

Photo Description



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

Scientific Phenomena

The Anchoring Phenomenon shown here is symbiotic relationships in aquatic ecosystems. The larger turtle displays algae and moss growth on its shell, demonstrating how some organisms can live together where one benefits (the plants get a place to grow and nutrients) while the other is generally unharmed (the turtle). This happens because the turtle moves slowly, spends time in sunny, nutrient-rich water, and provides a stable surface for small plants to attach and grow.

Core Science Concepts

1. Animal Habitats and Needs - Turtles need water, food, shelter, and space to survive in their pond habitat
2. Life Cycles and Growth - The two different sized turtles show how animals grow and change over time
3. Adaptation Features - Turtle shells provide protection, webbed feet help them swim, and they can pull their heads inside for safety
4. Living vs. Non-living Interactions - Plants growing on the turtle shell show how living things can interact with each other in nature

Pedagogical Tip:

Use the size difference between these turtles to help students make predictions about age and growth. Ask them to compare the turtles to themselves at different ages to make the concept more relatable.

UDL Suggestions:

Provide tactile experiences by bringing in turtle shells, toy turtles of different sizes, or textured materials that feel like algae. This supports students who learn better through hands-on exploration.

Zoom In / Zoom Out

1. Zoom In: At the microscopic level, tiny algae cells are using photosynthesis to make their own food while attached to the turtle's shell, getting nutrients from the water and sunlight that hits the turtle's back.
2. Zoom Out: These turtles are part of a larger pond ecosystem that includes fish, frogs, water plants, insects, and birds. The pond connects to other water sources, and healthy turtle populations indicate a healthy watershed system.

Discussion Questions

1. What do you notice about how these two turtles are different from each other? (Bloom's: Analyze | DOK: 2)
2. Why do you think the bigger turtle has plants growing on its shell but the smaller one doesn't? (Bloom's: Evaluate | DOK: 3)
3. What would happen to these turtles if this pond dried up? (Bloom's: Apply | DOK: 2)
4. How are these turtles getting what they need to survive in this habitat? (Bloom's: Understand | DOK: 2)

Potential Student Misconceptions

1. Misconception: "The turtle is dirty because it has green stuff on it."
Clarification: The green growth is actually living plants that don't hurt the turtle and can be normal in their habitat.
2. Misconception: "All turtles live in water all the time."
Clarification: Many turtles spend time both in water and on land, coming onto logs or shores to warm up in the sun.
3. Misconception: "Baby turtles stay with their parents like human babies."
Clarification: Most baby turtles must take care of themselves right after hatching and don't live with their parents.

Cross-Curricular Ideas

1. Math - Measurement & Comparison: Have students measure the lengths of toy turtles or drawn turtles to compare sizes. They can use non-standard units (like paper clips or blocks) to measure and then create simple bar graphs showing "small turtle" vs. "big turtle" measurements. This connects to 2.MD.A.1 (measuring lengths).
2. ELA - Descriptive Writing & Sequencing: Students can write simple sentences describing what they observe in the photo using adjectives (dark, small, big, green, wet). Then sequence the stages of a turtle's life using picture cards or drawings, practicing temporal language (first, next, last). This supports W.2.2 (writing informative texts).
3. Art - Nature Collage & Texture Exploration: Students create mixed-media artwork showing a turtle habitat using natural materials (leaves, moss, twigs, stones) and colored paper. They can practice identifying and arranging textures while making their own "textured turtle" art project, connecting to visual arts standards about using various materials.
4. Social Studies - Animal Homes & Community: Discuss how turtles are part of a pond community and compare different animal homes (burrows, nests, shells, dens). Students can create a simple map of a pond habitat showing where different animals live, understanding how living things depend on their environment (K-2.G.2 - understanding places and communities).

STEM Career Connection

1. Biologist/Wildlife Scientist - These scientists study animals like turtles in their natural homes to learn how they live, grow, and survive. They spend time observing animals, taking notes, and sharing what they discover to help protect animals and nature. Average Annual Salary: \$68,000 USD
2. Zookeeper or Aquarium Worker - These workers take care of animals in zoos and aquariums, making sure turtles and other creatures have clean water, healthy food, and safe spaces to live. They observe animals daily and help visitors learn about them. Average Annual Salary: \$32,000 USD

3. Wetland Ecologist - These scientists study and protect wet habitats like ponds and marshes where turtles live. They work to keep these special places clean and healthy so that turtles, frogs, fish, and plants can thrive together. Average Annual Salary: \$64,000 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.A - 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

- * Habitat: The place where an animal lives and gets everything it needs to survive
- * Algae: Tiny green plants that grow in water and on wet surfaces
- * Adaptation: Special body parts or behaviors that help animals survive in their homes
- * Ecosystem: All the living and non-living things in an area that work together
- * Symbiosis: When two different living things live together and help each other
- * Aquatic: Living in or near water

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