

Photo Description



This image shows a spider perched on tree bark that is covered with lichen and moss. The spider's body and legs blend in so well with the textured, speckled bark that it's hard to spot at first glance. The spider uses its coloring and body shape to hide from predators and sneak up on prey.

Scientific Phenomena

Anchoring Phenomenon: Camouflage (protective coloration and body adaptation)

This image illustrates camouflage, a survival adaptation where organisms have colors, patterns, and body shapes that match their environment. The spider in this photo has evolved brown and gray coloring with textured markings that closely resemble lichen and bark. This happens because spiders with better camouflage are more likely to survive, catch food, and pass their traits to offspring. Over many generations, natural selection favors spiders whose appearance blends with common tree bark environments. This is an example of how organisms adapt to their habitats through physical traits.

Core Science Concepts

- * Adaptation: A trait or characteristic that helps an organism survive in its environment. This spider's coloring is an adaptation.
- * Camouflage: A type of adaptation where an animal's color, pattern, or shape helps it blend in with its surroundings, making it harder to see.
- * Habitat: The specific place where an organism lives. This spider's habitat is tree bark with lichen, which influenced its coloring.
- * Predator-Prey Relationships: Camouflage helps the spider both hide from predators AND sneak up on prey insects, showing how adaptations support survival.

Pedagogical Tip:

When teaching camouflage, use the "I Spy" approach: Have students search the photo for 15-20 seconds before revealing where the spider is. This builds genuine curiosity and makes the concept concrete. Many students will be amazed they couldn't find it immediately—this "aha moment" is powerful for understanding why camouflage matters.

UDL Suggestions:

Multiple Means of Representation: Provide both the photo AND a close-up labeled diagram showing the spider's key features. Some students learn better from illustrations. Also provide a real-life video clip showing a spider on bark moving (kinesthetic learners benefit from seeing movement).

Multiple Means of Action/Expression: Allow students to demonstrate understanding through: (1) drawing a camouflaged animal in a habitat, (2) physically hiding a toy animal in a shoebox habitat they create, or (3) explaining verbally to a partner why the camouflage works.

Discussion Questions

1. Why do you think this spider is brown and gray instead of bright red or blue? (Bloom's: Analyze | DOK: 2)
2. If this same spider moved to a bright green leaf, would its camouflage still work? Why or why not? (Bloom's: Evaluate | DOK: 3)
3. What other animals might use camouflage to hide from predators? Can you think of one and describe what it looks like? (Bloom's: Apply | DOK: 2)
4. How does camouflage help a spider catch insects for food? (Bloom's: Understand | DOK: 2)

Extension Activities

1. Camouflage Hunt Game: Create a classroom "habitat" using brown and tan construction paper on the wall. Hide paper cutouts of insects (some colored to match, some brightly colored). Have students count how many insects they find in 30 seconds. Then discuss: Why were the camouflaged ones harder to find? This makes the adaptation tangible and fun.
2. Design Your Own Camouflaged Creature: Provide students with paper printed with different habitats (forest floor with leaves, sandy beach, snowy landscape, garden with flowers). Have them draw and color an animal that would be camouflaged in that habitat. Students explain their choices: "I made my animal brown because..."
3. Adaptation Charades: Write different animal adaptations on cards (camouflage, sharp teeth, fast legs, thick fur, long neck). Students act out how the adaptation helps the animal survive while others guess. This kinesthetic activity reinforces that adaptations are features that help organisms live.

NGSS Connections

Performance Expectation:

- 4-LS1-1: Construct an argument that plants get the energy they need to grow from the sun. (Note: While not directly about camouflage, this PE connects to food chains)
- 4-LS4-2: Make observations of plants and animals to compare diversity of life in different habitats.

Disciplinary Core Ideas:

- 4-LS4.B: Natural Selection and Adaptations
- 4-LS1.A: Structure and Function (how body structures help organisms survive)

Crosscutting Concepts:

- Patterns (the pattern of coloring matches the environment)
- Structure-and-Function (the spider's coloring helps it function in its habitat)

Science Vocabulary

- * Camouflage: Coloring or markings that help an animal blend in with its surroundings so it's harder to see.
- * Adaptation: A special body part or behavior that helps an animal survive in its habitat.
- * Habitat: The home or place where an animal or plant lives and grows.
- * Predator: An animal that hunts and eats other animals for food.
- * Prey: An animal that is hunted and eaten by another animal.

* Lichen: A crusty or leafy organism that grows on rocks and trees and is made of fungi and algae living together.

External Resources

Children's Books:

- The Mixed-Up Chameleon by Eric Carle (story about color-changing adaptation)
- Who Hid the Egg? by Satoshi Kitamura (engaging picture book about camouflage in nature)
- Hiding from Hungry Hunters (National Geographic Little Kids First Big Book of Animals—section on camouflage)

YouTube Videos:

- "Animal Camouflage for Kids" by Crash Course Kids — https://www.youtube.com/watch?v=nxvHapxR_xU — 4-minute overview of camouflage with real animal examples
- "Why Do Animals Have Different Colors?" by Kurzgesagt – In a Nutshell (Kids version) — Clear explanation of why coloring matters, with age-appropriate visuals

Implementation Note: This lesson works best as a 2-3 day unit. Day 1: Introduction with the image and discussion. Day 2: Vocabulary and concept building with videos and read-aloud. Day 3: Extension activities and assessment through student drawing/creation.