Grasshopper

Life Science | Lesson Guide

2nd Grade

Photo Description

A bright green grasshopper sits on top of a dried sunflower head. The grasshopper has long back legs, two antennae, and big eyes. The sunflower is brown and has lots of small seeds packed together in the center.

Scientific Phenomena

The anchoring phenomenon shown here is animal feeding behavior and habitat use. The grasshopper is positioned on the sunflower because it provides both food (seeds and plant material) and shelter. This represents how animals have specific body parts (structures) that help them get food and survive in their environment. The grasshopper's strong mandibles (jaws) can chew plant material, while its powerful hind legs allow it to jump to safety if needed.

Core Science Concepts

1. Animal Body Parts and Functions: Grasshoppers have specialized structures like strong hind legs for jumping, antennae for sensing, and chewing mouthparts for eating plants.

2. Plant-Animal Interactions: Animals depend on plants for food and shelter, showing how living things are connected in nature.

3. Animal Needs: All animals need food, water, shelter, and space to survive, and they use their body parts to meet these needs.

4. Habitat Requirements: Animals live in places that provide everything they need to survive.

Pedagogical Tip:

Use the "See-Think-Wonder" thinking routine with this image. Have students observe what they see, think about what's happening, and wonder about questions they have. This builds scientific thinking skills.

UDL Suggestions:

Provide magnifying glasses for students to examine real grasshoppers or detailed pictures. Create tactile models of grasshopper body parts using clay or pipe cleaners so all students can explore the structures through multiple senses.

Zoom In / Zoom Out

1. Zoom In: At the microscopic level, the grasshopper's mandibles have tiny cutting edges that work like scissors to slice through plant fibers. Special digestive enzymes in the grasshopper's stomach break down cellulose from plant cell walls.

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2. Zoom Out: This grasshopper is part of a larger food web where it serves as both a primary consumer (eating plants) and prey for birds, spiders, and other predators. The sunflower field ecosystem supports many interconnected species.

Discussion Questions

1. "What body parts help this grasshopper get food from the sunflower?" (Bloom's: Analyze | DOK: 2)

2. "How might this grasshopper's life be different if it lived in a desert instead of near sunflowers?" (Bloom's: Evaluate | DOK: 3)

3. "What do you notice about the grasshopper's legs, and how do you think they help it survive?" (Bloom's: Apply | DOK: 2)

4. "If you were designing an animal to live on sunflowers, what body parts would you give it?" (Bloom's: Create | DOK: 3)

Potential Student Misconceptions

1. Misconception: "All insects are bad and hurt plants."
Clarification: Many insects like grasshoppers are important parts of nature and help feed other animals. They only take what they need to survive.

2. Misconception: "Grasshoppers only eat grass."
Clarification: Grasshoppers eat many different plants including flowers, leaves, and seeds from various plants, not just grass.

3. Misconception: "The grasshopper is hurting the sunflower."
Clarification: The sunflower is already done growing and making seeds. The grasshopper is using it for food and shelter, which is natural behavior.

Cross-Curricular Ideas

1. Math - Counting and Measurement: Have students count the seeds visible on the sunflower head in the photo, or measure the length of a grasshopper using non-standard units (paper clips, blocks). Create bar graphs comparing the number of seeds eaten by different insects.

2. ELA - Creative Writing: Students can write from the grasshopper's perspective: "A Day in My Life on the Sunflower" or create a simple story about a grasshopper finding food. They can also label diagrams of grasshopper body parts using descriptive words (long, strong, green).

3. Art - Nature Collage: Students create collages using torn paper, magazine cutouts, or natural materials (dried leaves, seeds) to recreate the grasshopper and sunflower scene. This reinforces observation skills and color recognition while celebrating nature.

4. Social Studies - Living Things in Our Community: Take a nature walk around the school to find grasshoppers, sunflowers, or similar plants and insects in the local environment. Discuss how people and animals share the same spaces and why we should respect wildlife in our neighborhoods.

STEM Career Connection

1. Entomologist (Bug Scientist): An entomologist studies insects like grasshoppers to learn how they live, what they eat, and how they help or harm plants. They might work in a laboratory, museum, or outdoors to observe insects and teach other people about them. Average Salary: $63,500/year

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2. Farmer or Agricultural Scientist: Farmers and agricultural scientists grow plants like sunflowers and learn how to protect them from insects like grasshoppers. They decide when to plant crops, what soil to use, and how to keep plants healthy. Average Salary: $68,000/year

3. Wildlife Biologist: Wildlife biologists study how animals like grasshoppers live in nature and what they need to survive. They might work in parks or nature areas to make sure all the plants and animals stay healthy and connected. Average Salary: $66,500/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:
- Structure and Function - The shape and stability of structures of natural objects are related to their function.

Science Vocabulary

* Antennae: Long, thin body parts that help insects smell, touch, and sense their surroundings.
* Habitat: The natural place where an animal lives and finds everything it needs to survive.
* Mandibles: The strong jaw parts that grasshoppers use to bite and chew their food.
* Structure: A body part of a living thing that has a special job or function.
* Consumer: An animal that gets energy by eating plants or other animals.

External Resources

Children's Books:
- Grasshoppers by Cheryl Coughlan
- From Egg to Grasshopper by Shannon Zemlicka
- Are You a Grasshopper? by Judy Allen

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