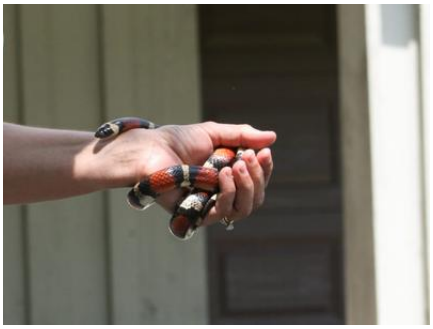
King Snake

Life Science | Lesson Guide

2nd Grade

Photo Description



This image shows a coral snake being held gently in a child's hands. The snake has bright red, yellow, and black bands wrapped around its body in a specific pattern. The snake's smooth, shiny scales and the way it curves across the child's palm show us that snakes are real animals that people can safely observe and learn about.

Scientific Phenomena

Anchoring Phenomenon: Why does this snake have red, yellow, and black stripes?

This snake displays warning coloration, a natural adaptation that helps protect it from predators. The bright, bold stripes are nature's way of sending a message: "I may be dangerous, so stay away!" This is an example of how animals use their appearance to survive. The pattern is so distinctive that other animals in the animal's habitat learn to recognize and avoid it. This is an example of adaptation—a trait that helps an animal survive in its environment.

Core Science Concepts

* Animal Adaptations: Snakes have special features (like colored patterns, smooth scales, and flexible bodies) that help them live and survive in their environments.

* Biodiversity & Classification: Snakes are reptiles—a group of animals with dry, scaly skin. Different snakes have different colors, patterns, and sizes based on where they live.

* Predator & Prey Relationships: Snakes eat small animals (prey) for food, and they themselves must hide or use special colors to avoid being eaten by larger animals (predators).

* Observation Skills: Scientists carefully observe animal features (color, patterns, shape, size, texture) to learn how animals are alike and different.

Pedagogical Tip:

Second graders are naturally curious about animals but may have misconceptions about snakes (thinking they are slimy, dangerous, or mean). Start by normalizing snakes as regular animals with important jobs in nature. Use this image to show that snakes can be observed safely up close, which builds confidence and reduces fear-based thinking.

UDL Suggestions:

Multiple Means of Representation: Provide both the photo and a large, labeled diagram of a snake showing scales, stripes, and body shape. Some students may benefit from tactile exploration—let them feel a smooth fabric or rope to understand what snake scales feel like.

Multiple Means of Expression: Allow students to show their learning through drawing, verbal discussion, or creating a pattern using colored paper strips to match the snake's stripes—not all students need to write answers.

Zoom In / Zoom Out

Zoom In: Cellular Level - How Snake Scales Protect
If we could look at a snake's skin with a super-powerful microscope, we would see that each scale is made of thousands of tiny cells all stacked together. These cells contain a special material called keratin (the same stuff that makes our fingernails hard!). The keratin in snake scales forms a waterproof layer that protects the snake's body from getting dry, from being hurt, and from getting sick. Each scale overlaps like shingles on a roof, so water rolls off and dirt can't stick to the snake's skin. This is why the snake feels smooth and shiny!

Zoom Out: Ecosystem Level - The Snake's Role in Nature
When we zoom out and look at the whole forest or grassland where this snake lives, we see that the snake is part of a food web. The snake eats small animals like mice, frogs, and insects (so it is a predator). But bigger animals like hawks, owls, and larger snakes might eat this snake (so it is also prey). The bright warning colors tell predators: "I am poisonous or dangerous—don't eat me!" Without snakes in an ecosystem, the population of small animals like mice and insects would grow too big, and they might eat all the plants and seeds that other animals need. Snakes help keep nature in balance!

Discussion Questions

1. "What do you notice about the colors and stripes on this snake? Why do you think the snake has such bright colors?" (Bloom's: Analyze | DOK: 2)

2. "If you were a bigger animal that wanted to eat this snake, what would the bright red, yellow, and black stripes tell you?" (Bloom's: Apply | DOK: 2)

3. "How is this snake the same as or different from other snakes you've seen or read about? What helps it survive?" (Bloom's: Compare | DOK: 3)

4. "What do you think would happen to this snake if it lived in a place with lots of green plants and brown dirt instead of where it actually lives?" (Bloom's: Evaluate | DOK: 3)

Potential Student Misconceptions

Misconception 1: "Snakes are slimy."
Clarification: Snakes are NOT slimy at all! Their scales are smooth and dry, just like the outside of an apple or a smooth rock. Students may think snakes are slimy because snakes live in wet places sometimes, or because they move smoothly across the ground. Letting students touch a smooth fabric, leather, or (safely) a snake scale replica helps correct this idea.

Misconception 2: "All snakes are mean and will bite you."
Clarification: Most snakes are shy and want to stay away from people. Snakes don't bite because they are mean—they only bite if they feel scared or trapped and need to protect themselves. Just like we move away from things that scare us, snakes try to escape from danger first. This snake in the photo is calm and safe in the child's hands, which shows that snakes can be observed and handled gently by people who know how to treat them with respect.

Misconception 3: "Snakes have legs but hid them."
Clarification: Snakes don't have legs at all—they are born without them! A very, very long time ago, snakes had ancestors with legs, but over millions of years, snakes' legs disappeared because they didn't need them. Instead, snakes have special muscles under their scales that help them wiggle and slither forward. This is a great example of how animals change over time based on what helps them survive.

Extension Activities

1. Pattern Match & Create: Show students the snake's stripe pattern (red-yellow-black-red-yellow-black). Have them continue the pattern using construction paper strips, paint, or markers. Then let them create their own imaginary snake pattern and predict what habitat it might live in.

2. Snake Habitat Diorama: In small groups, students build a small habitat (shoe box or paper bag) where they think this snake lives. They use natural materials (soil, leaves, twigs, grass) and draw or cut out pictures of things the snake might need (shelter, water, food sources). Groups present their dioramas and explain their choices.

3. Animal Adaptation Hunt: Read aloud a simple book about animals with interesting adaptations (see resources below). Create a class chart showing different animal adaptations (stripes, spots, horns, long necks, etc.) and WHY each one helps. Let students draw their favorite adapted animal and label its adaptation.

Cross-Curricular Ideas

Math Connection: Pattern Recognition & Sequencing
Have students observe the snake's stripe pattern (red-yellow-black-red-yellow-black) and create their own repeating color patterns using manipulatives like colored beads on a string, paint chips, or construction paper. Students can count how many stripes the snake has, predict how many more stripes it would have if it grew longer, and graph or chart different snake colors and patterns observed in class pictures.

ELA Connection: Descriptive Writing & Vocabulary Building
Read aloud a simple snake book and have students use sensory words to describe what they see in the photo without naming the animal ("I see something smooth, shiny, and colorful..."). Students can dictate or write labels for snake body parts, create a class word wall of snake-related vocabulary, or write a simple rhyming poem about the snake's bright colors. For advanced learners, introduce the phrase "warning colors" and have them explain it in their own words.

Art Connection: Creating Camouflage & Adaptation Art
Students create their own imaginary animal by designing a new color pattern or body covering suited to a specific habitat. For example: "My animal lives in a snowy mountain, so I colored it white and gray to hide." Students can paint, draw, or collage their designs, then explain to the class how their animal's appearance helps it survive. This connects art to the science concept of adaptation in a hands-on, creative way.

Social Studies Connection: Indigenous Knowledge & Animal Respect
Some Indigenous cultures have stories and teachings about snakes that show respect for them as important members of nature. Share (or have a school librarian share) a respectful folktale or legend about snakes from a local or studied culture. Discuss why different groups of people around the world might have different relationships with animals based on where they live and their traditions. This builds cultural awareness while reinforcing that snakes have important roles in different communities.

STEM Career Connection

Herpetologist (Reptile Scientist)
A herpetologist is a scientist who studies reptiles and amphibians like snakes, lizards, frogs, and turtles. They work in zoos, nature centers, universities, or in the field (outdoors in forests and wetlands) observing snakes and other animals, learning about their behaviors, and figuring out how to help protect them. Some herpetologists study why snakes have bright colors or how they hunt, just like detectives solving mysteries! They help teach people that snakes are important to nature and shouldn't be feared.

Average Annual Salary: $45,000–$65,000 USD

Zoo or Aquarium Educator
Zoo educators work with snakes and other animals to teach visitors—especially kids—about animal adaptations, habitats, and how to care for nature. They might give talks about why snakes have stripes, let visitors safely see or touch a snake (like in the photo), and answer questions about how snakes live. They help people feel excited and curious about animals instead of scared, which is really important work!
Average Annual Salary: $30,000–$50,000 USD

Wildlife Rehabilitator
Wildlife rehabilitators rescue snakes and other animals that are hurt, sick, or have lost their homes because of pollution or habitat loss. They care for the animals, help them get healthy, and release them back into the wild where they belong. They also teach communities about snakes and how to live safely alongside them. This job combines care, science, and helping nature all at once!
Average Annual Salary: $28,000–$48,000 USD

NGSS Connections

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

Disciplinary Core Ideas:
- 2-LS4-1 Every organism has different traits, and sometimes the same kind of organism can have different traits. The way an animal looks and acts affects how well it survives.
- 2-LS1-1 All animals need food, water, air, and shelter to survive.

Crosscutting Concepts:
- Patterns The colored stripes on the snake follow a repeating pattern.
- Structure and Function The snake's bright colors serve a function—warning other animals to stay away.

Science Vocabulary

* Adaptation: A special body part or behavior that helps an animal survive in its home.
* Scales: Thin, flat, hard pieces that cover a snake's skin to protect it.
* Reptile: An animal with dry, scaly skin, like snakes, lizards, and turtles.
* Warning Colors: Bright colors that tell other animals "Stay away!" because this animal might be dangerous.
* Pattern: A repeating design, like the stripes on the snake's body.
* Camouflage: Colors or patterns that help an animal hide by blending in with its surroundings.

External Resources

Children's Books:
- The Snake and the Lizard by Margaret Read MacDonald (folktale about animals)
- Snakes by Gail Gibbons (informational picture book with clear illustrations)
- Dear Dumb Diary: Tales from a NOT-SO-Friendly Snake by Jim Benton (humorous introduction to snakes)

Teacher Tip: Before using this lesson, check your district's live animal policies. If live snakes aren't available, high-quality photos, videos, and replicas can deliver the same learning outcomes while keeping all students comfortable.