Clues in Stone

Use fossil data to infer long-ago organisms, environments, and relative ages.

3-LS4-1 "Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each clue from fossils or rock layers. Circle the conclusion each clue supports about a past organism, environment, or relative age.

Fossils Tell a Story

1. A team of scientists studied a dry hill far from the ocean. In its rocks, they found many shell fossils and fish fossils. The fossils were pressed into layers of rock that formed long ago. Fish live in water, so the fossils support a past water environment. These general fossil descriptions do not tell whether the water was fresh or salty; more evidence is needed to identify a lake, river or sea. The rock is dry land today, but the environment changed.

2. At another site, researchers found leaf fossils in rock layers in the Arctic. The leaves had shapes and sizes like leaves from plants that grow in warm, rainy places. The Arctic is cold now. These fossils are evidence that this place had a warmer environment long ago. Scientists use the fossil type and the place where it was found to make this claim.

3. Rock layers can also show relative age. At one dig, a large fossil bone was in a lower layer, and small fern-like plant prints were in a layer above it. Lower layers usually formed before layers above them. The bone came from an organism that no longer lives today. Its fossil is evidence of an extinct organism, and the lower layer is relatively older than the layer with plant prints.

2 ANSWER WITH EVIDENCE

Use the passage

1. What fossil data supports a past water environment at the dry hill? Can these general descriptions tell whether it was a sea?

2. How do the Arctic leaf fossils provide evidence that the Arctic was different long ago? Use two details from the passage.

3. A bone fossil is in a lower layer, while plant prints are above it. What can you conclude about their relative ages? Use the rock-layer data.

4. What fact about the bone fossil supports the claim that it came from an extinct organism?

3 YOUR TURN

Your own words

Create a two-sentence fossil data card. In sentence 1, describe an imagined fossil find, including a fossil type and its rock layer or location. In sentence 2, explain what the data shows about an organism's environment long ago and which layer is relatively older.

ANSWER KEY

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GRADE 3 · 3-LS4-1

PART 1 · READ AND MARK

Underline each clue from fossils or rock layers. Circle the conclusion each clue supports about a past organism, environment, or relative age. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What fossil data supports a past water environment at the dry hill? Can these general descriptions tell whether it was a sea?	**Fish fossils and shell fossils support a past water environment. These general descriptions do not distinguish fresh water from salt water, so they do not establish a sea.**
2	How do the Arctic leaf fossils provide evidence that the Arctic was different long ago? Use two details from the passage.	**The fossils were found in the Arctic, which is cold now, but their shapes and sizes were like leaves from plants in warm, rainy places. This shows the Arctic was warmer long ago.**
3	A bone fossil is in a lower layer, while plant prints are above it. What can you conclude about their relative ages? Use the rock-layer data.	**The lower layer with the bone fossil is relatively older than the layer with plant prints because lower layers usually formed first.**
4	What fact about the bone fossil supports the claim that it came from an extinct organism?	**The organism that made the bone fossil no longer lives today.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

A lower rock layer holds many shell fossils and ripple marks, while a higher layer has dry-land animal footprints. The shell organisms lived in shallow water, and the lower layer is relatively older than the higher layer.

Accept reasonable conclusions that are supported by the student's fossil and rock-layer details. The response should connect fossil evidence to a past environment and correctly state that a lower layer is relatively older than a higher layer. Do not require a marine environment from unspecified fish and shell fossils. Additional evidence would be needed to distinguish fresh water from salt water. Relative-age comparisons assume the layers retain their original order.