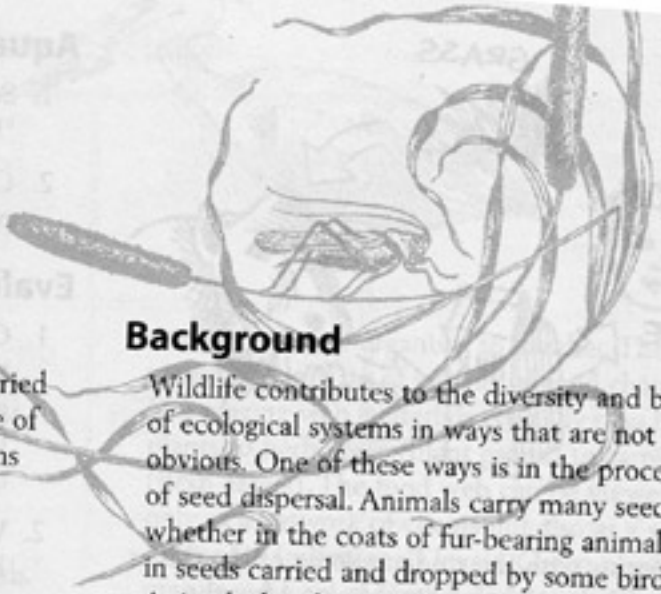
Seed Need



Objectives

Students will: 1) explain how seeds are carried by animals; and 2) evaluate the importance of wildlife as contributors to ecological systems based on this example of seed dispersal.

Method

Students gather seeds by going outside and wearing socks over their shoes.

Materials

One large sock or a piece of masking tape per student (students can bring a large, old sock from home or educators can try to find an inexpensive or free source to obtain a sock for each student); paper or plastic bag; OPTIONAL: a shoe box, planting medium, cookie sheets or trays

Grade Level: 5-8

Subject Areas: Science, Math, Environmental Education

Duration: one 20- to 40-minute session or longer for gathering and analyzing data; minimal ongoing time in caring for planted seeds

Group Size: any

Setting: outdoors and indoors

Conceptual Framework Topic Reference: IDIA, IDIB, IDIIB2

Key Terms: ecosystem, dispersal, seeds, diversity

Appendices: Outdoors, Field Ethics, Early Childhood

Background

Wildlife contributes to the diversity and balance of ecological systems in ways that are not very obvious. One of these ways is in the process of seed dispersal. Animals carry many seeds—whether in the coats of fur-bearing animals or in seeds carried and dropped by some birds. Animals distribute seeds in other ways too. For example, pack rats and squirrels gather seeds and store them. Some of those seeds are not eaten and the seed cache becomes a plant nursery. Many seeds are eaten but not fully digested. In those cases, animal droppings distribute and often fertilize seeds.

The major purpose of this activity is for students to understand one example of how wildlife contributes to ecological systems.

Procedure

1. Ask each student to put a sock over one shoe. Wearing the socks over the shoes, go on a walk through a grassy area or field—particularly one that is abundant in seed-bearing plants. (A piece of masking tape over the foot or around the ankle also can be used for this activity.) Have teams of students walk in different locations. Contrast seeds found in each location. Create an "environmental map." What ecosystem differences exist in the different neighborhoods or communities?
2. After walking through the area, have the students take off their socks and examine them carefully. What has happened? Discuss briefly the seeds and other things that are attached to the socks. Place the socks in a paper or plastic bag and return to the room.

3. Have the students remove the seeds and other particles from the socks. Talk with the students about the major kinds of things they seem to have—like seeds, grass, small bits of twigs. Next, discuss the seeds in more detail, talking about the different kinds of seeds they have found: round, skinny, big, small and so on. Make a data chart showing the types of seeds they found.
4. Have students record—with words and small drawings—the kinds of things on their socks. Tally the number of each kind of thing on the socks, as well.
5. Ask the students how different animals' fur might be similar to their socks. Has anyone ever brushed seeds or stickers out of a dog's or cat's fur? Discuss with the students how seeds are carried by animals similar to the way they carried seeds and things on their socks. Seeds may stick to an animal's fur in one location and fall off in another. Why is this process important? Evaluate the consequences. How does wildlife contribute to environmental diversity? OPTIONAL: Each student can plant his or her seeds in one of the shoe boxes filled with planting medium (soil or a commercial mix). Be sure the students put their names on their boxes. Water and care for the shoe box gardens regularly.

NOTE: Many wild plant seeds require freezing before they will germinate. Put the seeds in the freezer for several days and then plant them. Even after freezing, some seeds may not sprout. Some seeds require scarring, scorching by fire or digesting before they will grow. Also, some seeds are not viable and will not germinate or sprout.

Extensions

1. As the seeds in the boxes begin to sprout, measure the plants that grow. Take measurements every fifth day and plot these measurements on a graph.
2. Try similar experiments at home, using seeds the students find in their neighborhood. If you actually get the plants to grow, you can try to match the plants you grow at home from the "pet-carried" seeds to the plants growing outside. How far did the seeds travel on the animal?

Evaluation

1. Draw three different types of seeds that could be transported on an animal. Draw an arrow to show the part of the seed that makes this possible.
2. Write a paragraph to explain how fur-bearing animals are important to the types of plants that produce these seeds.
3. Choose a selection of sewing materials to demonstrate how seeds can attach to animal fur. (Buttons can represent the seeds. Attachment materials could include scraps of Velcro, string, rubber cement and safety pins). Describe the characteristics of the kinds of wildlife that might disperse seeds in this fashion.