

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

## Answer Key: Feeling the Tremor: A 6th Grade Tectonics Investigation

Learners translate seismic data into geological insights by analyzing how plate friction and magma viscosity shape our world's volatile landscapes.

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**1. When the oceanic Nazca Plate slides beneath the continental South American Plate, it creates a deep-sea trench and a mountain range. What is the specific name for this process?**

**Answer:** C) Subduction

Subduction occurs at convergent boundaries where a denser plate (oceanic) sinks beneath a less dense plate (continental), forming trenches and volcanic arcs.

**2. The 'Ring of Fire' is a massive chain of volcanoes and earthquake sites located primarily around the edges of the Atlantic Ocean.**

**Answer:** B) False

The Ring of Fire is located around the basin of the Pacific Ocean, where many plate boundaries collide and interact.

**3. Scientists use a device called a \_\_\_\_\_ to record the vibrations and waves produced by the shifting of Earth's crust during an earthquake.**

**Answer:** B) Seismograph

A seismograph (or seismometer) detects and records the force and duration of seismic waves.

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

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

P-waves are longitudinal waves that travel faster than other seismic waves and are the first to arrive at a seismic station.

**5. The point on the Earth's surface directly above the underground location where an earthquake starts is known as the \_\_\_\_\_.**

**Answer:** B) Epicenter

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While the 'focus' is the actual point of release underground, the 'epicenter' is the mapped point on the surface directly above it.

**6. Viscosity refers to a liquid's resistance to flow; silica-rich magma usually has high viscosity, leading to more explosive volcanic eruptions.**

**Answer:** A) True

Thick (viscous) magma traps gases more easily, building up pressure that eventually leads to violent, explosive eruptions.

**7. What is the primary heat source that creates convection currents in the mantle, causing the lithospheric plates to move?**

**Answer:** C) Radioactive decay in the core

Internal heat from the Earth's core, partly caused by radioactive decay, provides the energy for convection currents in the asthenosphere.

**8. In 1883, the eruption of \_\_\_\_\_ in Indonesia was so loud it was heard 3,000 miles away and caused a global drop in temperature due to ash in the sky.**

**Answer:** A) Krakatoa

Krakatoa's 1883 eruption is one of the most famous geological events in history due to its extreme sound and climate impact.

**9. A stratovolcano (composite volcano) is typically wide and flat, formed by runny, low-viscosity lava flows that spread over long distances.**

**Answer:** B) False

Stratovolcanoes are tall and cone-shaped. The flat, broad volcanoes described are called shield volcanoes.

**10. At a transform boundary, such as the North Anatolian Fault in Turkey, plates move in which direction relative to each other?**

**Answer:** C) They slide horizontally past each other

Transform boundaries are characterized by lateral motion where plates grind past one another, often getting stuck and releasing energy as earthquakes.