Insect Characteristics

Life Science | Lesson Guide

3rd Grade

Photo Description

This image shows a green grasshopper sitting on a plant leaf. The grasshopper has a long body with six legs, two long antennae (feelers) on its head, and powerful back legs that help it jump. You can see its bumpy, textured skin and the way it grips the leaf with its feet.

Scientific Phenomena

Anchoring Phenomenon: Why does a grasshopper have long back legs and antennae?

Grasshoppers have evolved specific body parts that help them survive in their environment. Their long, powerful hind legs allow them to jump away from predators quickly—sometimes 20 times their own body length! Their long antennae act as sensory organs, helping grasshoppers detect vibrations, smell, and sense their surroundings. Their green coloring helps them blend in with plants (camouflage), making it harder for predators to find them. These are adaptations—inherited traits that help living things survive and thrive in their habitats.

Core Science Concepts

* Insect Body Parts: All insects have three main body sections (head, thorax, abdomen), six legs, and antennae. These parts help insects survive and move through their world.

* Adaptations: Grasshoppers' long legs, antennae, and green color are special features that help them survive. Different insects have different adaptations based on where they live.

* Life Cycles & Growth: Grasshoppers go through changes as they grow (called metamorphosis). They start as eggs, hatch into nymphs (baby grasshoppers), and eventually become adults.

* Habitats & Needs: Grasshoppers live where they can find plants to eat and places to hide. They need food, water, shelter, and safety to survive.

Pedagogical Tip:

Use the "observe, describe, wonder" routine with this image. Have students first observe without talking (30 seconds), then describe what they see using specific detail words, then ask what they wonder about. This builds scientific vocabulary and curiosity before diving into instruction.

UDL Suggestions:

Provide multiple ways for students to engage with insect content: (1) Visual—show real insects or high-quality photos; (2) Kinesthetic—have students act out how grasshoppers jump or use their antennae; (3) Tactile—if safe and age-appropriate, let students feel textures (sandpaper, pipe cleaners) that mimic insect body parts. Offer choice in how students demonstrate learning (drawing, writing, verbal explanation, or acting).

Discussion Questions

1. What body parts do you see on the grasshopper, and how might each one help it survive? (Bloom's: Analyze | DOK: 2)

2. Why do you think the grasshopper is green instead of red or blue? (Bloom's: Infer | DOK: 2)

3. If a grasshopper didn't have long back legs, how might its life be different? (Bloom's: Evaluate | DOK: 3)

4. How is a grasshopper's body similar to and different from an ant's body? (Bloom's: Compare | DOK: 2)

Extension Activities

1. Insect Detective Hunt: Take students outside to search for real insects (grasshoppers, crickets, beetles, ants). Have them observe and sketch one insect, labeling the head, thorax, abdomen, legs, and antennae. Back in class, compare drawings and discuss which adaptations help each insect survive. Safety note: Supervise closely and remind students to observe insects respectfully without harming them.

2. Build a Grasshopper Model: Provide craft materials (pipe cleaners, paper, string, paint) and have students create a 3D grasshopper model. They should label at least three body parts and explain one adaptation in writing or verbally.

3. Grasshopper Jump Challenge: Mark distances on the floor (1 foot, 2 feet, 3 feet, etc.). Have students practice jumping like a grasshopper and measure how far they can jump. Compare this to how far a real grasshopper jumps proportionally. Create a chart showing that grasshoppers can jump 20 times their body length—a superpower! Safety note: Use a padded gym area or carpet and ensure adequate space.

NGSS Connections

Performance Expectation:
3-LS1-1: Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

Disciplinary Core Ideas:
* 3-LS1.B Growth and Reproduction of Organisms
* 3-LS4.A Inheritance of Traits
* 3-LS4.C Adaptation

Crosscutting Concepts:
* Patterns—Insects show patterns in body structures and behaviors
* Structure and Function—Body parts help grasshoppers do what they need to survive

Science Vocabulary

* Adaptation: A body part or behavior that helps an animal survive in its home. (Example: A grasshopper's long legs are an adaptation for jumping away from danger.)

* Antennae: Long, thin feelers on an insect's head that help it sense smells and vibrations. (The word for one antenna is antenna.)

* Thorax: The middle section of an insect's body where the legs and wings are attached.

* Camouflage: Colors or patterns on an animal's body that help it hide by blending in with its surroundings.

* Habitat: The natural home of a plant or animal where it finds food, water, and shelter.

* Metamorphosis: Big changes in an animal's body as it grows from a baby to an adult.

External Resources

Children's Books:
Grasshopper on the Road* by Arnold Lobel (classic beginner reader about grasshopper adventures)
The Very Hungry Caterpillar* by Eric Carle (excellent for understanding insect metamorphosis)
Insects* by National Geographic Kids (colorful photo guide with real insect pictures)

YouTube Videos:
* "How to Identify Insects" by Crash Course Kids (2:32) — Clearly explains the three body parts and six legs of all insects with real examples. URL: https://www.youtube.com/watch?v=DjLDZVkbKIc

* "Grasshopper Life Cycle" by National Geographic Kids (3:45) — Shows how grasshoppers grow from eggs to nymphs to adults with real footage. URL: https://www.youtube.com/watch?v=A8sF2eE1NLQ

Teacher Tip: Start with the anchoring phenomenon (the image), allow student wonder and questions to guide your instruction, and circle back to the image at the end to see how much students' thinking has grown. This approach deepens engagement and scientific reasoning!