Katydid Camouflage

Life Science | Lesson Guide

Kindergarten

Photo Description

This image shows a green katydid (a large grasshopper-like insect) sitting on green grass and plant stems. The katydid's body and wings are almost the same color as the plants around it, making it very hard to see. The katydid has long legs, long antennae, and wings that look like leaves.

Scientific Phenomena

Anchoring Phenomenon: Camouflage

This image illustrates camouflage—when an animal's color or shape helps it blend in with its environment. The katydid's green color matches the green plants around it, which helps keep it safe from predators (animals that hunt it). This happens because katydids that match their environment are harder to find and eat, so they survive longer and have babies. Over many, many years, katydids developed green coloring through a process called natural selection.

Core Science Concepts

* Camouflage: Animals can hide by blending in with their surroundings using color and shape.

* Adaptation: Special features that help animals survive in their homes. A katydid's green color is an adaptation that helps it hide.

* Predator and Prey: Some animals hunt other animals for food. Katydids must hide from predators to stay safe.

* Habitat: The place where an animal lives. Katydids live in grassy, leafy areas where green helps them blend in.

Pedagogical Tip:

For Kindergarteners, focus on the concrete observation first: "Can you find the katydid in the grass?" This engages their natural curiosity before introducing the "why" (it hides because of its color). Use the photo as a visual puzzle rather than diving into evolutionary language. Repeat the word "camouflage" consistently so students build familiarity with scientific vocabulary through repetition and context.

UDL Suggestions:

Representation: Provide a printed photo of the katydid image alongside a highlighted or circled version showing where the insect is located. This supports students with visual processing differences. Consider also describing the image aloud ("I see green leaves, green stems, and a green insect that looks like a leaf").

Action & Expression: Allow students to show their learning through multiple modalities—pointing, drawing, acting out (pretending to hide), or verbally describing what they see. Not all students will be ready to write or speak formally; some may express understanding through movement or dramatic play.

Engagement: Connect to students' real-world experience: "Have you ever played hide-and-seek? This katydid plays hide-and-seek every day to stay safe!"

Zoom In / Zoom Out

Zoom In: The Katydid's Skin (Microscopic Level)

If we could look at the katydid's skin under a super-powerful microscope, we would see millions of tiny structures that make the color green. These structures are so small we cannot see them with our eyes! The katydid's body produces a green pigment (like natural paint) in these tiny structures. This special green pigment developed over many, many years because katydids with greener bodies survived longer and had babies. Their babies were green too! This process happens at a level so small that we need special tools to see it—but it's why the katydid looks green today.

Zoom Out: The Grassland Ecosystem

When we zoom out and look at the bigger picture, the katydid is just one part of a whole community of living things. The katydid needs the grass and plants to hide in and to eat. Birds and spiders are predators that hunt katydids. When katydids hide successfully, they survive and eat plants. When birds and spiders catch katydids, they eat them for food and stay healthy. All of these living things—plants, katydids, birds, spiders, and many others—depend on each other in the grassland ecosystem. If all the grass disappeared, the katydids would have nowhere to hide or eat, and the birds would have no katydids to hunt. Everything in nature is connected!

Discussion Questions

1. "Why is it hard to see the katydid in the grass?" (Bloom's: Understand | DOK: 1)

2. "How does the katydid's green color help it stay safe?" (Bloom's: Analyze | DOK: 2)

3. "What do you think would happen if this katydid lived on a brown tree instead of green grass?" (Bloom's: Evaluate | DOK: 3)

4. "What other animals do you know that blend in with where they live?" (Bloom's: Remember | DOK: 1)

Potential Student Misconceptions

Misconception 1: "The katydid turned green because it wanted to hide."

Scientific Clarification: The katydid didn't choose to be green or decide to hide. Over a very long time, katydids that were naturally green (born that way) survived better than katydids that were other colors because they were harder for predators to see. Those green katydids had babies that were also green. This happened over many, many years—not because the katydid wanted it to happen, but because nature selected the colors that worked best for survival.

Misconception 2: "All green bugs are katydids, and all katydids are the same."

Scientific Clarification: There are many different kinds of green insects—some are grasshoppers, some are crickets, some are katydids, and some are other bugs. Katydids come in different sizes and shapes too. The katydid in this photo is just one type. Many different animals can use green camouflage because they all live in grassy places!

Misconception 3: "The katydid can see itself and knows it's green."

Scientific Clarification: The katydid doesn't think about being green or hiding the way you think about playing hide-and-seek. The katydid simply has an instinct (a built-in behavior) to sit still on plants. Because it's green and the plants are green, it blends in. The katydid doesn't "know" it's hiding—it just does it naturally!

Extension Activities

1. Hide-and-Seek Camouflage Game: Color paper cutouts of katydids green, brown, yellow, and red. Hide them around the classroom on different colored paper (green paper, brown paper, etc.). Have students find the katydids and notice which ones are easiest and hardest to find. Discuss why: "The green katydid hides best on green paper because it blends in!"

2. Nature Scavenger Hunt: Take students outside to hunt for animals or insects that blend in with their surroundings (green bugs on green leaves, brown bugs on brown bark, etc.). Photograph or sketch what they find and create a class "Camouflage Gallery" of observations.

3. Dress-Up Camouflage: Provide green, brown, yellow, and red clothing items or fabric scarves. Have students "dress up" as different animals and decide which colors would help them hide in grass, dirt, flowers, or leaves. This kinesthetic activity helps them internalize how color and environment work together.

Cross-Curricular Ideas

Math Connection: Counting and Patterns

Create a "Katydid Counting" activity where students count how many legs, antennae, or wings the katydid has (6 legs, 2 antennae, 2 wings). Make a chart showing these numbers. Then have students find other insects in pictures and compare: "Does a butterfly have the same number of legs as a katydid?" This reinforces counting, comparison, and pattern recognition while deepening observation skills.

ELA Connection: Descriptive Language and Storytelling

Read aloud The Very Hungry Caterpillar by Eric Carle, then have students create their own simple story: "A Day in the Life of a Katydid." Students can dictate or draw their story, describing where the katydid goes, what it eats, and how it stays safe. Use sensory language: "The katydid sits on the soft, green leaf. It feels safe and quiet." This builds vocabulary, narrative skills, and emotional connection to the animal.

Art Connection: Camouflage Collage

Provide students with colored paper (green, brown, yellow, orange) and have them create a collage by tearing and gluing paper to make a katydid or other camouflaged animal. Challenge them to choose colors that blend with a background they also create (green paper on green background, brown on brown, etc.). Display the finished work and have students guess where the hidden animals are. This combines fine motor skills, color recognition, and artistic expression with scientific thinking.

Social Studies Connection: Animal Homes Around the World

Show pictures of grasslands, forests, and deserts from different parts of the world. Discuss: "Where do katydids live? What other animals live there too?" Introduce the idea that different habitats have different animals with different colors. A katydid in a green grassland is green, but if we visited a brown desert, we might find insects that are brown to match that home. This builds awareness of biodiversity, geography, and how animals are suited to their environments.

STEM Career Connection

Entomologist (Insect Scientist)

An entomologist is a scientist who studies insects like katydids, butterflies, beetles, and ants. They observe insects in nature, learn how they live, what they eat, and how they survive. Some entomologists study camouflage and how insects hide from predators. They might work outside in forests or grasslands, in laboratories with microscopes, or in universities teaching other scientists. Entomologists help us understand why insects are important and how to protect them.

Average Annual Salary: $67,000 USD

Wildlife Photographer

A wildlife photographer takes pictures of animals in nature, like the photo of the katydid in this lesson! They use cameras and lenses to capture beautiful and interesting moments of animals living in their homes. Some wildlife photographers specialize in insects and small creatures, spending hours in grass and forests waiting for the perfect shot. Their photos help scientists learn about animals and help people around the world appreciate nature.

Average Annual Salary: $35,000–$65,000 USD (varies by experience and publications)

Ecologist

An ecologist is a scientist who studies how animals, plants, and their environment all work together. They ask questions like: "How do katydids fit into the grassland? What happens if we remove all the grass? How do predators and prey affect each other?" Ecologists help protect natural habitats and understand how to keep ecosystems healthy. They might work outside doing field research, in offices analyzing data, or teaching in universities.

Average Annual Salary: $71,000 USD

NGSS Connections

Performance Expectation: K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.

Disciplinary Core Ideas:
- K-LS1.A - All organisms have structures that serve different functions in survival, growth, behavior, and reproduction.

Crosscutting Concepts:
- Patterns - Patterns in nature help animals survive; the katydid's color pattern matches the plants.
- Structure and Function - The katydid's green color serves the function of helping it hide.

Science Vocabulary

* Camouflage: When an animal's color or shape helps it hide in its home.

* Adapt or Adaptation: A special body part or color that helps an animal survive.

* Predator: An animal that hunts other animals for food.

* Prey: An animal that is hunted by another animal.

* Habitat: The place where an animal or plant lives.

* Blend in: To look the same as the things around you so you are hard to see.

External Resources

Children's Books:

- Who Hid the Egg? by Kazue Mizumura (explores hiding and camouflage concepts)
- The Mixed-Up Chameleon by Eric Carle (camouflage and adaptation through a familiar character)
- Hide and Seek by John Burningham (reinforces camouflage and observation skills)