Clues in the Cliff

Use fossils and rock patterns to trace changes in one place.

5.8.e "fossils and geologic patterns provide evidence of Earth's change."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each fossil or rock-layer clue. Circle the nearby words that tell what the clue shows about Earth's change.

A Changing Cliff

1. At a canyon in Arizona, scientists study rock layers exposed on a cliff. The lowest layers formed first, and younger layers built up above them. In one lower layer, they find shells from animals that lived in a shallow sea. Today, the cliff stands in a dry desert. These fossils show that this place once had an ocean environment very different from the one there now.

2. Farther up the cliff, a dark coal layer contains plant fossils. Coal forms from thick plant material that was buried and changed over long periods. The plants suggest that a wet, swampy area covered the region after the sea was gone. Scientists compare the order of the rock layers and fossils. This pattern records environmental changes at the same location over a long span of Earth's history.

3. Geologic patterns can also show changes in land. Some layers at the cliff are tilted, while older layers below them are flat. This difference suggests that forces inside Earth pushed and bent the rocks after the flat layers formed. Wind and water later wore away parts of the cliff. By using fossil clues with rock-layer patterns, scientists build evidence that Earth's surface and environments have changed.

2 ANSWER WITH EVIDENCE

Use the passage

1. What do the shell fossils tell scientists about the place that is now a dry desert?

2. What evidence suggests that the region became a wet, swampy area after the sea was gone?

3. Which rock-layer pattern suggests that forces inside Earth changed the land?

4. How does comparing the order of fossils and rock layers help scientists learn about Earth's change?

3 YOUR TURN

Your own words

Invent evidence from a different rock site. Describe one fossil clue and one rock-layer pattern, then explain what the two clues show about changes at that place.

ANSWER KEY

Clues in the Cliff

GRADE 5 · 5.8.e

PART 1 · READ AND MARK

Underline each fossil or rock-layer clue. Circle the nearby words that tell what the clue shows about Earth's change. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What do the shell fossils tell scientists about the place that is now a dry desert?	**The place was once covered by a shallow sea, or had an ocean environment.**
2	What evidence suggests that the region became a wet, swampy area after the sea was gone?	**A higher coal layer contains plant fossils. The plants and coal indicate a wet, swampy area.**
3	Which rock-layer pattern suggests that forces inside Earth changed the land?	**Some layers are tilted while the older layers below are flat.**
4	How does comparing the order of fossils and rock layers help scientists learn about Earth's change?	**The order shows how environments at the same location changed over a long time.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

In a lower layer, I found leaf fossils, showing that plants once grew in a wet forest. Above it, the rock layers were tilted, showing that forces inside Earth bent the rocks after they formed. Together, these clues show that both the environment and land changed over time.

Accept scientifically reasonable fossil and rock-pattern evidence paired with accurate explanations of past environmental or land changes. Students may use different examples if each clue supports the stated change.