Grasshopper

Life Science | Lesson Guide

1st Grade

Photo Description

A green grasshopper sits on top of a brown flower. The grasshopper has long back legs and two long yellow parts on its head. The flower looks dried up and has many tiny seeds.

Scientific Phenomena

This image represents the Anchoring Phenomenon of animal feeding behaviors and plant-animal interactions. The grasshopper is likely feeding on the sunflower seeds or resting on the flower head. This demonstrates how animals use plants as food sources and habitat. The grasshopper's body parts are specially designed for jumping, chewing, and sensing its environment, while the sunflower has completed its life cycle and now provides seeds that many animals depend on for food.

Core Science Concepts

1. Animal Body Parts and Functions: Grasshoppers have specialized body parts - strong hind legs for jumping, antennae for sensing, and mouthparts for chewing plant material.

2. Plant Life Cycles: The sunflower has moved from blooming to seed production, showing how plants complete their life cycle by making seeds.

3. Animal Needs: Like all animals, grasshoppers need food, water, and shelter to survive, and they get these from their environment.

Pedagogical Tip:

Use the "See, Think, Wonder" thinking routine with this image. Have students observe what they see, share what they think is happening, and ask questions about what they wonder. This builds scientific observation skills.

UDL Suggestions:

Provide magnifying glasses for students to examine real grasshoppers or sunflower heads if available. For students who need movement, have them practice grasshopper jumps to understand how those strong legs work.

Zoom In / Zoom Out

1. Zoom In: Inside the grasshopper's mouth are special parts called mandibles that work like tiny scissors to cut and chew plant parts. The grasshopper's compound eyes are made of many tiny lenses that help it see in all directions.

2. Zoom Out: This grasshopper is part of a larger food web where it eats plants and may become food for birds, spiders, or other predators. The sunflower seeds will also feed birds, squirrels, and other animals, connecting many living things together.

Discussion Questions

1. What body parts help the grasshopper live on this flower? (Bloom's: Analyze | DOK: 2)

2. How do you think the grasshopper's legs help it every day? (Bloom's: Apply | DOK: 2)

3. What do you notice about how the grasshopper's body parts are different from your body parts? (Bloom's: Compare | DOK: 1)

4. Why might this sunflower be important to different animals? (Bloom's: Evaluate | DOK: 3)

Potential Student Misconceptions

1. Misconception: "Grasshoppers are harmful bugs that only eat our garden plants."
Clarification: Grasshoppers are important parts of nature that help break down plant material and provide food for other animals.

2. Misconception: "The flower is dead and useless now."
Clarification: The sunflower has finished blooming but is now in its seed stage, which is very important for feeding animals and making new plants.

Cross-Curricular Ideas

1. Math - Counting and Patterns: Have students count the seeds on the sunflower head and create patterns using yellow and brown colors to match the flower. They can also count grasshopper legs (6) and compare to how many legs humans have (0 legs, 2 feet).

2. ELA - Descriptive Writing: Students can draw and label the grasshopper using descriptive words (green, bumpy, long, yellow). Create simple sentences like "The grasshopper is green. It has long legs. It sits on the flower."

3. Art - Nature Collage: Students can create a collage using real or paper grasshoppers and sunflowers. They can paint or color grasshoppers with different patterns and create textured flowers using seeds, sand, or crumpled paper.

4. Social Studies - Habitats Around Us: Take students on a nature walk to observe grasshoppers and flowers in your school garden or nearby park. Discuss where these animals live and what plants grow in your community.

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 nature. They might work outside catching and observing bugs or in a lab with microscopes. Average Salary: $65,000 per year

2. Botanist (Plant Scientist): A botanist studies plants like sunflowers to learn how they grow, make seeds, and help animals survive. They work in gardens, farms, or laboratories to understand plants better. Average Salary: $63,000 per year

3. Wildlife Biologist: A wildlife biologist studies how animals like grasshoppers and plants like sunflowers work together in nature. They help protect animals and their habitats so they stay healthy and safe. Average Salary: $68,000 per year

NGSS Connections

- Performance Expectation: 1-LS1-1 - Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
- Disciplinary Core Idea: 1-LS1.A - All organisms have external parts that they use to perform daily functions.
- Crosscutting Concept: Structure and Function - The shape and stability of structures of natural objects are related to their function.

Science Vocabulary

* Grasshopper: An insect that can jump high with its strong back legs
* Antennae: Long parts on an insect's head that help it smell and feel things
* Seeds: The parts of a plant that can grow into new plants
* Habitat: The place where an animal lives and finds what it needs

External Resources

Children's Books:
- The Very Quiet Cricket by Eric Carle
- From Seed to Sunflower by Wendy Pfeffer
- Grasshoppers by Cheryl Coughlan