

Name: _____ Date: _____

Unearth Your Legacy: 9th Grade Geologic Chronology Quiz

Synthesize geochemical dating methods and bio-stratigraphic correlation techniques for advanced high school earth science review or summative assessment.

1. Which analytical method allows geologists to correlate sedimentary strata across different continents despite variations in local lithology?

- A. Palynology and the study of microfossil assemblages
- B. Measuring the thickness of varve layers
- C. The law of lateral continuity in isolated basins
- D. Visual inspection of grain size distributions

2. The sudden appearance of diverse multicellular organisms in the rock record at the start of the Phanerozoic eon is known as the _____.

- A. Great Oxidation Event
- B. Cambrian Explosion
- C. Permian Recovery
- D. Ediacaran Emergence

3. True or False: Index fossils are most effective for relative dating if the organism existed globally for a narrow duration of geologic time.

- A. True
- B. False

4. If a zircon crystal contains 25% of its original Uranium-235 (parent) and 75% Lead-207 (daughter), how many half-lives have elapsed since the crystal formed?

- A. One half-life
- B. Two half-lives
- C. Three half-lives
- D. Four half-lives

5. A geological feature such as a fault or igneous intrusion that cuts through another body of rock is younger than the rock it cuts, according to the _____.

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

6. Why is the discovery of *Glossopteris* flora across South America, Africa, India, and Antarctica considered evidence for Plate Tectonics rather than just seed dispersal?

- A. The seeds were too heavy to be carried by wind or salt water across oceans.

Name: _____ **Date:** _____

- B. These plants only grew in shallow marine environments.
- C. The fossils were found in volcanic ash layers that are magnetic.
- D. The DNA was preserved and matches modern tropical species.

7. True or False: An unconformity in the rock record represents a period of continuous sediment deposition without any erosional intervals.

- A. True
- B. False

8. The widespread iridium layer found at the K-Pg boundary globally is primarily interpreted as evidence for what event?

- A. Rapid sea-level rise due to glacial melting
- B. A massive basaltic volcanic eruption in India
- C. An extra-terrestrial impact from an asteroid or comet
- D. A shift in Earth's magnetic polarity

9. Which specific preservation mode involves the internal cavity of a shell filling with sediment that later hardens, even if the original shell dissolves?

- A. Carbonization
- B. Recrystallization
- C. Internal Mold/Cast
- D. Permineralization

10. True or False: The Hadean Eon is characterized by an extensive fossil record of the first eukaryotic cells.

- A. True
- B. False