

Photo Description



This picture shows cut tree logs stacked together. You can see the round ends of the logs with rings inside them. The rings look like circles inside each piece of wood. Some logs are big and some are small.

Scientific Phenomena

The Anchoring Phenomenon is tree ring formation and growth patterns in wood. Trees grow by adding new layers of wood each year, creating visible rings when cut. This happens because trees grow faster in spring (making lighter wood) and slower in summer/fall (making darker wood). Each ring represents one year of the tree's life, and the thickness of rings can tell us about weather conditions - thick rings mean good growing years with plenty of water and sunlight, while thin rings indicate difficult years with drought or other challenges.

Core Science Concepts

1. Living things grow and change over time - Trees add new wood each year, getting bigger and taller
2. Patterns in nature - Tree rings form predictable circular patterns that repeat each year
3. Plants need resources to survive - Trees need water, sunlight, and nutrients from soil to grow
4. We can learn about the past - Tree rings tell us stories about what happened long ago

Pedagogical Tip:

Use actual tree cookies (cross-sections) as hands-on materials. Students can count rings with magnifying glasses and compare thick vs. thin rings. This concrete experience helps first graders understand the abstract concept of time passing.

UDL Suggestions:

Provide multiple ways to explore tree rings: tactile wooden samples for students to touch, large visual displays of ring patterns, and audio recordings of counting rings together. Some students may benefit from tracing rings with their fingers while counting aloud.

Zoom In / Zoom Out

1. Zoom In: Inside each tree ring are tiny tubes called cells that carry water and food up and down the tree. These cells are so small we need special tools to see them, but they work like tiny straws helping the tree drink and eat.
2. Zoom Out: These trees were part of a large forest ecosystem where they provided homes for animals, cleaned the air we breathe, and helped make oxygen. The forest connects to other forests around the world, and all trees together help keep our planet healthy.

Discussion Questions

1. What do you notice about the rings in different logs? (Bloom's: Observe | DOK: 1)
2. Why do you think some rings are thick and others are thin? (Bloom's: Analyze | DOK: 2)
3. How could we find out how old a tree was before it was cut down? (Bloom's: Apply | DOK: 2)
4. What might happen to the rings if a tree didn't get enough water one year? (Bloom's: Predict | DOK: 3)

Potential Student Misconceptions

1. Misconception: Trees grow rings because someone painted them on.
Clarification: Tree rings form naturally as the tree grows - no one puts them there.
2. Misconception: All trees are the same age if they're the same height.
Clarification: Trees grow at different speeds depending on how much water and sunlight they get.
3. Misconception: Tree rings are just decorations.
Clarification: Tree rings are the tree's way of growing bigger each year and tell us important information about the tree's life.

Cross-Curricular Ideas

1. Math Connection - Counting and Comparing: Students can count tree rings to practice number recognition and comparison. "This log has 15 rings and this one has 8 rings. Which tree is older? How many more rings does it have?" This builds early math skills while reinforcing the science concept.
2. ELA Connection - Storytelling and Sequencing: Read "The Great Kapok Tree" and have students sequence the story events. Then, explain that tree rings also tell a story in order - the oldest ring is in the middle and the newest is on the outside. Students can draw and label a tree ring sequence showing what happened each year.
3. Art Connection - Ring Patterns and Design: Students can create their own tree ring artwork using markers, paint, or collage materials. They can make circular patterns with different colors to represent thick and thin rings, then discuss what their patterns might mean (good years vs. difficult years for a tree).
4. Social Studies Connection - Community Resources: Discuss how trees and wood are important resources in our community. Talk about what products come from trees (paper, pencils, furniture, houses) and visit a local lumberyard or woodworking shop if possible. This helps students understand how natural resources connect to their daily lives.

STEM Career Connection

1. Forest Ranger or Forestry Worker: Forest rangers take care of trees in forests. They plant new trees, help trees stay healthy, and protect forests from fire and disease. They sometimes count tree rings to figure out how old trees are and make sure the forest is growing well. Average Annual Salary: \$35,000 - \$45,000
2. Tree Scientist (Dendrochronologist): These scientists are like tree detectives! They study tree rings to learn about weather from long, long ago - even thousands of years in the past. By counting and measuring rings, they can tell if it rained a lot or if it was dry, and they help us understand how our climate is changing. Average Annual Salary: \$50,000 - \$65,000
3. Carpenter or Woodworker: Carpenters use wood from trees to build things like houses, furniture, and toys. They need to understand different types of wood and how it works. Some carpenters look at tree rings to pick the best wood for their special projects. Average Annual Salary: \$48,000 - \$58,000

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 Structure and Function
- Crosscutting Concepts: Patterns

Science Vocabulary

- * Tree rings: The circles you see inside a cut tree that show how it grew each year
- * Growth: When something gets bigger or changes as it gets older
- * Pattern: Something that repeats in the same way over and over
- * Trunk: The main stem of a tree that holds it up
- * Age: How old something is or how long it has been alive

External Resources

Children's Books:

- Tell Me, Tree: All About Trees for Kids by Gail Gibbons
- The Great Kapok Tree by Lynne Cherry
- A Tree Is Nice by Janice May Udry