

Photo Description



This image shows many rocks, pebbles, and stones of different sizes, colors, and shapes scattered on the ground. The rocks range from small pebbles to larger stones, with colors including brown, gray, tan, and reddish hues. Hidden among these rocks is a camouflaged animal that blends in perfectly with its rocky surroundings.

Scientific Phenomena

The anchoring phenomenon in this image is camouflage - an animal's ability to blend into its environment to avoid being seen by predators or prey. This happens because some animals have evolved body colors, patterns, and textures that match their surroundings. Over many generations, animals with better camouflage were more likely to survive and pass on these helpful traits to their offspring. The hidden animal's coloring and texture closely match the rocks around it, making it nearly invisible to both predators and human observers.

Core Science Concepts

1. Camouflage as a Survival Strategy: Animals use camouflage to hide from predators or to sneak up on prey, increasing their chances of survival.
2. Adaptation: The animal's appearance is an adaptation - a special feature that helps it survive in its rocky habitat.
3. Habitat Matching: Animals often develop colors and patterns that match their specific environment, whether it's rocks, leaves, sand, or snow.
4. Predator-Prey Relationships: Camouflage affects the interactions between animals that hunt and animals that are hunted.

Pedagogical Tip:

Start the lesson by having students search for the hidden animal in the image. This engages their natural curiosity and makes them active participants in discovering the science concept rather than just being told about it.

UDL Suggestions:

Provide multiple ways for students to demonstrate their understanding of camouflage - they could draw examples, act out scenarios, create collages, or build models. This allows students with different learning preferences to show what they know.

Zoom In / Zoom Out

Zoom In: At the cellular level, specialized cells called chromatophores contain pigments that create the animal's coloring. Some animals can even change their colors by expanding or contracting these pigment-containing cells.

Zoom Out: Camouflage is part of larger ecosystem relationships where energy flows from plants to herbivores to carnivores. When camouflaged animals are better at hunting or avoiding being hunted, it affects the balance of the entire food web in their habitat.

Discussion Questions

1. What advantages does camouflage give this animal in its rocky habitat? (Bloom's: Analyze | DOK: 2)
2. How might this animal's survival be affected if it lived in a forest instead of a rocky area? (Bloom's: Evaluate | DOK: 3)
3. What other animals can you think of that use camouflage, and how does their camouflage match their habitat? (Bloom's: Apply | DOK: 2)
4. If you were designing a robot to hide in this rocky environment, what features would you give it? (Bloom's: Create | DOK: 3)

Potential Student Misconceptions

1. Misconception: Animals choose to be camouflaged or can change their appearance at will.

Clarification: Most animals are born with camouflage colors and patterns - they cannot change them. Only a few special animals like chameleons can change colors.

2. Misconception: Camouflage always makes animals completely invisible.

Clarification: Camouflage makes animals harder to see, but they can still be spotted if you look carefully or if they move.

3. Misconception: All animals use the same type of camouflage.

Clarification: Different animals have different camouflage strategies - some match colors, others have stripes or spots, and some even mimic the shape of objects like leaves or sticks.

Cross-Curricular Ideas

1. ELA - Descriptive Writing: Have students write a short story from the perspective of the camouflaged animal. What does it see, hear, and feel hiding among the rocks? How does it use its camouflage to survive? This connects writing skills with understanding animal behavior and habitat.

2. Math - Data Collection and Graphing: Students can collect rocks from outside and sort them by size, color, and shape. They can then create bar graphs or picture graphs showing their data. This practice with measurement and data representation reinforces math skills while exploring real-world examples of natural variation.

3. Art - Camouflage Collage: Students create their own camouflaged animal using magazine cutouts, paint, and natural materials like leaves, twigs, and pebbles. They must choose a habitat first (forest, desert, snow, ocean) and design their animal to match it, combining art with applied understanding of camouflage.

4. Social Studies - Human Adaptation: Connect camouflage to how humans adapt to their environments. Discuss how people wear different clothing for different climates and seasons, or how cultures develop unique clothing and tools suited to their regions. This helps students see adaptation as a universal concept across nature and human societies.

STEM Career Connection

1. Wildlife Biologist: Wildlife biologists study animals in their natural habitats, including how they use camouflage to survive. They observe animals, take notes and photographs, and help protect endangered species and their homes. If you love exploring nature and learning about animals, this could be the job for you! Average Annual Salary: \$68,000
2. Zoologist: Zoologists are scientists who study all kinds of animals and how they live together in ecosystems. They might specialize in learning about camouflage and other survival strategies animals use. Some zoologists work in museums, zoos, or universities teaching others about animal life. Average Annual Salary: \$65,000
3. Nature Photographer/Documentary Filmmaker: These professionals use cameras to capture images and videos of animals in the wild, often spending weeks trying to photograph camouflaged creatures in their habitats. Their work helps teach people around the world about animals and why it's important to protect them. Average Annual Salary: \$70,000

NGSS Connections

- Performance Expectation: 4-LS1-1 - Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
- Disciplinary Core Ideas: 4-LS1.A - Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.
- Crosscutting Concepts: Structure and Function - Different materials, structures, and systems have different properties and functions.
- Science and Engineering Practice: Constructing explanations and designing solutions

Science Vocabulary

- * Camouflage: The way an animal's colors and patterns help it blend in with its surroundings.
- * Adaptation: A special feature that helps an animal survive in its environment.
- * Habitat: The place where an animal lives and finds everything it needs to survive.
- * Predator: An animal that hunts and eats other animals.
- * Prey: An animal that is hunted and eaten by other animals.
- * Survival: An animal's ability to stay alive and healthy in its environment.

External Resources

Children's Books:

- What Do You Do With a Tail Like This? by Steve Jenkins and Robin Page
- Hidden Animals by Selma Lola Chambers
- How to Hide a Butterfly and Other Insects by Ruth Heller