

“Fossils and Geologic Time”
Earth Science Assessment Probe

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The students read an exciting story about a paleontologist who discovered a complete *Tyrannosaurus rex* skull weathering out of the rocks in South Dakota. The teacher asked the students would the paleontologist be able to know the approximate age of the fossil. The responses of several of the students are listed below. Choose which student you think has the best answer and explain why.

Armand: The only way the paleontologist would know the age of the *Tyrannosaurus rex* is to date the fossil using radiometric dating techniques such as Carbon-14.

Zandra: The paleontologist would know that the fossil was Cretaceous (about 65-67 million years old) in age since that is the only time that *Tyrannosaurus rex* lived.

Marcus: There is probably no accurate way to be able to determine even the approximate age of the fossil.

Ashleigh: The age of the rocks in which the *Tyrannosaurus rex* was found could be dated, but only if there are other fossils associated with it. You could use the other fossils to date the rock.

Explanation:

Key

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Answer:

Zandra has the most accurate answer.

Note that Armand mentions the use of carbon dating. C-14 is only accurate for about 50,000 years, which is not usable for dinosaur-bearing sediments that would be a minimum of 65 million years old.