Name _____ Date _____ Period _____

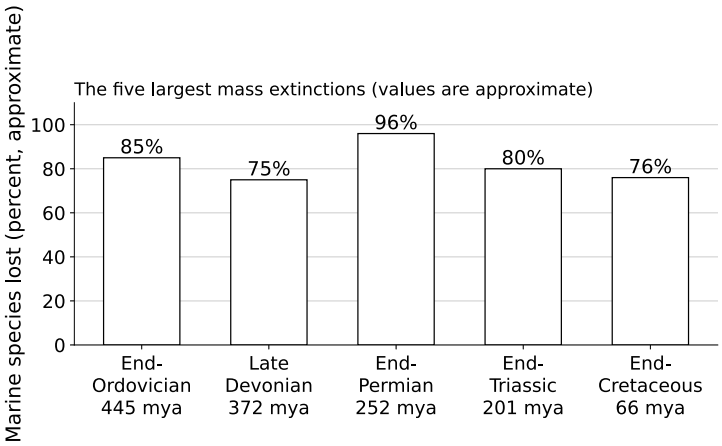
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Extinction and the Pace of Evolution

Biology

Answer in complete sentences. Show your work for calculations.

1. The graph shows the five largest mass extinctions (approximate values).

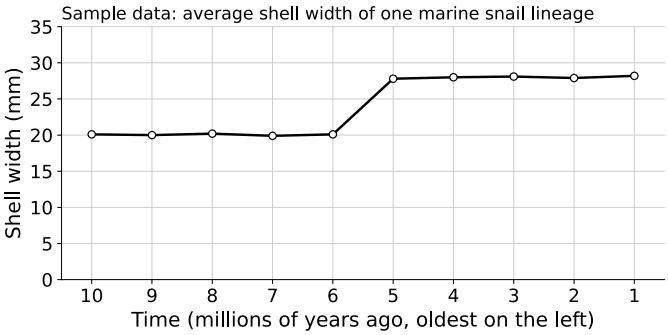


(a) Which mass extinction wiped out the greatest percent of marine species?

(b) How many million years passed between the End-Permian and End-Cretaceous extinctions? Show your setup.

(c) Name one cause that scientists have linked to a mass extinction.

2. The graph shows the average shell width of a snail lineage (sample data).



(a) What was the shell width 8 million years ago?

(b) How much did the shell width change from 6 to 5 million years ago?

(c) Is this pattern gradualism or punctuated equilibrium?

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3. After a mass extinction, many niches are empty. Explain how this can lead to the rapid appearance of new species.

4. Suppose the background extinction rate is 1 species per 1,000,000 species per year. A group has 20,000 species.

(a) How many extinctions would you expect in 50 years? Show your setup.

(b) In the last 50 years, 15 species in this group went extinct (model numbers). How many times higher is the observed rate?

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