

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