

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

## Why the Ground Isn't as Solid as You Think (7th Grade Quiz)

Students gain a deep understanding of lithospheric dynamics by analyzing seismic data and volcanic chemistry to predict hidden crustal movements.

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**1. The 1883 eruption of Krakatoa was significantly more explosive than typical Hawaiian eruptions. Based on the chemical composition of magma, what most likely caused this extreme violence?**

- A. Low viscosity and high iron content in the basaltic flow
- B. High silica content causing trapped gases to build massive pressure
- C. A transform plate boundary preventing the release of magma
- D. The cooling of the asthenosphere directly beneath the island

**2. When a dense oceanic plate slides beneath a lighter continental plate, it forms a \_\_\_\_ zone, often resulting in deep-focus earthquakes and volcanic arcs.**

- A. convection
- B. divergent
- C. subduction
- D. strike-slip

**3. True or False: Seismic P-waves (primary waves) can travel through both solid rock and liquid magma, while S-waves (secondary waves) cannot travel through liquids.**

- A. True
- B. False

**4. If you are analyzing a seismograph and notice a significant time gap between the arrival of the P-wave and the S-wave, what can you conclude about the earthquake's origin?**

- A. The epicenter is very close to your location
- B. The earthquake occurred at a shallow depth
- C. The epicenter is a great distance away from your location
- D. The earthquake was low on the Moment Magnitude Scale

**5. The theoretical 'Supercontinent' that existed 300 million years ago is widely known, but the earlier supercontinent that formed roughly 1 billion years ago is called \_\_\_\_.**

- A. Gondwana
- B. Laurasia
- C. Rodinia
- D. Pangea

**6. True or False: Paleomagnetism provides evidence for seafloor spreading because the iron minerals in new crust align with Earth's switching magnetic poles.**

- A. True

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B. False

**7. Which of these geological features is a direct result of a 'Hotspot' located in the middle of a moving tectonic plate rather than at a boundary?**

- A. The Aleutian Islands
- B. The Yellowstone Caldera
- C. The Mariana Trench
- D. The Mid-Indian Ridge

**8. The physical mechanism that acts as the primary 'engine' for plate movement, involving the cooling and sinking of lithospheric plates, is called \_\_\_\_.**

- A. Slab pull
- B. Ridge push
- C. Tidal friction
- D. Centrifugal force

**9. Why does the 'Ring of Fire' experience roughly 90% of the world's earthquakes?**

- A. It is the only place where divergent boundaries exist
- B. It consists of a continuous circle of transform faults
- C. It is surrounded by subduction zones and complex plate interactions
- D. The crust is thinnest there due to extreme ocean pressure

**10. True or False: The Moment Magnitude Scale is a logarithmic scale, meaning a magnitude 8 earthquake releases roughly 32 times more energy than a magnitude 7.**

- A. True
- B. False