Mammal

Earth & Space Science | Lesson Guide

2nd Grade

Photo Description

A gray squirrel sits in a garden holding an orange piece of food in its paws. The squirrel is surrounded by green plants and flowers. It is eating the food and looking at the camera.

Scientific Phenomena

This image represents the Anchoring Phenomenon of animal feeding behavior and habitat adaptation. The squirrel is demonstrating how animals obtain food resources from their environment to meet their survival needs. Scientifically, this shows how animals have adapted specific behaviors (foraging, food manipulation with paws) and physical features (sharp teeth, dexterous paws) to successfully gather and consume food in their habitat. The squirrel's presence in a garden environment also illustrates how some animals have adapted to live alongside humans in urban and suburban settings.

Core Science Concepts

1. Animal Needs and Survival - All animals need food, water, shelter, and air to survive. This squirrel is meeting its food needs.

2. Animal Behaviors - Animals have specific behaviors that help them find and eat food, such as foraging, storing food, and using body parts as tools.

3. Habitats and Resources - Animals live in places that provide what they need. Gardens can provide food resources for wildlife.

4. Body Parts and Functions - Animals have body parts that help them survive, like the squirrel's paws for holding food and teeth for chewing.

Pedagogical Tip:

Use this image to start a "Notice and Wonder" routine. Have students share what they notice about the squirrel's body parts and behaviors, then wonder about why the squirrel might be doing these things.

UDL Suggestions:

Provide multiple ways for students to share observations: drawing, verbal descriptions, or acting out squirrel behaviors. This supports different learning styles and communication preferences.

Zoom In / Zoom Out

1. Zoom In: At the cellular level, the squirrel's digestive system breaks down the food into nutrients that individual cells can use for energy and growth. Special enzymes in the squirrel's stomach and intestines help break apart the food molecules.

2. Zoom Out: This squirrel is part of a larger ecosystem where it plays important roles as both a consumer of plants/seeds and as prey for larger animals like hawks. Squirrels also help spread seeds throughout the environment, helping plants reproduce and grow in new places.

Discussion Questions

1. What body parts does the squirrel use to get and eat its food? (Bloom's: Analyze | DOK: 2)

2. How do you think this squirrel's habitat provides what it needs to survive? (Bloom's: Evaluate | DOK: 3)

3. What patterns do you notice about how different animals hold and eat their food? (Bloom's: Apply | DOK: 2)

4. Why might squirrels be successful living in places where people live? (Bloom's: Synthesize | DOK: 3)

Potential Student Misconceptions

1. Misconception: Squirrels only eat nuts.
   Clarification: Squirrels are omnivores that eat many different foods including fruits, vegetables, seeds, nuts, and sometimes insects or bird eggs.

2. Misconception: Animals in cities don't have real habitats.
   Clarification: Urban animals like squirrels have adapted to city life and use parks, gardens, and trees as their habitat, finding food and shelter there.

3. Misconception: Feeding wild animals is always helpful.
   Clarification: While animals need food, feeding wild animals can make them dependent on humans and may not provide the right nutrition they need.

Cross-Curricular Ideas

1. Math Connection - Counting and Graphing: Have students count how many different types of foods squirrels eat (nuts, seeds, fruits, vegetables). Create a simple bar graph showing which foods squirrels prefer. Students can also estimate how many acorns a squirrel might collect in a day or week.

2. ELA Connection - Descriptive Writing: Students can write or dictate simple sentences describing the squirrel using sensory words (fluffy, orange, crunchy). Create a class book titled "Squirrels in Our Neighborhood" where each student contributes one illustrated page with their own observations and descriptions.

3. Social Studies Connection - Community Helpers: Discuss how parks and gardens are shared spaces in our community. Invite a local naturalist, zookeeper, or park ranger to visit and talk about caring for wildlife in urban areas. Students can learn about their role in protecting animal habitats.

4. Art Connection - Nature Collage: Students create collages using natural materials (twigs, leaves, seeds) to show a squirrel's habitat. They can draw or paint a squirrel and surround it with the resources it needs to survive (food sources, shelter materials, water).

STEM Career Connection

1. Wildlife Biologist - Wildlife biologists are scientists who study animals like squirrels in their natural homes. They watch how animals behave, what they eat, and how they survive. They help protect animals and their habitats so they stay healthy. Average Salary: $63,000 per year

2. Park Ranger - Park rangers work in parks and natural areas to help keep plants and animals safe. They teach people about wildlife (like squirrels), maintain habitats, and make sure animals have the resources they need to live. Average Salary: $38,000 per year

3. Veterinarian - Veterinarians are doctors for animals, including squirrels and other wildlife. They help sick or injured animals feel better and learn about what animals need to stay healthy. Some veterinarians work specifically with wildlife and zoo animals. Average Salary: $104,000 per year

NGSS Connections

- Performance Expectation: 2-LS4-1 - Make observations of plants and animals to compare the diversity of life in different habitats
- Disciplinary Core Ideas: 2-LS4.A - There are many different kinds of living things in any area, and they exist in different places on land and in water
- Crosscutting Concepts: Patterns - Patterns in the natural world can be observed and used as evidence

Science Vocabulary

* Habitat: The place where an animal lives and finds everything it needs to survive
* Foraging: The behavior of searching for and gathering food
* Adaptation: A special feature or behavior that helps an animal survive in its environment
* Omnivore: An animal that eats both plants and other animals
* Resources: Things in the environment that animals need to live, like food and water

External Resources

Children's Books:
- Nuts to You! by Lois Ehlert
- Squirrels Leap, Squirrels Sleep by April Pulley Sayre
- Those Darn Squirrels! by Adam Rubin