

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Geologic Gaps & Great Gradations: 8th Grade Geochronology Quiz

Challenge students to synthesize carbon dating data and stratigraphic principles to resolve complex puzzles in Earth's deep-time history and faunal succession.

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**1. Which geologic principle would a scientist use to determine that a granitic intrusion is younger than the sedimentary layers it pierces?**

- A. The Principle of Original Horizontality
- B. The Principle of Cross-Cutting Relationships
- C. The Principle of Faunal Succession
- D. The Principle of Superposition

**2. The \_\_\_\_\_ describes a significant gap in the rock record, representing a period of erosion or non-deposition where layers of time are missing.**

- A. Index fossil
- B. Isotope half-life
- C. Unconformity
- D. Varve

**3. True or False: Carbon-14 dating is the primary method used by geologists to determine the absolute age of Precambrian metamorphic rocks.**

- A. True
- B. False

**4. If a geologist finds an index fossil like a Graptolite in a shale layer in Scotland and the same fossil in a shale layer in New York, what can they conclude?**

- A. The layers were deposited at the same time.
- B. The layers contain the exact same mineral composition.
- C. The Scotland layer is older because it is further North.
- D. Oxygen levels were higher in New York during that era.

**5. The transition from the Paleozoic Era to the Mesozoic Era was marked by the \_\_\_\_\_, the largest mass extinction event in Earth's history.**

- A. K-Pg Extinction
- B. Cambrian Explosion
- C. Permian-Triassic Extinction
- D. Great Oxygenation Event

**6. True or False: Cast and mold fossils provide a 3D physical replica of the internal organs of an organism.**

- A. True
- B. False

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**7. Using radiometric dating, a rock sample is found to have a parent-to-daughter isotope ratio of 1:3. If the half-life of the parent is 700 million years, how old is the rock?**

- A. 350 million years
- B. 700 million years
- C. 1.4 billion years
- D. 2.1 billion years

**8. While searching for evidence of early life, a scientist discovers \_\_\_\_\_, which are layered mounds formed by the trapping of sediment by ancient cyanobacteria.**

- A. Stromatolites
- B. Coprolites
- C. Banded Iron Formations
- D. Ammonites

**9. Which of the following would be considered a 'trace fossil' rather than a 'body fossil'?**

- A. A carbonized leaf film
- B. A petrified tree trunk
- C. A fossilized burrow from an ancient crustacean
- D. A replacement fossil of a brachiopod shell

**10. True or False: The principle of 'Uniformitarianism' suggests that the geological processes we see today have operated similarly throughout Earth's history.**

- A. True
- B. False