Grasshopper Eating Hibiscus Bud

1st Grade

Life Science | Lesson Guide

Photo Description

A green grasshopper is eating a red flower bud. The grasshopper has big eyes and strong legs. It is sitting on green leaves and using its mouth to bite the flower.

Scientific Phenomena

The Anchoring Phenomenon is herbivory - a grasshopper feeding on plant material. This is happening because grasshoppers are primary consumers that obtain energy and nutrients by eating plants. The grasshopper's specialized mouthparts (mandibles) allow it to chew and consume the hibiscus bud, which provides carbohydrates, proteins, and other essential nutrients needed for the insect's growth, reproduction, and survival.

Core Science Concepts

1. Animals need food to survive - The grasshopper must eat plants to get energy and grow
2. Body parts help animals get food - The grasshopper has strong jaws for chewing and legs for holding onto plants
3. Animals and plants live together - The grasshopper depends on plants for food in its habitat
4. Living things interact with each other - Plants provide food for animals like grasshoppers

Pedagogical Tip:

Use the "Think-Pair-Share" strategy when introducing this image. Have students first observe quietly, then discuss with a partner what they notice, before sharing with the whole class. This builds observation skills and confidence.

UDL Suggestions:

Provide multiple ways for students to engage with this concept by offering magnifying glasses for detailed observation, allowing students to act out being a grasshopper eating, and providing both verbal descriptions and visual diagrams of animal body parts.

Zoom In / Zoom Out

1. Zoom In: Inside the grasshopper's mouth are strong, cutting teeth called mandibles that work like scissors to slice through plant material. The grasshopper's digestive system breaks down the plant cells to release nutrients.

2. Zoom Out: This feeding relationship is part of a larger food web where grasshoppers are prey for birds, spiders, and other predators. When grasshoppers eat plants and are then eaten by other animals, energy flows through the ecosystem.

Discussion Questions

1. What body parts does the grasshopper use to get its food? (Bloom's: Identify | DOK: 1)

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

3. What might happen to the grasshopper if there were no plants around? (Bloom's: Analyze | DOK: 3)

4. How is the way a grasshopper eats different from how you eat? (Bloom's: Compare | DOK: 2)

Potential Student Misconceptions

1. Misconception: "All bugs are bad and hurt plants"
   Clarification: Many insects like grasshoppers are natural parts of ecosystems and help balance nature by being food for other animals

2. Misconception: "The grasshopper is killing the plant"
   Clarification: Plants can usually survive losing some leaves or buds, and this is a normal part of how nature works

3. Misconception: "Grasshoppers eat everything"
   Clarification: Grasshoppers only eat plants - they are herbivores with special body parts just for eating plant material

Cross-Curricular Ideas

1. Math - Counting and Patterns: Have students count the legs on the grasshopper (6 legs) and look for patterns in nature. Create simple bar graphs showing "How many legs do different animals have?" Students can compare grasshoppers to spiders (8 legs), insects (6 legs), and other creatures.

2. ELA - Descriptive Writing: Read aloud books about grasshoppers, then have students draw their own grasshopper and write or dictate 1-2 sentences describing what they see. Use sensory words like "bumpy," "green," "crunchy," and "tiny" to build vocabulary.

3. Art - Nature Collage: Students create a grasshopper and flower habitat using colored paper, leaves, and natural materials. This combines art with science understanding of where grasshoppers live and what they eat, while developing fine motor skills.

4. Social Studies - Living Things in Our Community: Take a nature walk around the school or playground to observe insects and plants in the local habitat. Discuss how different living things share the same space and depend on each other, building awareness of the natural world in their community.

STEM Career Connection

1. Entomologist (Bug Scientist): An entomologist is a scientist who studies insects like grasshoppers. They observe how insects live, what they eat, and how they help or hurt plants. They work outside in nature and in laboratories using microscopes to learn about tiny creatures. Average Annual Salary: $65,000

2. Farmer: Farmers grow plants like vegetables, flowers, and grains. They need to know about grasshoppers and other insects because some eat their crops. Farmers learn which insects help their plants grow and which ones cause problems. Average Annual Salary: $75,000

3. Ecologist: An ecologist is a scientist who studies how animals and plants live together in nature. They learn about food chains, habitats, and how grasshoppers fit into the ecosystem. Ecologists help protect animals and plants so they can all survive together. Average Annual Salary: $70,000

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 Ideas:
- 1-LS1.A - All organisms have external parts that they use to perform daily functions

Crosscutting Concepts:
- Structure and Function - The shape and stability of structures of natural objects are related to their function

Science Vocabulary

* Herbivore: An animal that only eats plants
* Habitat: The place where an animal lives and finds everything it needs
* Mandibles: The strong jaws that insects use to bite and chew food
* Consumer: A living thing that gets energy by eating other living things
* Nutrients: The good parts of food that help living things grow and stay healthy

External Resources

Children's Books:
- Waiting for Wings by Lois Ehlert
- What Do Insects Do? by Susan Canizares
- From Egg to Grasshopper by Shannon Zemlicka