

Habitat Changes over Time

Strand	Living Systems
Topic	Habitats change over time
Primary SOL	2.5 The student will investigate and understand that living things are part of a system. Key concepts include; c) habitats change over time due to many influences.
Related SOL	2.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which a) observations and predictions are made and questions are formed; b) observations are differentiated from personal interpretation; h) data are collected and recorded, and bar graphs are constructed using numbered axes; i) data are analyzed, and unexpected or unusual quantitative data are recognized; j) conclusions are drawn; m) current applications are used to reinforce science concepts. 2.5 The student will investigate and understand that living things are part of a system. Key concepts include a) living organisms are interdependent with their living and nonliving surroundings; b) an animal’s habitat includes adequate food, water, shelter or cover, and space.

Background Information

Habitats may change over time due to natural and manmade influences. Natural influences include seasonal changes, drought, flooding, and natural succession. Manmade influences include conversion of land from forests to farms, development, and pollution.

An animal’s habitat includes what it needs to survive such as air, food, water, shelter (or cover), and space. When elements are missing from a habitat, an animal must adapt, move, or die. A natural disaster such as a hurricane, earthquake, flood, drought, forest fire, or tornado can cause a habitat to change.

Human changes to habitats are choices made, some are positive and some are negative. When one species loses its habitat, the result may be a new habitat for other species. An example of this is a meadow which will provide homes for a variety of grassland species. If man comes in and plants a forest, the habitat is no longer suitable for quail but excellent for squirrels.

Materials

- Student journals
- Optional: magnifying glasses, tape measures, insect collection boxes, class camera, etc., to help with the observations

Vocabulary

ecosystem, habitat

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Introduction

In preparation for this lesson, check with your school's administration and determine if there is a corner of the schoolyard that can be "changed." A space about 5 square feet is large enough. It may be useful to put stakes in the ground at each corner and rope off the plot to keep it from being mowed or otherwise tampered. This will be an area where your students will make monthly observations throughout the school year to observe habitat change. If there is not an area of the schoolyard you can use, fill a large planter with soil, set it in the schoolyard near a bush or tree. Use this to observe throughout the year.

1. Discuss with your students what might make a habitat change (e.g., clearing of land for farming or building, planting of a new forest, a forest fire, a hurricane or bad storm, etc.).
2. Talk with students about animals and how their needs are met in their habitat. Talk about what happens when the seasons change, how do habitats change?
3. Choose one habitat (forest, grasslands, pond, etc.) and talk about its characteristics during each season. Ask students to imagine a natural disaster, such as a forest fire. What would happen to the habitat? What would happen to the animals in that habitat?
4. Stress the fact that animals depend on their habitats and that sometimes changes occur to habitats. These changes can have a devastating effect on the animals that depend on that habitat to survive.
5. Explain to your students that throughout the year they are going to study one small habitat area of the schoolyard to see what happens if we change that area.

Procedure

1. Take your students to the plot in the fall of the year. Measure the distance of the plot and mark it off.
2. Have your students conduct an inventory of the insects they see and any other clues that indicate that other wildlife has been or is currently living there (e.g., feathers, ant hills, etc.). They will record the date and what they see in their student journals.
3. With a shovel, turn over the sod on about 1/4 of the plot. This represents new ground like the ground that would have been affected by a fire, flood, farming etc. Turned soil also attracts many species of birds that are looking for insects and earthworms.
4. Have your students make a note in their journals of any earthworms or other organisms living in the soil in the area with the turned soil.
5. Visit the plot each month. It is best to pick a date such as the third Friday of each month to make the observations. Look for seeds and wildlife signs each time. Students can record what they see in the plot as well as what they observe along the edges.
6. Create a photo record of the plot. Take the temperature of the soil, air, and the grassy area.

7. Note there may be little change during the winter months but in the spring the turned side will show rapid changes.
8. Consider using the plot the following school year. Another fourth of the plot can be turned over, rotating for the next four years. The teacher can record the differences in the habitat from year to year.

Assessment

- **Questions**
 - How might an animal be affected if its habitat changes?
 - What are some things that might affect an animal's habitat?
 - Are all changes to a habitat bad?
- **Journal/writing prompts**
 - Imagine you are a squirrel. The trees in your forest have been cut to make room for the building of some houses. How might this affect you? What could people do to help improve your situation.
 - Explain how an animal interacts with the nonliving parts of its environment.
- **Other**
 - Have students select an area close to their home where they can make monthly observations of the habitat. Have them keep a journal of their observations.

Extensions and Connections (for all students)

- Check with the county/city planning office and see where there may be a new development and do a photo essay. Or have students do a photo essay of their yard through the seasons. Or a photo essay of a tree in the schoolyard from fall through spring.
- Ask students what they could do to help keep animal habitats in their community in good condition.

Strategies for Differentiation

- Make the monthly observation entries in the student journal with a buddy.
- Use photographs or pictures to help make the monthly observation journal entries.
- Work in groups with strength-based assigned roles.
- Provide guiding questions to use during observations.