Unit 3 Lesson 7: Merrily We Move Along (How Seeds Travel)

Focus Areas: Plant Adaptations; Science
Focus Skills: observing, comparing/contrasting, formulating hypotheses, drawing conclusions

Objectives

- To identify how a plant grows
- To determine and understand methods by which seeds travel to plant themselves

Essential Questions

- How do seeds move from one place to another?
- Why does traveling help seeds to grow?

Essential Understandings

- Plants produce many seeds because not all of them will grow. Many will be food for other animals.
- Seeds spread themselves in a variety of ways, mainly by the wind and water or attaching to other creatures to hitch a ride.

Background

Seeds are the parts of plants that contain the material necessary to reproduce. Most plants have many seeds because only a few will survive to become adult plants. Few seeds would grow if they could not be carried away from the parent plant. A seed that isn't dispersed and falls near its parent can be shaded and may not have sufficient nutrients from the soil. Some parent plants can actually produce chemicals that prevent any plants from growing too close to them. Because plants cannot move, seeds have adapted ways to spread themselves. Maple seeds fly through the air, dandelion seeds drift in the sky, foxtail seeds stick to fur and clothing, and flower seedpods explode. Humans and animals help disperse seeds. Seeds cling to humans, fur and feathers; animals eat them, digest, and excrete them onto the ground where they germinate.

Izzy Praying Mantis
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Background (continued)

Some plants produce flowers and seeds quickly. Annuals, such as marigolds, produce seeds that germinate and grow plants that flower and produce seeds all in the same year. A biennial takes two years to complete this cycle. Perennials live for many years, flowering each year.

Vocabulary

disperse	to travel to new locations by getting rolled, washed, blown, or carried away
germinate	to begin to grow from seed to adult
hitchhike	to travel by taking a ride with another thing that moves
pod	the seed container for plants
seed	the part of the plant that produces new plants

Logistics

Time: 30 minutes
Group Size: 5 to 30
Space: a classroom

Materials

Izzy puppet *
maple seeds, 1 per child
Handout 1 "Flying Seed Propeller" *
samples: peas, rice, peanuts, corn, beans, nuts
hand lenses

* single copy provided

Preparation

Collect the maple seeds.
Copy Handout 1, "Flying Seed Propeller."
Collect other seed samples.
Obtain hands lenses.

Activity

Introduction

1. Show the children samples of peas, rice, and corn kernels.

2. Allow time for the children to examine the seeds using hand lenses.

3. Ask the children what all these samples have in common. (You can eat them. They all are seeds.)

4. Explain that seeds are a way that plants grow more of their own kind.

Involvement

Izzy explains to the group:

1. Many seeds cannot grow near the plants that produced them (parents). Many seeds will only grow if they have a chance to move away (**disperse**).

2. Seeds have some special tricks.
   a. They begin to grow at the exact moment that conditions are right (**germinate**). Some seeds wait one year, ten years, even 85 years!
   b. Seeds were found in an Egyptian tomb buried thousands of years ago that were still able to germinate.

3. Seeds have no legs but nature provides clever ways to spread them around.
   a. Birds eat berries but can't digest the seeds. They excrete (poop) them while flying.
   b. Some seeds have little hooks to attach themselves to any animal passing by.
   c. Dandelions are "parachuters" and are carried by the wind.
   d. Maple trees have seeds with wings that allow the seeds to be blown from place to place.
   e. Some seeds shoot out of pods when the pods burst open.

Activity

Involvement (continued)

4. Izzy shares examples of the following seeds using pictures or samples:
   a. Hitchhikers – These seeds have hooks or hairs that catch on people's clothes or animal fur. Examples: cocklebur, beggar ticks.
   b. Floaters - Plants that live near the water have seeds that float. The air inside helps them stay on top of the water. Examples: sunflower, many other seeds.
   c. Flyers – Many light seeds have wings or silky hairs. The hairs catch the wind like a parachute. Examples: milkweed, dandelion. Others have wings that behave like helicopters. Example: maple.

5. Have the students, two at a time, stand on chairs, and drop the maple seeds. Have them observe and discuss the flight path. Turn a fan on. How does the wind from the fan affect the flight of the seed?

6. Distribute Handout 1, "Flying Seed Propeller." Make paper seed propellers using the pattern provided. Test them as done in Step 5. How does the seed propeller fly the same way that maple seeds fly? How do the seed and the flying seed propeller compare to a real helicopter?

   Note: Children could design races to see how to make their seed propeller travel faster.

Follow Up

1. Collect seeds outdoors by stuffing a sock or nylon and dragging it along the ground. If you can't collect seeds outdoors, obtain packaged seeds or seeds from fresh fruits and vegetables, such as tomatoes, oranges, or kiwi fruit.

Follow Up (continued)

Ask the children what seeds they eat. Seeds are used for many things:

- to season food (dill, pepper, celery seeds)
- squeezed to make oil (corn, peanuts)
- roasted and eaten as snacks (pumpkin, sunflower)
- popped for popcorn, eaten on the cob (corn)
- ground into flour to make bread (rye, wheat)

2. Make seed collages by gluing seeds to construction paper drawings.

3. Make a poster of edible seeds to display in the class such as sunflowers, sesame, pumpkin, and poppy seeds. Spices are seeds that are ground up. They could be attached to a poster with transparent tape.

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