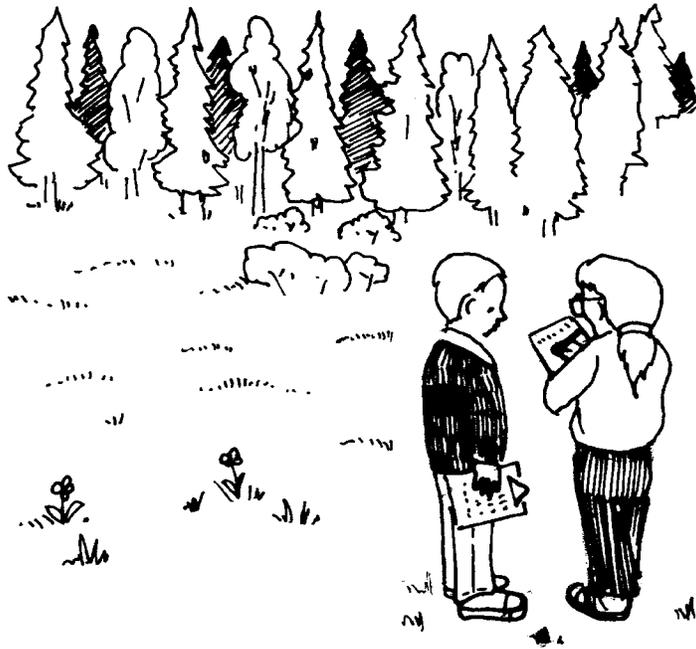


# Schoolyard Habitat Map

## 1 EXTENSION



### Section 1 WILDLIFE ACTIVITIES

**Grade Level:** 7-12

**State Standards:** SA-12,  
S A-14, S A-15

**Subjects:** Science, geography,  
mathematics, art, technology

**Skills:** Mapping, observing,  
coordinating, communica-  
tion, observation, hypoth-  
esize, compiling data

**Duration:** 3-5 sessions

**Group Size:** Pairs

**Setting:** Outdoors & computer  
lab

**Vocabulary:** Ecosystem,  
habitat, species

### Objectives:

1. Students will describe the ecosystem surrounding their school.
2. Students will determine what factors support life in their schoolyard.
3. Students will determine what habitat needs their schoolyard provides to wildlife.

### Teaching Strategy:

Students will study the schoolyard to map the living and nonliving elements that comprise the ecosystem around their school.

### Complementary Activities:

“Can Do!” in Section 4. Many “Forest Learning Trail” activities in *Alaska’s Forests & Wildlife* or the “Investigating (Nonliving / Living Things)” activities in *Alaska’s Ecology*.

### Materials:

For each group: Graph paper, color pencils, clip boards, tracing paper, rope or twine, measuring tapes, stakes,

multiple colors of flagging tape, compasses. Aerial photographs or topographical maps of the school and immediate surrounding area if available. Plant and animal field guides. Habitat maps from atlases, the Internet, or state and federal agencies to illustrate mapping (see following *Curriculum Connections*).

### Background:

See **INSIGHTS Section 1, Habitat – Basis for Survival.**

### Procedure:

IN ADVANCE, select an area of the schoolyard that can be divided into relatively equal study plots for groups of students. If possible, choose an area that will be undisturbed for the duration of the project so that grid lines and stakes can remain between sessions.

1. IN CLASS, introduce **habitat** and explain to students that topography, soils, water, and sunlight are important habitat features that often determine what life forms will be supported in an area.



2. Show students maps of **soils, topography, water, vegetation, and species**. Explain that they will be creating a similar map of their schoolyard that will include all of these parts of an **ecosystem**.

3. They will be looking for answers to questions such as: In the schoolyard, where does water pool or drain? Does the soil absorb water? What vegetation lives in different sections of the schoolyard and why? What animals, live or travel through the schoolyard? What habitat is available to the animals that use the schoolyard?

4. Explain to the students that to gather information for their map, they will break the schoolyard into connected plots of roughly equal size using stakes, twine, and measuring tape. The lines formed by the twine will create a large grid that lines up with the directions on a compass. *If aerial photographs of the school are available, use an acetate overlay to draw grid lines on the photo to demonstrate this point.*

5. Students will also create grid lines within their plots using string. The string will then be used to accurately draw in details. Determine the size of the plots and assign each group a plot of equal size. Also determine the length/size of the grids within the plots (3 x 3 yards or meters square works well).

6. As a group, standardize the symbols that will represent land features and create a key all students will use. Do this for each session before going outside (*What colors and shapes will represent willow, spruce? What symbol will represent a path or the perch of a magpie or the tracks of a snowshoe hare?*)

## OUTDOORS

### SESSION ONE

1. Students determine and set a North-South line and an East-West line.

2. From these lines, students work in groups to set boundaries for large study plots.

3. When large plots have been created, small groups create the grid lines within their assigned plot.

4. Students make a baseline map of their assigned plot showing major locating features and grid lines. Each map and subsequent overlay should be drawn to scale using the grid lines created in the plot. *Because all plots are measured using the same measurements, map pages can be laid out and connected to illustrate the entire study area.*

## SESSION TWO

Using tracing paper and color pencils (or drawing on photocopied baseline maps from Session One), each group evaluates and records its study plot's contour, water flow, pooling, and soils composition (clay, gravel, etc.).

## SESSION THREE

1. Students evaluate and record vegetation on another tracing paper overlay or a photocopy of the baseline map.

2. On another overlay or photocopy base map, students record animal signs and sightings. (*See also "Mammal" "Bird," and "Insect" activities in either Alaska's Ecology or Alaska's Forests & Wildlife.*)

NOTE: At the end of the outdoor sessions, students will have three sheets of tracing paper that, when held up together, represent the nonliving and living elements of their schoolyard ecosystem. Within these maps, habit information for the animals sighted abounds!

## INDOORS

1. Using computer programs, students determine how best to illustrate their plots. Students create, color, and code maps of the schoolyard.

2. Discuss what each group found.

3. Ask students to describe what vegetation lives in well-drained soil, what plants do well around the edges of pooling? Do some plants only appear to live where the ground is higher (*drier*) or depressed (*wetter*)? Can some plants survive heavy foot traffic?

4. What happens to soil in areas without plant life?



5. What animals and animal signs have the students recorded on their maps? Ask students to share observations and hypotheses regarding what wildlife use different plants and habitats in their schoolyard.

### **Evaluation:**

1. Students make oral presentations, highlighting the nonliving and living elements of the ecosystem within their plot.

2. Students state what wildlife use the schoolyard and what specific habitat needs their schoolyard provides.

3. Students suggest what wildlife could use their schoolyard if modifications to the habitat were made.

### **EXTENSION:**

Students may wish to alter their schoolyard ecosystem to invite or discourage certain plants or animals. Perhaps your schoolyard has been inundated with **non-native** plants. Or perhaps your schoolyard lacks avian visitors and residents. Lead a discussion of what kinds of plants and wildlife your students want to have in their schoolyard.

- Students write or call community members, botanists, geologists, and biologists for additional information.
- Write a proposal to school administrators for making changes to the schoolyard ecosystem. Include what kinds of plants will attract (or discourage) specific wildlife.
- If the proposal is approved, create an action project (See “Can Do!” in Section 4: Wildlife Conservation Is Up To Us!)

### **Credit:**

Contributed by Robin Dublin, Alaska Department of Fish & Game, Anchorage, Alaska.

### **Curriculum Connections:**

(See appendix for full citations)

### **Books:**

Alaska in Maps: A Thematic Atlas

*Alaska's Mammals* (Smith)

*Alaska's Trees and Shrubs* (Viereck)

*Discovering Wild Plants* (Schofield)

*Field Guide To Alaskan Wildflowers* (Pratt)

*Mammals of Alaska* (Alaska Geographic)

*Wild Edible and Poisonous Plants of Alaska* (Heller)

### **Websites:**

*Alaska Wildlife Notebook Series* <[www.state.ak.us/adfg](http://www.state.ak.us/adfg)>

Various atlas websites <[www.maps.com](http://www.maps.com)> or <[www.3datlas.com](http://www.3datlas.com)>

### **Teacher Resources:**

(See appendix)

