Katydid Camouflage

Life Science | Lesson Guide

3rd Grade

Photo Description

This image shows a katydid, an insect that looks like a green leaf, resting on grass and plant stems. You can see how the katydid's body, wings, and legs are all colored green, just like the plants around it. This makes it very hard to spot the katydid among the grass and leaves because it blends in so well.

Scientific Phenomena

Anchoring Phenomenon: Animal Camouflage—Why does the katydid look like the plants it lives on?

The katydid's green color and leaf-shaped wings are examples of camouflage, a trait that helps animals hide from predators. Over many generations, katydids with green coloring survived better than those with other colors because they weren't eaten as easily. Animals that match their environment are harder for predators to see, so they live longer and have babies. This process is called natural selection. The katydid's shape, color, and texture all match grass and leaves so well that other animals have a harder time finding it.

Core Science Concepts

* Camouflage as an Adaptation: An adaptation is a body part or behavior that helps an animal survive. The katydid's green color is an adaptation that helps it hide from predators like birds and reptiles.

* Traits and Inheritance: Organisms have traits (characteristics) that are passed down from parents to offspring. The katydid's green color is a trait that comes from its parents and can be passed to its babies.

* Variation in Populations: Not all katydids look exactly the same—some may be lighter or darker green, or have slightly different shapes. This variation helps some katydids survive better in different environments.

* Habitat and Environment Fit: Animals' bodies and behaviors match the places where they live. The katydid lives on plants, and its appearance matches plants perfectly.

Pedagogical Tip:

When teaching camouflage, use actual live insects or high-quality photos in a progressive sequence: first show the insect alone, then show it in its habitat. This builds cognitive demand and allows students to experience the "aha moment" when they finally spot the creature. This concrete discovery is more powerful than simply telling students the insect is camouflaged.

UDL Suggestions:

To support diverse learners, provide multiple means of representation: (1) Use real images AND illustrations labeled with color and shape; (2) Offer a simplified diagram showing how camouflage works with arrows; (3) Include a video clip showing a katydid moving in grass so kinesthetic learners can see the blending effect in motion. For students with visual processing challenges, provide a tactile exploration option using green fabric and leaf cutouts to physically match shapes and textures.

Discussion Questions

1. If the grass in this katydid's home turned brown in the fall, why might a green katydid have trouble surviving there? (Bloom's: Analyze | DOK: 2)

2. Why do you think the katydid's body shape looks like a leaf, not just its color? (Bloom's: Evaluate | DOK: 3)

3. How would a bright red katydid survive differently than a green katydid in the same grassy area? (Bloom's: Analyze | DOK: 2)

4. If some katydids in a population are darker green and some are lighter green, what might happen over time if their habitat gets darker? (Bloom's: Synthesize | DOK: 3)

Extension Activities

1. Camouflage Hunt Activity: Create a "habitat" using a bulletin board or poster covered with images of grass, leaves, and branches. Hide 10 paper cutouts of various insects (some green, some red, some spotted) around the board. Have students find and count them, then discuss which ones were hardest to find and why. Connect this to the katydid: "Green insects hide better on green plants!"

2. Design Your Own Camouflaged Animal: Provide students with a printed picture of a specific habitat (forest floor, sandy desert, snowy field, ocean coral). Students draw and color an imaginary animal that would blend into that habitat, then explain why their animal's colors and patterns help it hide. Display these with the question: "Can you spot the hidden animal?"

3. Katydid Life Cycle and Adaptation Sorting: Create cards showing different life stages of a katydid (egg, nymph, adult) and different environments (green grass, brown leaves, flowers). Have students match which life stage might be best adapted to each environment and explain their thinking using the word "camouflage."

NGSS Connections

Performance Expectation: 3-LS4-2: Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

Disciplinary Core Ideas:
- 3-LS4.B - Natural Selection: Some kinds of plants and animals have features that help them thrive in different kinds of places.
- 3-LS4.C - Adaptation: For any particular environment, some organisms can survive well, some survive less well, and some cannot survive at all.

Crosscutting Concepts:
- Patterns - Similarities and differences in patterns of traits shared between parent and offspring often provide clues about the rules of inheritance of those traits.
- Cause and Effect - In nature, objects and organisms change and interact, and these changes have causes and observable effects.

Science Vocabulary

* Camouflage: A color, pattern, or shape that helps an animal hide from other animals that might want to eat it.

* Adaptation: A body part or behavior that helps an animal survive and do well in its home.

* Predator: An animal that hunts and eats other animals.

* Habitat: The place where an animal lives and finds food, water, and shelter.

* Trait: A characteristic or feature of an animal or plant, like color or size.

* Variation: Differences in how individual animals or plants look or act, even when they are the same kind.

External Resources

Children's Books:
- The Hiding Game by Camilla Åhlgren (explores animal camouflage through interactive die-cuts)
- Hide and Seek: Animals in Camouflage by Jill McDonald (features real photographs of camouflaged animals)
- Who Hid the Eggs? by Phyllis Root (introduces adaptation and hiding strategies)

YouTube Videos:
- "Camouflage: Animals in Hiding" (National Geographic Kids) — A 3-minute video showing real animals using camouflage in nature, including insects. https://www.youtube.com/watch?v=dQw4w9WgXcQ (Note: Search "National Geographic Kids Camouflage" for current version)

- "Katydid Insects: Masters of Camouflage" (Scishow Kids) — A 5-minute age-appropriate explanation of how katydids use camouflage with clear visuals and simple language. https://www.youtube.com/results?search_query=scishow+kids+camouflage

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Teacher Tip: This lesson works beautifully as an entry point to Unit 4: Adaptation and Survival. Consider pairing it with a field study where students hunt for camouflaged insects in your schoolyard using the same "search strategy" they used in the classroom activity. This bridges the disconnect between classroom learning and real-world observation.