Turtle

Life Science | Lesson Guide

2nd Grade

Photo Description

This turtle has a hard shell with ring patterns and is sitting on the ground near some plants. The turtle's head and legs are sticking out from its shell, and you can see its scaly skin.

Scientific Phenomena

The anchoring phenomenon here is animal adaptation for protection and survival. The turtle's shell serves as a protective structure that has evolved over millions of years to keep the animal safe from predators. The growth rings visible on the shell form as the turtle ages, similar to tree rings, providing evidence of the animal's life history. This demonstrates how living things have special features that help them survive in their environment.

Core Science Concepts

1. Animal Body Parts and Functions: Turtles have specialized body parts like shells, scales, and claws that help them survive and meet their basic needs.

2. Growth and Development: The ring patterns on the turtle's shell show evidence of growth over time, demonstrating how animals change as they get older.

3. Habitat and Survival: Turtles live in specific environments where they can find food, water, and shelter to meet their survival needs.

4. Animal Classification: Turtles are reptiles with specific characteristics like scaly skin, being cold-blooded, and having shells.

Pedagogical Tip:

Use the "See-Think-Wonder" thinking routine when introducing this image. Have students observe what they see, share what they think is happening, and ask questions about what they wonder. This builds scientific thinking skills and engages natural curiosity.

UDL Suggestions:

Provide multiple ways for students to express their observations - through drawing, verbal descriptions, or acting out turtle movements. Consider having tactile materials like turtle shells or models for students who learn better through touch.

Zoom In / Zoom Out

Zoom In: At the cellular level, the turtle's shell is made of living bone tissue covered by keratin (the same material in our fingernails). New shell material grows from underneath, pushing the older layers outward to create the visible growth rings.

Zoom Out: This turtle is part of a larger ecosystem where it plays important roles - eating plants and small animals, providing food for predators, and helping disperse seeds through its waste. Turtles connect aquatic and terrestrial environments in the food web.

Discussion Questions

1. What do you notice about the turtle's shell that might help it stay safe? (Bloom's: Analyze | DOK: 2)
2. How do you think this turtle's body parts help it get food and water? (Bloom's: Apply | DOK: 2)
3. What patterns do you see on the turtle's shell, and what might have caused them? (Bloom's: Analyze | DOK: 3)
4. If you were designing a house for this turtle, what would you need to include? (Bloom's: Create | DOK: 3)

Potential Student Misconceptions

1. Misconception: Turtles can come out of their shells like taking off clothes.
   Reality: A turtle's shell is part of its skeleton and cannot be removed - it's attached to the turtle's spine and ribs.
2. Misconception: All turtles are the same and live in water.
   Reality: There are many types of turtles - some live on land (tortoises), some in water, and some in both places.
3. Misconception: The rings on the shell tell exactly how old the turtle is, like tree rings.
   Reality: Shell rings can give clues about age, but they're not always accurate because growth can vary based on food, weather, and health.

Cross-Curricular Ideas

Math Connection - Counting and Patterns: Have students count the growth rings on the turtle's shell to practice number recognition. Create a simple bar graph showing how many rings different turtles have, introducing data collection and comparison. Students can also trace and color circular patterns similar to shell rings.

ELA Connection - Storytelling and Writing: Students can write or dictate simple stories from the turtle's perspective: "A Day in My Life" or "How I Got My Shell." Read aloud turtle-themed books and have students draw pictures to sequence story events, building comprehension and narrative skills.

Art Connection - Shell Design and Texture: Provide materials for students to create their own turtle shells using clay, paper plates, or natural materials. Have them draw and color shell patterns, exploring symmetry and geometric shapes while learning about the beauty of animal adaptations.

Social Studies Connection - Animal Habitats Around the World: Explore where different types of turtles live on a world map or globe. Discuss how turtles in different places have adapted to their environments (desert tortoises, sea turtles, pond turtles), introducing geography and cultural connections to nature.

STEM Career Connection

Wildlife Biologist: A wildlife biologist is a scientist who studies animals like turtles in nature. They observe where turtles live, what they eat, and how to keep them healthy and safe. These scientists help protect turtles and their homes so they don't disappear forever. Average Annual Salary: $65,000 USD

Veterinarian: A veterinarian is a doctor for animals, including turtles! They check if turtles are healthy, treat them when they're sick or hurt, and teach people how to care for them properly. Some veterinarians even work in zoos and wildlife centers. Average Annual Salary: $95,000 USD

Zookeeper or Aquarium Specialist: A zookeeper takes care of animals in zoos and aquariums, including turtles. They make sure the turtles have the right food, clean water or land areas, and a safe space to live. They also teach visitors about how amazing turtles are! Average Annual Salary: $28,000 USD

NGSS Connections

Performance Expectation: 2-LS4-1 - Make observations of plants and animals to compare the diversity of life in different habitats.

Disciplinary Core Ideas:
- 2-LS4.D - There are many different kinds of living things in any area, and they exist in different places on land and in water.

Crosscutting Concepts:
- Patterns - Patterns in the natural world can be observed and used as evidence.

Science Vocabulary

* Shell: The hard covering that protects a turtle's body
* Reptile: An animal with scaly skin that is cold-blooded
* Habitat: The place where an animal lives and finds everything it needs
* Adaptation: Special body parts or behaviors that help animals survive
* Growth rings: Circular patterns that show how something has grown over time
* Scales: Small, hard pieces that cover and protect a reptile's skin

External Resources

Children's Books:
- Box Turtle at Long Pond by William T. George
- Turtle, Turtle, Watch Out! by April Pulley Sayre
- Old Turtle by Douglas Wood