

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

## Tectonic Trench Trek: A 4th Grade Shifting Crust Challenge

Solve high-stakes geologic puzzles using data from the Mariana Trench and Iceland's ruptures to master how the Earth's rigid skin moves and melts.

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**1. Imagine you are an explorer in a deep-sea submarine in the Pacific Ocean. You find a deep trench where one plate is being pushed under another and melting into the Earth. What is this process called?**

- A. Subduction
- B. Expansion
- C. Solidification
- D. Weathering

**2. True or False: The 'Ring of Fire' is a tectonic area where most of the world's most explosive volcanoes are located due to plate collisions.**

- A. True
- B. False

**3. In Iceland, the North American and Eurasian plates are pulling apart, creating a giant crack. This type of plate movement is known as a \_\_\_\_\_ boundary.**

- A. Transform
- B. Convergent
- C. Divergent
- D. Sliding

**4. An engineer is building a skyscraper in a city near a transform boundary. Which event is the MOST likely threat the building must be designed to survive?**

- A. A sudden volcanic eruption from a new cone
- B. A powerful earthquake caused by plates sliding
- C. Tidal waves from a melting glacier
- D. Ash clouds blocking out the sun

**5. Before an earthquake happens, the rocks along a fault line are under immense pressure and \_\_\_\_\_, storing energy like a stretched rubber band.**

- A. Melting
- B. Cooling
- C. Tension
- D. Stress

**6. True or False: Volcanoes only form on land and never occur on the ocean floor.**

- A. True
- B. False

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**7. Why do the Appalachian Mountains in the Eastern U.S. look rounded and short, while the Alps in Europe look jagged and tall?**

- A. The Alps are at a transform boundary, not a convergent one
- B. The Appalachians stopped growing long ago and have been eroded
- C. The Appalachians are actually large volcanoes that cooled
- D. The Alps were formed by the wind instead of tectonic plates

**8. The hot, semi-liquid layer of the Earth that the tectonic plates float on is called the \_\_\_\_\_.**

- A. Inner Core
- B. Asthenosphere
- C. Hydrosphere
- D. Atmosphere

**9. If you found a rock sample that was very young and sat right in the middle of a crack on the ocean floor, you would likely be at what feature?**

- A. A mid-ocean ridge
- B. A mountain peak
- C. A desert canyon
- D. A transform fault

**10. True or False: The movement of tectonic plates is so slow that they usually only move about as fast as your fingernails grow.**

- A. True
- B. False