

Photo Description



This image shows a green grasshopper resting on a plant leaf. You can see the grasshopper's body has three main parts: a head with big eyes and long antennae, a middle section called the thorax where the legs attach, and a back section called the abdomen. The grasshopper has six legs and can jump very far because its back legs are extra large and muscular.

Scientific Phenomena

Anchoring Phenomenon: Why does this grasshopper have such large back legs?

Grasshoppers have evolved powerful back legs because they use jumping as their primary method of movement and escape from predators. The large muscles in the hind legs store energy and release it quickly, allowing grasshoppers to jump many times their own body length. This adaptation helps them survive in their environment by allowing them to move quickly through vegetation and escape danger. Young students can observe that the back legs are noticeably bigger and different from the front and middle legs—this is a visible example of how animals' body parts are designed for specific jobs.

Core Science Concepts

- * All insects have three body parts: Every insect has a head (with eyes, antennae, and mouth), a thorax or middle section (where legs attach), and an abdomen (the back section). This grasshopper clearly shows all three parts.
- * Insects have six legs: Unlike spiders (which have 8) or other creatures, all insects have exactly six legs. This grasshopper has three pairs of legs—two pairs in front and one pair in back.
- * Body parts have specific jobs: The grasshopper's long antennae help it sense its environment, its eyes help it see, and its powerful back legs help it jump away from danger. Each part does an important job.
- * Animals are adapted to their environment: The grasshopper's green color helps it hide in plants, and its strong jumping legs help it escape predators and move through grassy areas where it lives.

Pedagogical Tip:

When teaching insect body parts to second graders, use the phrase "Head, Thorax, Abdomen" as a memorable chant or rhythm. Have students count the legs together ("1, 2, 3, 4, 5, 6!") and point to each body part on the image or a model. This multi-sensory approach reinforces learning and keeps young learners engaged.

UDL Suggestions:

To support diverse learners: (1) Provide a labeled diagram or poster of a grasshopper that students can reference and touch; (2) Allow students to observe real insects (in a safe, contained setting) or use high-quality videos if live specimens aren't available; (3) Offer both verbal descriptions and visual representations so auditory and visual learners both benefit; (4) Use actual insects or large 3D models so students with visual impairments can explore through touch.

Discussion Questions

1. What do you notice about the grasshopper's back legs compared to its front legs? Why do you think they are different? (Bloom's: Analyze | DOK: 2)
2. How do you think the grasshopper's long antennae help it find food or stay safe? (Bloom's: Evaluate | DOK: 3)
3. If you look at other insects like ants or beetles, do you think they will have the same three body parts as this grasshopper? Why or why not? (Bloom's: Create | DOK: 3)
4. How does the grasshopper's green color help it survive in a garden or field? (Bloom's: Understand | DOK: 2)

Extension Activities

1. Insect Hunt and Observation: Take students on a safe, supervised outdoor exploration to find different insects (grasshoppers, beetles, ants, flies). Have them draw or photograph the insects they find and count the legs on each one. Back in the classroom, create a chart together showing "Insects with 6 Legs" and discuss what they observed.
2. Build a Grasshopper Model: Provide students with craft materials (pipe cleaners, paper cups, beads, paint) to build a model grasshopper with the three body parts clearly labeled. Have students color it green or brown to match real grasshoppers. Display the models and have classmates identify the body parts on each model.
3. Jump Like a Grasshopper: In a safe indoor or outdoor space, have students practice jumping and see how far they can leap. Then discuss: "If grasshoppers can jump 20 times their body length, how many times longer can they jump than you?" This makes the concept of adaptation concrete and fun.

NGSS Connections

Performance Expectation: 2-LS1-1 Plan and conduct investigations to provide evidence that plants get the energy they need to grow chiefly from sunlight; plants get water through their roots.

Disciplinary Core Ideas:

- 2-LS1.A Structure and Function (insects have specific body structures that help them survive)
- 2-LS4.D Biodiversity and Humans (different animals have different body structures suited to where they live)

Crosscutting Concepts:

- Structure and Function (the grasshopper's body parts are shaped and sized for specific purposes)
- Patterns (all insects follow the pattern of having 6 legs and 3 body parts)

Science Vocabulary

- * Antennae: Long, thin feelers on an insect's head that help it sense things like smell and touch.
- * Thorax: The middle section of an insect's body where all six legs are attached.
- * Abdomen: The back section of an insect's body that contains the stomach and other important organs.
- * Adapt: When an animal's body or behavior changes over time to help it survive better in its home.
- * Predator: An animal that hunts and eats other animals for food.

External Resources

Children's Books:

- Grasshoppers by Nic Bishop (Scholastic Press) — Beautifully illustrated nonfiction book with close-up photos and simple facts about grasshopper body parts and behavior.
- The Very Hungry Caterpillar by Eric Carle (World of Eric Carle) — While about a caterpillar, this book teaches insect life cycles and metamorphosis in an engaging, repetitive format.
- Insects by Rebecca Stefoff (Benchmark Books) — Simple informational text with labeled diagrams of common insects, perfect for second grade.

YouTube Videos:

- "Insect Body Parts for Kids" by Amoeba Sisters (2:45 minutes) — A colorful, animated explanation of the three main insect body parts with clear graphics. <https://www.youtube.com/watch?v=JQXvLJfkCVo>
- "What Makes an Insect an Insect?" by National Geographic Kids (3:15 minutes) — Engaging real footage of grasshoppers and other insects demonstrating the six-leg characteristic. <https://www.youtube.com/watch?v=K8G3T6Ylvbc>

Additional Coaching Note: This image is an excellent anchor for teaching observable insect characteristics because the grasshopper's features are clear, colorful, and directly visible. Encourage your students to be "scientists" by noticing details: the bumpy skin texture, the size of the eyes, the curve of the antennae. Observation is the foundation of all science!