

Earth Systems: Plate Tectonics & Crustal Boundaries



Name: _____ Date: _____

Part A: Multiple Choice. Analyze tectonic mechanisms and geological evidence below.

1. What is the primary heat-transfer mechanism within Earth's semi-molten mantle that drives the slow motion of tectonic plates?
- A. Solar radiation absorbed by deep ocean basins
- B. Convection currents caused by heat from Earth's core
- C. Gravitational pull from the Moon and orbiting satellites
- D. Magnetic field fluctuations across the equator
2. At a convergent boundary where a dense oceanic plate collides with a less dense continental plate, which geological feature is typically formed?
- A. A mid-ocean ridge with new seafloor crust creation
- B. A deep-sea trench and a volcanic mountain arc on land
- C. A broad strike-slip fault system with no volcanic activity
- D. A rift valley widening over millions of years
3. The San Andreas Fault in California represents which type of tectonic plate boundary?
- A. Transform boundary where two plates grind horizontally past each other
- B. Divergent boundary where two plates pull apart creating new lithosphere
- C. Continental collision zone producing massive plateau uplift
- D. Passive continental margin with zero seismic friction

Part B: Tectonic Boundary Classification. Categorize each geological description into the appropriate plate boundary type.

Sort these items: Subduction zone, volcanic island arcs, and deep oceanic trenches; Mid-Atlantic Ridge and African Rift Valley (crust is created); Himalayan mountain range formed by two colliding continental plates; San Andreas Fault: horizontal shearing with shallow earthquakes and no volcanism; Seafloor spreading where magma wells up and solidifies into new basalt; Plates slide laterally past each other without creating or destroying crust

Convergent Boundary	Divergent Boundary	Transform Boundary