

Habitats and the Ecosystem

Overview

Students will learn about the different elements in a habitat and describe how each works within the habitat. Students will participate in an activity to understand the affect small changes on one organism in a habitat can affect the overall ecosystem. Use this lesson prior to your visit to the Museum of Natural and Cultural History.

Objectives

Students will:

- Understand what a habitat is
- Describe the different elements of a habitat
- Understand how each element affects the overall ecosystem

Vocabulary

- **Habitat:** the natural home or environment of an animal, plant, or other living thing
- **Food:** what each organism in a habitat eats to survive
- **Water Source:** where each organism in a habitat finds water to drink to survive
- **Shelter:** where each organism in a habitat lives
- **Space:** area for living things to find food, water, and shelter
- **Ecosystem:** a group of living organisms interacting with their environment

Background Information

There are several habitats throughout the state of Oregon. These diverse environments include deserts, mountains, forest, grasslands, and coastal regions. Each has different animals, plants, water sources, space to move, and options for shelter. When discussing habitats, consider four main elements: 1) food, 2) water sources, 3) shelter, and 4) space to move around.

The way each of these elements interacts is the ecosystem. Ecosystems have developed over periods of time, where plants and animals have adapted to survive through these changes. When one resource is disrupted through a change in weather, precipitation, or by a human impact, the entire ecosystem suffers.

Subject

Science



Grade

4th-8th

Time

45-60 minutes

Materials

- Yarn
- Index cards
- Markers/crayons
- Safety pins (optional)

Set Up

- A large space either in the classroom or the schoolyard where students can work in small groups, as well as stand in a large circle together.
- Label the index cards with different element of a habitat.

Standards (NGSS)

4-LS1-2: Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

5-LS2-1: Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

MS-LS1-4: Use argument based on empirical evidence and scientific reasoning to support

Students will participate in activities to understand the elements of different habitats, the ecosystem, and how these disruptions can affect the environment.

Classroom Activity (40-50 min)

Intro (5 min): Ask students to describe what a habitat is (a place where something lives, an environment, etc.). Tell students a habitat is the natural home or environment of an animal, plant, or other living thing. Have students describe the habitat they live in (dry, wet, hot, cold, etc.). Tell students they must consider four main elements when thinking about a habitat: food, water source, shelter, and space. Tell students food is what an organism eats, a water source is where an organism finds water, shelter is what protects an organism from the environment, and space is where the organism moves around.

Activity 1 (10-15 min): Tell students they will work together to describe different habitats. Tell students to name the elements of a forest habitat (trees, dirt, wet, cold or warm, birds, deer, etc.). Ask students to describe one element of the forest habitat and how it is connected to the other elements. Example: a bird lives in the trees, builds a nest with surrounding materials (sticks, moss, etc.), eats worms in the dirt, and gets water from nearby lakes or the rain. Tell students the way a group of living organisms interacts with their environment is called the ecosystem.

Tell students to work in small groups to discuss three other habitats and their ecosystem. Students will share their discussions with the remainder of the class.

Tell students they will participate in an activity to show how changes in the environment will affect a large network within the ecosystem.

Activity 2 (20-30 min): Have students stand in a large circle with comfortable space in between each person. Tell students they will each receive a card with an element of a habitat written on it (bird, tree, sun, soil, water, etc.). One student will start with the yarn, then toss the yarn to another element and describe how the two are related. The process will continue until each element is holding a piece of the yarn. Complete an example to show students the process (the tree tosses the yarn to the bird because the bird lives in the tree; the bird tosses the yarn to the worm because the bird eats the worm; etc.).

Once each student has a piece of yarn in his or her hand, the teacher will announce a disruption in the ecosystem (ex. chemicals leaked into water system, so it is no longer a viable source). The student holding the string representing the element will pull his or her string. Student who felt the tug will raise his or her hands, so each classmate may see who was affected. The students who raised their hands will then tug on their yarn, repeating the process. Discuss with students how these disruptions in the ecosystem can

an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.

MS-LS2-4: Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

MS-LS4-4: Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.

affect the overall habitat. The teacher may announce other disruptions to repeat the process as many times as desired.

Conclusion (5-10 min)

Students will discuss how and why each change in the environment affected the surrounding organisms. Students will provide suggestions for solutions to prevent these changes in the habitat and ecosystem.

Optional Lesson Adaptations

Provide posters or cards with large, dark print of each habitat element example for students with limited hearing or sight.

