

## Photo Description



Two turtles sit 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.

## Scientific Phenomena

This image shows basking behavior in aquatic turtles. The turtles are thermoregulating - using the sun's energy to warm their cold-blooded bodies to an optimal temperature for biological functions. The algae growing on the larger turtle's shell demonstrates a commensal relationship where the algae benefits from the mobile surface while the turtle is generally unaffected. This basking behavior is essential for turtle health, helping with digestion, vitamin D synthesis, and parasite removal.

## Core Science Concepts

1. Animal Needs: All animals need warmth, food, water, and shelter to survive
2. Body Covering: Turtle shells protect their soft bodies underneath
3. Animal Behavior: Animals do things that help them stay healthy and safe
4. Living vs. Non-living: Turtles are living things that grow, move, and need food

### Pedagogical Tip:

Use the "think-pair-share" strategy when discussing animal needs. Have students think about what they need to be healthy, pair up to discuss, then share how turtles might have similar needs.

### UDL Suggestions:

Provide multiple ways for students to express their observations - drawing, acting out turtle movements, or using simple words. Some students may benefit from tactile experiences like feeling different textures that represent smooth vs. rough shells.

## Zoom In / Zoom Out

1. Zoom In: Inside the turtle's body, blood moves faster when the turtle is warm, helping it digest food and stay healthy
2. Zoom Out: These turtles are part of a pond ecosystem where they help keep the water clean by eating plants and small animals

### Discussion Questions

1. What do you notice about where these turtles chose to sit? (Bloom's: Observe | DOK: 1)
2. Why do you think the turtle is sitting in the sunny spot instead of the shade? (Bloom's: Analyze | DOK: 2)
3. How is a turtle's shell similar to and different from your skin? (Bloom's: Compare | DOK: 2)
4. What would happen if turtles couldn't find sunny places to warm up? (Bloom's: Predict | DOK: 3)

### Potential Student Misconceptions

1. Misconception: "Turtles can come out of their shells"  
Reality: A turtle's shell is part of its body, like our ribs - they cannot remove it
2. Misconception: "All turtles live in water"  
Reality: Some turtles live on land, some in water, and some in both places
3. Misconception: "The green stuff is dirt"  
Reality: The green covering is living algae that grows on the turtle's shell

### Cross-Curricular Ideas

1. Math - Counting & Comparing: Count the turtles in the photo. Compare their sizes using words like "bigger" and "smaller." Create a graph showing how many students have seen turtles vs. how many haven't.
2. ELA - Storytelling & Writing: Have students create a simple story about "A Day in the Life of a Turtle." Students can dictate sentences while you write them down, then illustrate their story. Read turtle-themed picture books aloud and discuss favorite characters.
3. Art - Texture Exploration: Create turtle crafts using various textured materials (sandpaper for shells, felt for water). Students can paint or color turtles and add collage elements like real leaves or moss to represent the algae-covered shell from the photo.
4. Social Studies - Animal Homes & Communities: Discuss where turtles live and what other animals share their pond habitat. Create a classroom "pond community" display showing different animals that live together, helping students understand how living things depend on each other.

### STEM Career Connection

1. Zookeeper: A zookeeper takes care of animals like turtles, making sure they have clean water, the right food, and a safe sunny place to rest. They watch the animals to see if they're healthy and happy. Average Annual Salary: \$27,000 - \$32,000 USD
2. Wildlife Biologist: A wildlife biologist is a scientist who studies animals in nature to learn how they live and what they need to survive. They observe turtles in ponds and lakes to help protect them. Average Annual Salary: \$62,000 - \$75,000 USD
3. Aquarium Worker: An aquarium worker helps take care of water animals and plants. They make sure the water is clean, feed the animals, and teach visitors about turtles and other creatures that live in water. Average Annual Salary: \$24,000 - \$29,000 USD

### NGSS Connections

- Performance Expectation: K-LS1-1 - Use observations to describe patterns of what plants and animals need to survive
- Disciplinary Core Ideas: K-LS1.C - All animals need food in order to live and grow
- Crosscutting Concepts: Patterns - Patterns in the natural world can be observed

### Science Vocabulary

- \* Shell: The hard covering that protects a turtle's body
- \* Basking: Sitting in the sun to get warm
- \* Habitat: The place where an animal lives and finds what it needs
- \* Cold-blooded: Animals that need outside heat to warm their bodies
- \* Algae: Tiny green plants that can grow in water or on wet things

### External Resources

Children's Books:

- "Turtle, Turtle, Watch Out!" by April Pulley Sayre
- "Box Turtle at Long Pond" by William T. George
- "See How They Grow: Turtle" by DK Publishing