

Name: _____ Date: _____

Deep Time Detectives: An 8th Grade Fossils & Stratigraphy Quiz

Imagine reconstructing a lost world using only index fossils and radioactive isotopes to bridge billions of years in the geologic record.

1. If a geologist finds a layer of volcanic ash between two sedimentary rock layers, they can use it to determine the numerical age of those layers. This technique is known as:

- A. Relative dating
- B. Absolute dating
- C. The Law of Superposition
- D. Cross-cutting relationships

2. The sudden appearance of diverse animal phyla in the fossil record roughly 541 million years ago is a critical event called the _____ Explosion.

- A. Devonian
- B. Mesozoic
- C. Cambrian
- D. Holocene

3. An unconformity represents a 'gap' in the geologic record where rock layers were either never deposited or were eroded away before new layers formed.

- A. True
- B. False

4. Why are certain fossils, like ammonites, considered excellent 'index fossils' for correlating rock layers across different continents?

- A. They were extremely rare and hard to find.
- B. They lived for billions of years without changing.
- C. They were geographically widespread and existed for a short geologic time.
- D. They only lived in very specific, isolated deep-ocean trenches.

5. The Law of _____ states that in an undisturbed sequence of sedimentary rocks, each layer is older than the one above it and younger than the one below it.

- A. Inclusion
- B. Faunal Succession
- C. Superposition
- D. Horizontality

6. Carbon-14 dating is the most effective method for determining the age of dinosaur bones from the Jurassic Period.

- A. True

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B. False

7. Which boundary in the geologic time scale is marked by the largest mass extinction in Earth's history, often called the 'Great Dying'?

- A. The K-Pg (Cretaceous-Paleogene) boundary
- B. The Permian-Triassic boundary
- C. The Ordovician-Silurian boundary
- D. The Pleistocene-Holocene boundary

8. Coprolites and gastroliths are examples of _____ fossils because they provide evidence of an organism's behavior or diet rather than its body structure.

- A. Mold
- B. Cast
- C. Trace
- D. Body

9. What does the discovery of *Glossopteris* (ancient fern) fossils in Antarctica, South America, and Africa primarily suggest to scientists?

- A. Early plants were able to swim across salt-water oceans.
- B. These continents were once part of a single landmass called Gondwana.
- C. The Earth's orbit was significantly closer to the Sun in the past.
- D. Antarctica has always been located at the South Pole.

10. Petrification occurs when the internal cavities and cell walls of an organism are filled or replaced by mineral-rich water that turns to stone.

- A. True
- B. False