Katydid Camouflage

Life Science | Lesson Guide

2nd Grade

Photo Description

This image shows a katydid (a grasshopper-like insect) resting on green plant stems and leaves. The katydid's body is bright green, which helps it blend in with the surrounding plants. You can see its long legs, wings, and antennae clearly in the photo.

Scientific Phenomena

Anchoring Phenomenon: Camouflage—Why an animal's color and shape help it hide from predators.

The katydid appears green because of natural selection and adaptation. Over many generations, katydids with green coloring survived better than those with other colors because predators had a harder time seeing them among green plants. This trait was passed down to offspring, so today most katydids are green. This is protective coloration—the insect's color matches its environment, making it harder for birds and other predators to spot it. The katydid's long, thin body shape also mimics the stems and leaves it lives on, providing additional camouflage.

Core Science Concepts

* Adaptation: A body part or behavior that helps an animal survive in its environment. The katydid's green color is an adaptation that helps it hide from predators.

* Camouflage (Protective Coloration): When an animal's color, pattern, or shape blends in with its surroundings so predators cannot see it easily.

* Predator and Prey Relationships: Predators (like birds) hunt prey (like katydids). Animals with better camouflage are less likely to be caught, so they survive and have babies that inherit the same helpful traits.

* Inherited Traits: Characteristics that an animal gets from its parents, like green color. Traits that help animals survive are more likely to be passed to the next generation.

Pedagogical Tip:

When teaching camouflage to Second Graders, use a concrete "hide and seek" analogy: "The katydid plays hide and seek with birds every day. Its green color is like wearing a green shirt to hide in the grass!" This relatable comparison helps young learners understand why camouflage matters without overwhelming them with complex evolutionary language.

UDL Suggestions:

To support diverse learners: (1) Provide real specimens or high-quality photos of katydids in different environments; (2) Offer hands-on materials (colored paper, leaves, twigs) so kinesthetic learners can create their own camouflaged insects; (3) Use picture books and video clips alongside text to engage visual and auditory learners; (4) Allow students to respond through drawing, speaking, or acting out predator-prey scenarios rather than only written responses.

Zoom In / Zoom Out

Zoom In: The Cellular Level
If we could look at a katydid's skin under a powerful microscope, we would see tiny structures called cells that contain a green pigment (a colored substance) called chlorophyll—the same pigment that makes plants green! The katydid's cells produce this green color, which helps it match the plants it lives on. Scientists study these tiny cells to understand how animals get their colors and how those colors help them survive.

Zoom Out: The Ecosystem Connection
The katydid is just one animal in a large community called an ecosystem. In a meadow or garden ecosystem, green plants grow and produce food. Katydids eat the plants. Birds and other predators hunt katydids. The katydid's green camouflage is important to this whole system: if predators could easily catch all the katydids, there would be fewer katydids for birds to eat, and the balance of the ecosystem would change. Camouflage helps keep the ecosystem in balance by allowing some katydids to survive and reproduce, which keeps the food chain going.

Discussion Questions

1. Why do you think the katydid is green instead of bright red or blue? (Bloom's: Analyze | DOK: 2)

2. If a katydid lived on brown tree bark instead of green leaves, what color do you think it would be, and why? (Bloom's: Synthesize | DOK: 3)

3. What animals do you think hunt katydids, and how does being green help the katydid stay safe? (Bloom's: Understand | DOK: 2)

4. Can you think of another animal that is colored to match where it lives? How does its color help it survive? (Bloom's: Apply | DOK: 2)

Potential Student Misconceptions

Misconception 1: "The katydid turned green because it needed to hide."
Clarification: The katydid didn't choose to become green or change color to hide. Instead, over many, many years, katydids that were naturally born green were better at hiding and survived longer. Those green katydids had babies that were also green. The ones that were born different colors got caught by predators more often, so fewer of them had babies. This is why most katydids today are green—it's not something they decided, but something that happened over time through nature.

Misconception 2: "All insects that live on plants are green."
Clarification: Not all insects on plants are green! Some insects are brown, yellow, striped, or spotted. These insects live on different parts of plants (like bark, flowers, or soil) where their colors help them hide. A brown insect would stick out like a sore thumb on a green leaf, just like a green insect would be easy to see on brown bark. Each insect's color matches the place where it spends most of its time.

Misconception 3: "The katydid's color is always the same."
Clarification: While most katydids are green, some katydids can be born with slightly different shades of green or even pink or yellow. These different-colored katydids are harder for predators to find, so they don't survive as long. Over time, the greenest katydids are the most successful at hiding and having babies, so the greenest color becomes the most common in the katydid population.

Extension Activities

1. Camouflage Hunt Game: Hide colored paper cutouts of insects (green, yellow, red, blue) among real plants outdoors or in a classroom nature display. Have students find the insects and discuss which colors were easiest and hardest to find. Connect this to why green katydids are harder for predators to spot on green plants.

2. Design Your Own Camouflaged Insect: Provide students with craft materials (colored paper, markers, pipe cleaners, fabric scraps) and have them create an insect and choose a habitat for it (forest, desert, snow, sand, mud). Students must color and design their insect to match the habitat. Display the insects in their habitats and have classmates guess what the insect looks like before revealing it.

3. Katydid Observation Journal: If possible, set up a live katydid observation station (or show video clips of katydids in nature). Have students draw the katydid and write or dictate observations about its color, where it rests, and how it moves. Encourage them to notice how the katydid's shape and color help it hide.

Cross-Curricular Ideas

ELA Connection: Camouflage Storytelling
Have students create a simple narrative story from the perspective of a katydid: "One day, a bird came looking for me, but she couldn't find me because…" Students can dictate or write their stories and illustrate them with drawings showing the katydid hidden among plants. This combines narrative writing with scientific thinking about adaptation and survival.

Math Connection: Counting and Hiding
Create a hands-on activity where you hide green and red paper cutout "insects" in a grassy area or plant display. Have students count how many of each color they can find in one minute. Graph the results and discuss: "Which color was easier to find? Why?" This teaches data collection, graphing, and logical reasoning while reinforcing the camouflage concept.

Art Connection: Habitat Camouflage Collage
Students choose a habitat (forest, desert, ocean, snow) and create a collage using colored paper, fabric, natural materials, and markers to represent that environment. Then they design and color a paper insect or animal that would be camouflaged in that habitat. Display the artwork and have classmates try to spot the hidden animals, creating a gallery walk discussion about adaptation across different environments.

Social Studies Connection: Exploring Different Habitats Around the World
Show students pictures of different habitats (rainforest, grassland, mountain, arctic tundra) and discuss what animals live there and what colors they are. Ask: "Why do animals in the snow look different from animals in the jungle?" This connects to geography, cultural awareness of different ecosystems, and global biodiversity while deepening understanding of how camouflage works in various places.

STEM Career Connection

Wildlife Biologist / Entomologist
What they do: Wildlife biologists study animals in nature, and entomologists are scientists who specialize in studying insects like katydids. They watch insects outdoors, take notes and photos, and learn how insects survive, eat, and have babies. They might count katydids in a field, study their colors, or learn what eats them. Their discoveries help us understand and protect nature.
Average Annual Salary: $65,000–$70,000 USD

Nature Photographer

What they do: Nature photographers take beautiful pictures of animals and plants in the wild, including insects like katydids. They use special cameras and spend time outdoors waiting for the perfect moment to photograph animals in their natural habitats. Their photos are used in books, magazines, websites, and museums to teach people about nature and help scientists study camouflage and animal behavior.
Average Annual Salary: $45,000–$65,000 USD

Environmental Scientist / Conservation Specialist
What they do: These scientists protect habitats and the animals that live in them. They study ecosystems to understand how animals like katydids survive and make sure there are healthy plants and safe spaces for them to live. They might work to protect meadows and gardens so katydids and other insects have places to hide and thrive.
Average Annual Salary: $63,000–$75,000 USD

NGSS Connections

Performance Expectation:
2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.

Disciplinary Core Ideas:
* 2-LS4.A — Every organism has different traits, and sometimes traits help animals survive in their environment (camouflage, color, shape).
* 2-LS4.D — There are many kinds of living things in any area, and they exist in different places because of the traits that help them survive there.

Crosscutting Concepts:
* Patterns — The pattern of green color matching green plants shows how nature provides patterns that help animals survive.
* Structure and Function — The katydid's body shape and color (structure) allow it to hide and survive (function).

Science Vocabulary

* Camouflage: Colors, patterns, or shapes that help an animal hide by blending in with its surroundings.

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

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

* Prey: An animal that is hunted and eaten by other animals.

* Trait: A characteristic or feature of an animal's body, like its color, size, or shape.

* Blend In: To match or mix with the colors and patterns around something so it is hard to see.

External Resources

Children's Books:
The Mixed-Up Chameleon* by Eric Carle — A story about a chameleon that changes colors, exploring color and camouflage in an engaging, illustrated format.
Hiding* by DK Findout (or similar non-fiction picture books about animal camouflage) — Simple, photo-based explanations of how different animals use camouflage.
Who Hides?* by Yuki Kiuchi — A picture book exploring how different animals use camouflage in nature.

Teacher Notes: This lesson uses the katydid as an "anchor" to explore adaptation and camouflage—big ideas in Second Grade life science. By connecting the visible green color to survival advantages, students develop early understanding of natural selection without complex terminology. Encourage outdoor observations and hands-on activities to deepen engagement.