



TARGET
GRADES
5–8

DURATION
20–40
minutes

GROUP SIZE
15–60
students



LESSON 1

Habitat Is Where It's At

LESSON OVERVIEW

Students represent parts of a habitat and learn how they must be organized in a suitable arrangement in order for humans and wildlife to survive.

“There are so many opportunities for students to consider the dynamics of habitat and how they affect wildlife.”

SUBJECTS Science, environmental education, physical education, language arts

SKILLS Communicate, work as a team, recall knowledge, comprehend a concept, apply a skill and evaluate.

SETTING Outdoors

TERMS TO KNOW habitat, food, water, shelter, space, *suitable arrangement*, limiting factor, home range

STATE STANDARDS

Science Language Arts
SL.6.1.c; SL.6.1.d; SL.7.1.b;
SL.7.1.c; SL.7.1.d; S.L.8.1b;
S.L.8.1c; SL.8.1.d

Physical Education
5.E.1.3.4; 8.E.1-2.; 8.E.1-2.



MATERIALS

- large, open space such as a gym, multi-purpose room or outside area
- strong nylon rope (a dynamic climbing rope works well)
- materials necessary for completing the evaluation including computers, poster paper, writing instruments, and art materials.

GUIDING QUESTIONS



What is habitat?

What is meant by suitable arrangement?

What are the four essential components of habitat?

How are arrangement of food, water, shelter, and space important to humans and other animals?

OBJECTIVES

- Students will identify the components of a habitat.
- Students will recognize how humans and other animals depend upon habitats.
- Students will interpret the significance of loss or change in a habitat to people and wildlife.

Supporting Information

People and other animals share some basic needs. Every animal needs a place in which to live. The environment in which an animal lives is called **a habitat**. An animal's habitat includes food, water, shelter, and space in an arrangement appropriate to the animal's needs.

An animal may be adversely impacted if any of the components of habitat are missing or are significantly altered. The impact will not necessarily be catastrophic, but it can be. Lack of a single component of a habitat becomes a **limiting factor**. There are additional limiting factors beyond those of suitable food, water, shelter, and space. For example, disease, predation, pollution, and climatic conditions can affect an animal's survival.

If natural species don't survive, it impacts ecosystem dynamics. Within a biological community, there are interrelationships and interdependencies between plants and plants, plants and animals, and animals and animals. These interrelationships and interdependencies are dynamic in the short term and long term within a population. Humans can interfere and create changes in the habitat to suit the needs or wishes of humans. Those changes may in turn affect wildlife negatively or positively.



ALASKA WILDLIFE CURRICULA COMPLIMENTARY ACTIVITIES

- *In Harmony with Habitat* (Alaska Wildlife for the Future, 2nd Edition)
- *Schoolyard Habitat Map* (Alaska Wildlife for the Future, 2nd Edition)
- *Oh Moose!* (Alaska's Ecology)
- *Forest Food Web Game* (Forests and Wildlife)

LESSON 1

Habitat is Where It's At



NOTES



Procedure

1. Make sure your rope is coiled so it can be dispensed to students easily without any tangles.
2. Students form a circle, standing shoulder to shoulder. Ask them to name the components of habitat, with the first student saying food, the second saying water, the third saying shelter, and the fourth saying space. Continue around the circle until each student has called out a habitat component.
3. Pass the rope around the circle, unraveling it until each person is holding a section. As you pass out the rope, say "Food, water, shelter, and space in the suitable arrangement are needed to have a suitable habitat." The term '**suitable arrangement**' is represented by the pattern of components within the intact circle. Tie a sturdy knot at the end and hold it to make sure it stays in place. Let any extra rope hang on the ground behind you.
4. Ask everyone to listen carefully. Students should take a step back while holding the rope with two hands out in front of them until the rope is taut. Then, have the students stand with one foot slightly in front of the other, while slowly lean back.
5. Ask if they feel equally supported by one another. Are they standing in a suitable habitat arrangement? Discuss with the students the necessary components of a suitable habitat for people and various wildlife species.
6. After the students have verbalized that food, water, shelter, and space are necessary for any animal's survival, and that the appropriate arrangement of these components constitutes a suitable habitat, let the students try the activity again. The students will continue to represent their assigned component of habitat. This time, tell the students, "There has been very little precipitation this year (in the form of snow or rain) to recharge the lakes, streams and aquifers. The water supply is reduced." Have all the students who represent water drop the rope on the count of three. It should feel like a guitar string being plucked as the rope snaps back and students stumble back a bit. Lack of water becomes the limiting factor in this demonstration.
7. Have the students representing water rejoin the circle by grabbing hold of the rope in their original position. Ask students to consider impacts to the habitat that would take away or significantly change one of the parts of the habitat, such as a fire burning through a habitat, temporarily destroying all the shelter. Other ideas illustrating varying conditions include removing components that are naturally created or human created such as pollution of the water supply, or urban development that 'limits' the availability of all habitat components.

8. Now demonstrate how arrangement plays into a healthy habitat. Have everyone carefully set the rope down on the ground. Group the components—food, water, shelter, and space—together by asking all the students who were food to stand next to each other taking up a quarter of the circle. All the students who were water will stand next to each other adding another quarter of the circle and so on. Now, have everyone pick the rope up again, take a step backwards and lean back so it is taut. Ask if this is a suitable arrangement for a healthy habitat.
9. Ask all the students representing water to drop the rope again. Watch an entire $\frac{1}{4}$ of the habitat collapse. Ask the students what this means for the real world. If a habitat component is missing from a particular area or region, will it be suitable habitat to provide for humans and wildlife?
10. Finally, have the students set down the rope and let go. Double the rope on itself and ask half of the students to pick it up this time and back up until it is taut. Have the students not holding the rope to stand inside the circle. Ask them if it is comfortable standing so close to their neighbors. Ask the students which component of habitat this exercise simulates (space). Discuss **home range** and explain that different wildlife tolerate different size crowds.

Evaluation

- Students need to describe the essential components of a habitat using a graphic, video, map, oral presentation, poster, poem, drawing or painting to illustrate what they have learned.
- When presenting the essential components of habitat above, have students explain how the suitable arrangement of food, water, shelter, and space is important to ecosystem function and survival and diversity of species. Come up with examples of how humans have changed an environment to make it a suitable place for humans and/or wildlife (i.e. in order to provide all habitat requirements). Are there health or environmental costs associated with these changes? If so, who or what paid the price?



Additional Resources

Online

National Geographic Habitats by Type

<http://environment.nationalgeographic.com/environment/habitats/>

National Geographic Habitat Videos

<http://video.nationalgeographic.com/video/habitats>

US Fish and Wildlife Service, Schoolyard Habitats

www.fws.gov/alaska/fisheries/restoration/schoolyard_habitat.htm

National Wildlife Federation, Garden for Wildlife

www.nwf.org/Home/How-to-Help/Garden-for-Wildlife.aspx

Credit

Adapted from "Habitat Lap-Sit" Project WILD K-12 Activity Guide, Council for Environmental Education, 1992.