Fossils in Order

Use rock layers and fossils to build a relative chronology.

6.7 "Analyze data from rock strata and the fossil record to construct a chronology of occurrences in Earth's history."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the sentence that explains how to compare the ages of layers. Then write 1, 2, or 3 beside each fossil in the table to show its order from the oldest recorded layer to the youngest, using the same number for repeated fossils.

Clues in Two Quarries

1. At a seaside cliff, geologists study rock layers like pages in a book. Sediment settles in layers, and new layers usually form on top of older ones. If the rocks have not been overturned, a lower layer formed before a higher layer. Fossils trapped in a layer show which organisms lived when that sediment was deposited.

2. Two nearby quarries expose different parts of an ancient seabed. The table lists the visible layers at each quarry from bottom to top. Quarry A exposes three layers, while Quarry B exposes only two. A fossil of the same species in two layers can help geologists compare the quarries, even when they do not show identical stacks.

FOSSILS IN THE VISIBLE LAYERS

Quarry	Layer position	Fossil species
A	Bottom	Trilobite species T
A	Middle	Ammonite species M
A	Top	Clam species C
B	Bottom	Ammonite species M
B	Top	Clam species C

3. A fossil species may occur in more than one layer because its organisms lived for a span of time. A shared species helps match layers, but it does not prove the layers formed on the same day. To build a careful chronology, geologists use both the order of layers and the fossils in them. They do not need to know each rock's exact age in years.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which layer at Quarry A formed first? Use its position and fossil to explain.

2. Which layers in the two quarries contain ammonite species M? What does this match suggest about when those layers formed?

3. A collector says the clam layer formed before the ammonite layer at Quarry B. What evidence from both quarries challenges that claim?

4. List the three fossil-bearing layers at Quarry A from oldest to youngest. What evidence supports your order?

3 YOUR TURN

Your own words

At a third quarry, a tooth fossil lies in a layer above ammonite species M but below clam species C. Write three sentences that place the tooth layer in order with those two layers and explain how the layer order and the table support your chronology.

ANSWER KEY

Fossils in Order

GRADE 6 · 6.7

PART 1 · READ AND MARK

Underline the sentence that explains how to compare the ages of layers. Then write 1, 2, or 3 beside each fossil in the table to show its order from the oldest recorded layer to the youngest, using the same number for repeated fossils. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which layer at Quarry A formed first? Use its position and fossil to explain.	**Quarry A's bottom layer, which contains trilobite species T, formed first. It lies below A's other layers.**
2	Which layers in the two quarries contain ammonite species M? What does this match suggest about when those layers formed?	**Quarry A's middle layer and Quarry B's bottom layer contain ammonite species M. Both formed during the span when that species lived, though not necessarily on the same day.**
3	A collector says the clam layer formed before the ammonite layer at Quarry B. What evidence from both quarries challenges that claim?	**At both quarries, the ammonite layer is below the clam layer. Since lower layers formed first, the ammonite layer formed before the clam layer at Quarry B.**
4	List the three fossil-bearing layers at Quarry A from oldest to youngest. What evidence supports your order?	**Trilobite species T, ammonite species M, then clam species C. Their layers occur in that order from bottom to top at Quarry A.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

At the third quarry, the ammonite layer is oldest, the tooth layer is next, and the clam layer is youngest. The tooth layer lies above the ammonite layer and below the clam layer, so it formed between them. Ammonite species M appears below clam species C at both quarries in the table, supporting the same order.

Accept answers that use lower layers as older and recognize matching fossils as evidence of a shared span of time, not proof that layers formed on the same day. For the marking job, the numbers are 1 for trilobite species T, 2 for both ammonite species M entries, and 3 for both clam species C entries.