

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

## Answer Key: Crack the Crust: Tectonic Force 7th Grade Quiz

Imagine the floor beneath your desk is a floating puzzle piece; analyzing seismic data and volcanic chemistry helps predict where these massive plates shift.

---

**1. The Aleutian Islands in Alaska formed because one oceanic plate was forced beneath another. What is the specific name for this geological process?**

**Answer:** B) Subduction

Subduction occurs at convergent boundaries when a denser tectonic plate sinks into the mantle beneath a less dense plate, often creating volcanic island arcs.

**2. True or False: The epicenter of an earthquake is the exact point underground where the rock first breaks or shifts.**

**Answer:** B) False

The point underground where the break occurs is the 'focus' or 'hypocenter'; the 'epicenter' is the location on the Earth's surface directly above it.

**3. Continental crust is primarily composed of \_\_\_\_\_, which makes it less dense and thicker than the basaltic oceanic crust.**

**Answer:** C) Granite

Granite is the hallmark rock of the continents; its lower density compared to basalt explains why continents 'float' higher on the mantle.

**4. Which type of seismic wave travels the fastest and is the first to be detected by a seismograph after an earthquake occurs?**

**Answer:** D) P-waves (Primary)

P-waves are longitudinal compression waves that travel faster than other seismic waves, allowing them to arrive at monitoring stations first.

**5. True or False: Shield volcanoes, like those found on the Galapagos Islands, typically have quiet eruptions with thin, runny lava flows.**

**Answer:** A) True

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

Shield volcanoes are built by low-viscosity (runny) basaltic lava, which spreads out in thin layers to create a broad, gently sloping profile.

**6. The \_\_\_\_\_ is the plastic-like layer of the upper mantle where convection currents provide the force necessary to move the tectonic plates above.**

**Answer:** B) Asthenosphere

The asthenosphere is semi-fluid, allowing it to flow slowly and carry the rigid lithospheric plates in a process called mantle convection.

**7. At the Dead Sea Transform boundary, the plates move horizontally past one another. Why are there rarely any volcanoes found at this type of boundary?**

**Answer:** C) Crust is neither created nor destroyed

Transform boundaries involve lateral sliding; unlike convergent or divergent boundaries, they lack the subduction or rifting needed to generate significant magma.

**8. True or False: Magnetic 'stripes' on the ocean floor provide evidence that the Earth's magnetic poles have reversed many times in the past.**

**Answer:** A) True

As magma cools at ridges, iron minerals align with Earth's magnetic field, creating a permanent record of the magnetic orientation at that time.

**9. Mount St. Helens is a composite volcano (stratovolcano). What characteristic best describes this type of volcano?**

**Answer:** C) Tall peaks with alternating layers of ash and lava

Composite volcanoes are built from alternating 'strata' of explosive ash/tephra and thick lava flows, resulting in a steep, conical shape.

**10. In 1815, the eruption of Mount Tambora caused a 'Year Without a Summer' because of the massive amount of \_\_\_\_\_ injected into the stratosphere.**

**Answer:** B) Volcanic ash and sulfur aerosols

Sulfur dioxide and ash clouds reflect sunlight away from the Earth, which can cause global temperatures to drop significantly after a major eruption.