.3)

Communicate results (C.4.6)

Identify questions using available resources (C.8.1)

Identify data and sources to answer questions (C.8.2)

Use inferences and observations (C.8.4)

Explain data & conclusions (C.8.7)

Ask questions, build hypotheses, design investigations (C.12.1)

Identify issues, questions, research; design & conduct investigations (C.12.2)

Evaluate data (C.12.3)

Use explanations & models to describe results (C.12.5)

Present results (C.12.6)

Discover how organisms meet their needs (F.4.1)

Find connections among living and non-living things (F.4.4)

Show organism's adaptations (F.8.2)

Understand an organism's internal and external regulation (F.8.6)

Understand an organism's behavioral adaptations (F.8.7)

Show organism's place in ecosystems (F.8.8)

Understand evolution theory, natural selection, biological classification (F.12.5)

Understand species changes & diversity (F.12.6)

Investigate cooperation & competition (F.12.7)

Infer changes in ecosystems (F.12.8)

Investigate how matter and energy are used to sustain an organism (F.12.11)

Understand how sensory & nervous system react to environment (F.12.12)

Source

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Activity Description

Begin with all the prompting and brainstorming at the wood's edge, before actually entering the woods. This session sets the stage for careful exploration and accurate observations, crucial to the success of this activity.

The children can spread out, exploring slowly, calling observations out to the teacher, who has the worksheet on a clipboard and is busy tallying. Sometimes discoveries of special interest (a track, an owl pellet) demand a pause so everyone can see and discuss. Older students (grades 6-12) could work in teams, taking turns identifying and recording in assigned quadrants.

A large, rich habitat will require adequate time for accurate data collection and joyful exploration. This is not an activity that should be hurried. A schoolyard with some trees, shrubs, and perhaps a garden area may require less actual exploring/observing time, but may need extra time to reflect and evaluate the place for its habitat value.

This activity concludes with a reflection about what has been observed. What sorts of animal life could live in this habitat? (Don't forget insects, earthworms, amphibians, and reptiles!) Does this habitat provide all their needs, or just some? Is this habitat more of a real home, or really a hotel with food service?

This activity can stand alone, or it can be part 1 of a 3 part series (Habitat Detectives, Habitat Assessors, and Habitat Enhancers). If a stand alone activity, the concluding reflection is especially important.

Habitat Detectives: Investigating the Site and Collecting Data Worksheet

HABITAT DETECTIVES OBSERVE WHAT'S GOING ON IN OUR WOODS ON

in the CANOPY

in the UNDERSTORY

AREA OF WOODS IN THIS INVENTORY

IN THE SHRUB LAYER

IN THE HERB LAYER

AND ON THE FOREST FLOOR

BRUSHPILES

live houses

SQUIRREL NESTS

smell pellets

live houses

fungi and mushrooms

spores

bird

in old logs

Nut trees

Seed trees

Fruits

Berry Thickets

W **E** **N** **S**

Hickory
Oak

Red Maple
Silver Maple
Box Elder
Elm
Hornbeam

Black Cherry
Dogwood
Serviceberry
Highbush Cranberry

Gooseberry
Black Raspberry
Blackberry