Microhike

Grade Level: K-6
Length: 45-60 Minutes
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NGSS Standards

K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.

2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats.

Crosscutting Concepts

Patterns Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.

Related Resources

Pair With Habitat Model Lesson; Local Plant Studies Lesson; Meet A Tree Lesson

Overview

You can find living things of all sizes if you look closely.

Objectives

- Students will build a miniature nature trail to highlight interesting living organisms.
- Students will understand that shelter space, air, and water are essential to living organisms of all sizes. They will understand that plants need sunlight and animals need food.
- Students will make observations of plants and animals.
- Students will compare the diversity of life in different habitats or across different parts of a habitat.

Materials

- ☐ One 20 Foot Length of String or Yarn for every 2 Students
- ☐ 8 Popsicle Sticks or Other "Trail Markers" for every 2 Students
- ☐ Scratch Paper
- ☐ 1 Magnifying Glass or Bug Cube for every 2 Students
- ☐ Magic Dust Pouch (optional)

Background

This activity is meant to encourage students to look closely at the environment around them, increasing their awareness and perception of the natural world. By gaining personal experience of the diversity of living things in an area, students will be prepared for future lessons about ecosystems and environmental effects of oil spills.

Notes

Preparation

When looking for a suitable site, choose one with a diversity of ground cover, but avoid areas of thick or dangerous vegetation. Try to choose a site that includes a transition from one habitat to another (field to forest, sunny meadow to shady meadow, dunes to beach, etc.). Prepare sets of 20-foot sections of yarn and popsicle sticks for every two students.

Introducing the Lesson

Have the students sit near the micro-hike site and think about some of the smallest organisms they have seen. Then, have them imagine what the world would look like if they were the size of those animals, less than an inch tall. Ask students how big their school, house, and parents would seem.

Explain that there are many creatures and plants that are less than an inch tall. Ask the students to find one from where they are sitting. Share some of the findings. Explain that they are going to have a chance to discover and explore an uncharted section of the miniature natural world.

If you'd like, bring out your special "Magic Dust" pouch and explain that the magical dust will make them all small. Quietly tell the children to lie back and close their eyes (the dust will not work if they peek). Use guided imagery or a short fantasy trip to bring the children into the miniature world. As you spread the dust on them, speak quietly and slowly. Explain that they are getting smaller and smaller. Use your creativity to set the scene.

Have students open their eyes and slowly examine the ground. Ask them what kinds of plants and animals they can see now. Slowly crawl to the micro-hike site, preparing the children for observing closely. Stop along the way to point out some small plants or animals. When you see a plant or animal, consider as a group what it needs to live there? At the first stop, lead students through listing what plants and animals need to survive. Then come back to this list each time you find a different plant or animal (or evidence of an animal). For animals – where does it get food, water, shelter, and air (oxygen)? For plants – where does it get water, soil, sunlight, and air (carbon dioxide)?

Activity

1. When you get to the micro-hike site, stop and meet together as a group. Ask the students if they've ever been on a nature trail and ask them to describe it. Explain that they are going to build a nature trail to mark all of the interesting miniature things they discover. Provide a few examples of possible stops along the trail (broken eggshells, ants, beetles, colored sand grains, plant sprouts, etc.).
2. Divide the naturalists into pairs and give each group a string (to create the nature path), popsicle sticks (for trail markers), and a magnifying glass (to look more closely). Explain that the magnifying glass is a special scientific tool for looking closely and needs to be treated carefully. Set a 40-yard radius boundary and set each group out on hands and knees to create their trail.

>>*Homeschool note: this activity can be done with just one learner or in a small group. If this is the case, you can have the learners work individually rather than in pairs. Consider alternative ways for the students to share their nature trail, such as creating a trail guide, brochure, or virtual field trip via video.*

3. Ask students to span their trail across two different habitats or parts of the habitat (such as from the meadow into the forest). Explain that they are going to be responsible for noticing at least one pattern about where or how the plants and animals live that they can tell their classmates about. This might be something like "There are more types of plants in the meadow" or "We see lots of insects near rotting logs."
4. As they work, crawl around and check in with each group to make sure they understand the concept. Ask probing questions of each group to encourage them to consider patterns of what the plants and animals might need to survive and/or how different plants or animals are located in different habitats. Ask students to come up with a catchy name for their trail (i.e. The Great Ant Parade).
5. Give students about 15 minutes for trail making, reminding them throughout that they are very small. Then, have each pair lead the group down their trail on hands and knees, interpreting points of interest and sharing the pattern they noticed.

Wrap-up

Tell the students that at the snap of your fingers they will suddenly return to full size. Briefly review the discoveries of the micro-trails. Make a list of all the plants and animals found along the trails. Sort

the list into which organisms were found in the different habitats or parts of the habitat. Introduce the students to the word "Biodiversity" – different kinds of life that exist in a certain place. Using think-pair-share have students think about which part of the habitat had the highest biodiversity, discuss with a partner, and then have a few people share with the group.

Ask students what these plants and animals need to survive (food or sunlight, water, air, shelter, space.) Ask students to brainstorm how these organisms get these necessities.

Have students think about what survival needs might be hardest for these organisms to find in this area and then have them "help out" a plant or animal by giving a plant a few drops of water or placing a tiny bit of water near, but not on, an animal.

Assessment

Include formative assessment when you check in as the students are creating their trails. Pay attention to how the students answer your questions and are noticing patterns. Identify concepts that students are struggling to understand so that adjustments can be made to the lesson as it progresses.

Assess how students follow directions during the trail creation and how they describe the patterns they share with their classmates when doing a tour of their micro-hike.

During the wrap-up, listen during the think-pair-share and pay attention to how students are thinking about patterns of biodiversity. Assess how students describe what organisms need to survive and which of these requirements might be hardest for the plants or animals to get in this habitat.

>>*Note: This activity can be adapted for older elementary students by having them write and illustrate a trail guide for their nature hike.*

Pair With

- Habitat Model Lesson
- Local Plant Studies Lesson
- Meet A Tree Lesson