

Photo Description



This rock has a white shell shape stuck inside it. The shell looks like a fan with lines going out from the bottom. The rock is sitting with other rocks on the ground.

Scientific Phenomena

This image shows a fossil formation as the anchoring phenomenon. A fossil is the remains or impression of an ancient living thing preserved in rock. This particular fossil appears to be a brachiopod or similar marine organism that lived millions of years ago. The organism died and was buried in sediment (like sand or mud) on the ocean floor. Over very long periods of time, the sediment turned into rock through pressure and chemical processes, preserving the shape of the shell. This demonstrates how Earth's history is recorded in rock layers and how we can learn about life from long ago.

Core Science Concepts

1. Fossils as Evidence of Past Life: Fossils are remains of plants and animals that lived long ago, preserved in rock. They show us that different kinds of living things existed before humans.
2. Rock Formation: Rocks can form when layers of sand, mud, and other materials get pressed together over very long time periods.
3. Time Scales: Some changes on Earth happen very slowly over millions of years, much longer than a human lifetime.
4. Preservation: Under special conditions, parts of living things can be saved in rock for a very long time.

Pedagogical Tip:

Use concrete time comparisons that first graders can understand, such as "This fossil is older than your great-great-great (continue for emphasis) grandmother's grandmother!" Rather than using abstract numbers like "millions of years."

UDL Suggestions:

Provide multiple ways for students to explore fossils - real specimens to touch, fossil rubbings with paper and crayons, and digital images. This supports different learning preferences and helps students with varying fine motor skills participate fully.

Zoom In / Zoom Out

1. Zoom In: The tiny parts of the original shell were slowly replaced by minerals from the surrounding rock. Water carrying dissolved minerals seeped into the shell's structure, and over time, the original shell material was replaced bit by bit with rock minerals, creating a perfect copy.

2. Zoom Out: This fossil is part of Earth's rock record that tells the story of how our planet has changed over time. The rocks around this fossil contain other clues about what the environment was like when this animal was alive, including what the climate was like and what other animals lived nearby.

Discussion Questions

1. What do you think this animal looked like when it was alive? (Bloom's: Create | DOK: 3)
2. How do you think this shell got inside the rock? (Bloom's: Analyze | DOK: 2)
3. What other things from today might become fossils someday? (Bloom's: Apply | DOK: 2)
4. How is this fossil the same or different from shells you might find at the beach? (Bloom's: Compare | DOK: 2)

Potential Student Misconceptions

1. Misconception: "Fossils are just regular rocks that look like animals."

Clarification: Fossils were once real living things that got preserved in rock over a very long time.

2. Misconception: "All dead animals become fossils."

Clarification: Only a few animals become fossils because they need to be buried quickly in the right conditions before they decay.

3. Misconception: "Fossils were made by people."

Clarification: Fossils formed naturally when ancient animals were buried and turned to rock over millions of years.

Cross-Curricular Ideas

1. ELA - Storytelling & Narrative Writing: Students can create a simple story about the ancient animal that became this fossil. "Once there was a shell-animal that lived in the ocean. One day..." This connects reading/writing standards while deepening understanding of the fossil's origin story.

2. Math - Patterns & Sorting: Students can examine pictures of different fossils and sort them by characteristics (size, shape, texture). They can also create simple patterns using fossil rubbings or drawings, connecting to first grade geometry and patterning standards.

3. Art - Fossil Rubbings & Texture Exploration: Students can make fossil rubbings using paper and crayons over real fossils or fossil models. This develops fine motor skills while creating a tactile understanding of the fossil's details and celebrates the beauty of natural patterns.

4. Social Studies - Then and Now: Compare what the Earth looked like when this fossil animal lived (ocean environments, different climates) to what Earth looks like today in their local community. This introduces concepts of change over time and helps students understand that Earth has a history.

STEM Career Connection

1. Paleontologist - A scientist who finds and studies fossils to learn about plants and animals that lived long ago.

Paleontologists dig carefully in rocks, clean fossils with special tools, and figure out what ancient life was like. They help us understand Earth's history through the clues fossils give us.

Average Annual Salary: \$64,000 - \$75,000

2. Geologist - A scientist who studies rocks and how they form. Geologists look at fossils and rock layers to understand how Earth has changed over time. They work with paleontologists to find and understand fossils in different locations around the world.

Average Annual Salary: \$92,000 - \$105,000

3. Museum Educator or Fossil Preparator - A person who works in science museums cleaning fossils, displaying them for visitors to see, and teaching people (like your class!) about ancient life. They help make fossils safe to touch and help others learn from them.

Average Annual Salary: \$35,000 - \$50,000

NGSS Connections

- Performance Expectation: 1-ESS1-1: Use observations of the sun, moon, and stars to describe patterns that can be predicted.
- Disciplinary Core Ideas: ESS1.A - The Universe and Its Stars
- Crosscutting Concepts: Patterns

Note: While fossils align more closely with upper elementary standards, this connects to first grade through observable patterns and evidence of change over time.

Science Vocabulary

- * Fossil: The remains of a plant or animal that lived long ago and turned into rock.
- * Ancient: Something that is very, very old from long ago.
- * Preserved: Kept safe and protected for a long time.
- * Sediment: Tiny pieces of rock, sand, and dirt that settle in layers.
- * Marine: Living in the ocean or sea.

External Resources

Children's Books:

- Fossils Tell of Long Ago by Aliki
- If You Find a Rock by Peggy Christian
- Digging Up Dinosaurs by Aliki