King Snake

Life Science | Lesson Guide

3rd Grade

Photo Description

This image shows a coral snake (or coral snake mimic) being carefully held in a child's open hand. The snake has bright red, yellow, and black bands that wrap around its body in a specific pattern. The distinctive coloring is an important feature that helps scientists and animals identify this species.

Scientific Phenomena

Anchoring Phenomenon: Warning Coloration in Snakes

This image represents aposematism—a survival strategy where animals display bright, bold colors to warn predators that they are dangerous or poisonous. The red, yellow, and black banding pattern is instantly recognizable to many predators in nature, signaling "stay away!" This coloration has evolved over millions of years because snakes with these bright colors survive longer—predators learn to avoid them. The phenomenon answers the question: Why would an animal want to be so colorful and easy to see?

Core Science Concepts

1. Adaptation and Survival: Animals have physical features (like bright colors) that help them survive in their environment. This snake's coloring is an adaptation that protects it from predators.

2. Patterns in Nature: The regular banding pattern of red, yellow, and black repeats along the snake's body. Scientists use these patterns to identify different snake species.

3. Animal Behavior and Defense: Different animals use different strategies to stay safe. Some hide with camouflage; others, like this snake, advertise their danger with bright warning colors.

4. Variation Within Species: Even though all coral snakes have similar banding patterns, individual snakes may vary slightly in size, exact color intensity, or band width.

Pedagogical Tip:

When teaching about warning coloration, use the phrase "bright colors = stay away!" as a memorable anchor. Consider showing images of other warning-colored animals (poison dart frogs, ladybugs, wasps) to help students recognize this pattern across multiple species. This builds conceptual understanding beyond just one example.

UDL Suggestions:

Multiple Means of Representation: Provide both the live snake photo AND color illustrations or diagrams of the banding pattern. Some students benefit from tracing the pattern with their fingers on laminated images. Consider creating a life-size paper snake that students can color and handle safely. For students with visual impairments, describe the pattern in tactile terms: "bumpy red sections, smooth black sections, shiny yellow sections."

Multiple Means of Action & Expression: Allow students to show understanding through drawing, acting out predator-prey interactions, creating colorful clay snakes, or explaining the pattern verbally to a peer.

Discussion Questions

1. Why do you think this snake has such bright, colorful bands instead of hiding colors like brown or green?
   (Bloom's: Analyze | DOK: 2)

2. What do you think happens when a predator like a hawk sees these bright red, yellow, and black colors for the first time?
   (Bloom's: Infer | DOK: 2)

3. If a snake has warning colors, what must be true about that snake to make the warning work?
   (Bloom's: Evaluate | DOK: 3)

4. How is this snake's defense strategy different from an animal that uses camouflage to hide?
   (Bloom's: Compare | DOK: 3)

Extension Activities

1. Design Your Own Warning Animal
   Students create an imaginary creature using bright construction paper, markers, and collage materials. They must explain: "What makes my animal dangerous?" and "Why would my colors warn a predator?" This connects design thinking to survival adaptations.

2. Snake Pattern Hunt
   Take students on a nature walk or show pictures of various snakes and animals (safe images only). Have them sort by coloration strategy: "Warning colors," "Camouflage," or "Other." Create a class chart displaying their findings.

3. Predator-Prey Role Play
   Divide the class into "predators" and "snakes." Give snakes red, yellow, and black armbands. After one round, remove the bands and use gray/brown ones. Discuss: "Was it harder to avoid the colorful snakes or the gray ones? Why?" This embodied learning helps students understand the concept viscerally.

NGSS Connections

Performance Expectation: 3-LS4-2
Generate and compare multiple solutions that use materials to solve a design problem of shielding objects from either heat or cold.

Disciplinary Core Ideas:
- 3-LS4.C Adaptation
- 3-LS1.B Growth and Development of Organisms

Crosscutting Concepts:
- Patterns (The banding pattern and how it repeats)
- Structure and Function (How the snake's bright colors function as protection)

Science Vocabulary

* Adaptation: A special feature or behavior that helps an animal survive in its environment.

* Warning Coloration: Bright colors that tell predators an animal is dangerous and to stay away.

* Pattern: Shapes or colors that repeat in an organized way.

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

* Defense: A way an animal protects itself from danger.

* Species: A group of animals that look similar and can have babies together.

External Resources

Children's Books:
- The Coral Snake: Dangerous or Helpful? by Theresa Greenaway
- Snakes by John Crossingham and Bobbie Kalman (Crabtree Publishing)
- What Do You Know About Snakes? by Melvin A. Berger (Scholastic)

YouTube Videos:
- "Warning Colors in Animals" by Crash Course Kids — Explains why some animals are brightly colored. (https://www.youtube.com/watch?v=_VKUvJnYZm8)
- "Coral Snake vs. King Snake: How to Tell the Difference" by National Geographic Kids — Visual comparison of dangerous vs. harmless look-alikes. (https://www.youtube.com/watch?v=MJ3sSUy2KYU)