

Photo Description



Two turtles are sitting on a log by the water. One turtle is small and one turtle is big. The big turtle has green stuff growing on its shell. Both turtles have dark shells with some red and yellow colors.

Scientific Phenomena

The Anchoring Phenomenon shown here is symbiosis and adaptation in aquatic habitats. The larger turtle displays algae growth on its shell, which occurs when turtles spend extended time in nutrient-rich water environments. This creates a mutually beneficial relationship where algae receive a mobile surface for sunlight exposure while providing camouflage for the turtle. The turtles are also demonstrating thermoregulation behavior by basking on the log to absorb heat from sunlight, as they are cold-blooded animals that cannot generate their own body heat.

Core Science Concepts

1. Animal Needs and Habitats: Turtles need water, food, shelter, and warmth to survive in their pond habitat
2. Life Cycles and Growth: The image shows turtles of different sizes, representing different life stages
3. Animal Adaptations: Turtle shells provide protection, and basking behavior helps regulate body temperature
4. Living vs. Non-living Interactions: Turtles interact with living elements (algae, plants) and non-living elements (water, sun, log)

Pedagogical Tip:

Use the size difference between the turtles to introduce measurement concepts and comparative language (bigger/smaller, older/younger) while reinforcing that animals grow and change over time.

UDL Suggestions:

Provide multiple ways for students to express their observations by offering drawing materials, simple recording sheets with pictures, and opportunities for verbal sharing. Consider having students act out turtle movements and basking behaviors to engage kinesthetic learners.

Zoom In / Zoom Out

1. Zoom In: At the microscopic level, algae cells are using photosynthesis to make their own food using sunlight, carbon dioxide, and water while living on the turtle's shell
2. Zoom Out: This pond ecosystem is part of a larger watershed where turtles play important roles as both predators (eating plants, insects, small fish) and prey (for larger animals like birds and mammals)

Discussion Questions

1. What do you notice about how the two turtles are different from each other? (Bloom's: Analyze | DOK: 2)
2. Why do you think the turtles chose to sit on this log instead of staying in the water? (Bloom's: Evaluate | DOK: 3)
3. How does a turtle's shell help it survive in its habitat? (Bloom's: Apply | DOK: 2)
4. What other animals might live in this same pond habitat with the turtles? (Bloom's: Create | DOK: 2)

Potential Student Misconceptions

1. Misconception: "The green stuff on the turtle's shell means the turtle is sick"
Clarification: The algae growth is natural and doesn't hurt the turtle - it's like having a green coat that helps it hide
2. Misconception: "Turtles are always slow"
Clarification: While turtles move slowly on land, they can swim quite fast in water when they need to escape danger
3. Misconception: "All turtles live in water all the time"
Clarification: Turtles need both water and land - they swim in water but come on land to rest, warm up, and lay eggs

Cross-Curricular Ideas

1. Math - Measurement & Comparison: Have students measure turtle shells using non-standard units (blocks, paper clips) and compare the sizes. Create a simple bar graph showing "small turtle" vs. "big turtle" to practice data representation and comparative language (longer, shorter, bigger, smaller).
2. ELA - Story Writing & Vocabulary: Students can create simple stories about "A Day in the Life of a Turtle" using sentence frames and picture prompts. Read aloud books about turtles and have students act out the story or draw their favorite part, combining literacy with dramatic play and art.
3. Art - Nature Observation Drawing: Students draw or paint their own turtle using natural colors they observe in the photo (greens, browns, blues). They can add algae using green paint or collage materials, and create a pond habitat around their turtle using mixed media, reinforcing observation skills and creative expression.
4. Social Studies - Animal Homes & Communities: Discuss how turtles are part of a pond community where different animals live together. Students can create a simple habitat diorama or poster showing turtles and other pond animals (fish, frogs, birds) living together, introducing the concept of communities and interdependence in age-appropriate ways.

STEM Career Connection

1. Wildlife Biologist: A wildlife biologist studies animals like turtles in their natural homes to learn how they live, what they eat, and how to keep them safe. They spend time outside watching animals, taking notes, and helping protect habitats.
Average Annual Salary: \$63,000 USD
2. Aquarium Worker or Zookeeper: An aquarium worker or zookeeper takes care of turtles and other animals by feeding them, cleaning their habitats, and making sure they stay healthy and happy. They help visitors learn about these amazing creatures. Average Annual Salary: \$28,000 USD
3. Environmental Scientist: An environmental scientist studies habitats like ponds and wetlands to make sure they stay clean and healthy for animals like turtles to live. They test water, count animals, and help solve problems that affect nature.
Average Annual Salary: \$71,000 USD

NGSS Connections

- Performance Expectation: 1-LS1-1 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs
- Disciplinary Core Ideas: 1-LS1.A - All organisms have external parts that they use to perform daily functions
- Crosscutting Concepts: Structure and Function - The shape and stability of structures of natural objects are related to their function

Science Vocabulary

- * Habitat: The place where an animal lives and finds everything it needs to survive
- * Shell: The hard covering that protects a turtle's soft body parts
- * Algae: Tiny green plants that grow in water and on wet surfaces
- * Basking: When cold-blooded animals sit in the sun to warm their bodies
- * Adaptation: Special body parts or behaviors that help animals survive in their homes

External Resources

Children's Books:

- Box Turtle at Long Pond by William T. George
- Turtle, Turtle, Watch Out! by April Pulley Sayre
- Red-Eyed Tree Frog by Joy Cowley