Fossil Pattern Hunt

Read fossil data for clues about life through time

8.LS4.1 "Analyze and interpret data to identify patterns within the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline fossil groups named in the passage, circle ages and extinction dates, and number the table rows from oldest to youngest. Use your marks to trace which groups appear across different ages.

What Fossil Samples Reveal

1 Imagine sorting fossil trays from rock layers of different ages. A fossil in an older layer shows that its life form existed at that time. The table lists groups found in samples from four ages, gathered at different sites. It shows selected finds, not every creature alive at each age.

SELECTED FOSSIL FINDS FROM FOUR AGES

Age (millions of years ago)	Fossil groups found	Number of groups
300	trilobites, early reptiles, bivalves	3
150	ammonites, nonbird dinosaurs, mammals, bivalves	4
80	ammonites, nonbird dinosaurs, mammals, bivalves	4
40	mammals, bivalves	2

2 Read the ages from oldest to youngest, then compare the groups found in each sample. A group present at more than one age had members living at those different times. The number of groups in a sample gives one measure of its diversity, but it cannot describe all life on Earth.

3 Trilobites died out about 252 million years ago. Ammonites and nonbird dinosaurs died out about 66 million years ago, although birds, a dinosaur lineage, survived. These extinction dates come from a wider fossil record, not just this table. A missing group in one sample is not proof that it vanished from Earth.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which fossil group appears in all four samples? What pattern does its presence show?

2. How does the number of fossil groups change from 300 to 150 million years ago? What does this show about diversity in these samples?

3. Which two groups found in the 80-million-year-old sample are absent from the 40-million-year-old sample? How does the passage help explain the pattern?

4. A student says early reptiles became extinct before 150 million years ago because they appear only in the oldest sample. Is that conclusion supported? Explain.

3 YOUR TURN

Your own words

Write a three-sentence museum label about the pattern of mammal fossils in the table. Cite two ages, explain what the pattern shows, and state one limit of what these samples can tell us.

ANSWER KEY

Fossil Pattern Hunt

GRADE 8 · 8.LS4.1

PART 1 · READ AND MARK

Underline fossil groups named in the passage, circle ages and extinction dates, and number the table rows from oldest to youngest. Use your marks to trace which groups appear across different ages. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which fossil group appears in all four samples? What pattern does its presence show?	**Bivalves appear in all four samples, showing that members of this group lived at each of the sampled ages.**
2	How does the number of fossil groups change from 300 to 150 million years ago? What does this show about diversity in these samples?	**The number rises from three to four, so the 150-million-year-old sample contains more fossil groups.**
3	Which two groups found in the 80-million-year-old sample are absent from the 40-million-year-old sample? How does the passage help explain the pattern?	**Ammonites and nonbird dinosaurs are absent. Both groups died out about 66 million years ago, between the two sampled ages.**
4	A student says early reptiles became extinct before 150 million years ago because they appear only in the oldest sample. Is that conclusion supported? Explain.	**No. Their absence from later samples does not prove they had vanished from Earth.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Mammal fossils appear in samples from 150 and 40 million years ago. Their presence at both ages shows that mammals lived at widely separated times. These samples cannot show how many mammal species lived at either time because the table lists only selected fossil groups.

Accept any two listed ages with mammal fossils for the museum label. Distinguish patterns in the selected samples from claims about every organism alive at those times.