

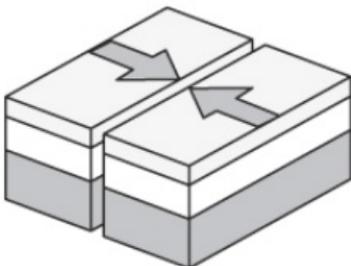
# Plate Tectonics

- ✓ The Earth's lithosphere is broken into giant chunks called **tectonic plates** (or **lithospheric plates**).
- ✓ These plates “float” on the partially melted asthenosphere beneath.
- ✓ Convection currents in the asthenosphere cause the plates to move around.
  - ✓ Magma underground is heated, expands, and becomes less dense, cause it to float to the surface. It then cools, becomes more dense and sinks back down. The result is a repeating current of moving magma.
- ✓ Wherever plates interact with one another, seismic activity occurs.
  - ✓ Seismic activity includes earthquakes, volcanoes (except hot spots), active mountain ranges, and deep-sea trenches.

## Plate Boundaries

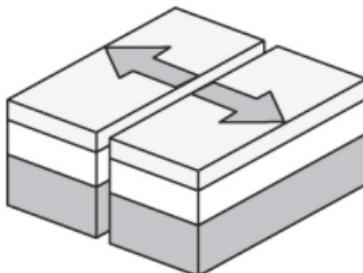
### CONVERGENT

- ✓ Two plates collide into each other
- ✓ The type of crust involved determines if one of the plates sinks under the other
- ✓ Earthquakes, volcanoes, trenches, and mountains are common
- ✓ Example: Peru-Chile Trench/Andes Mountains



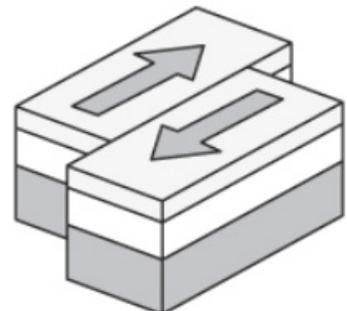
### DIVERGENT

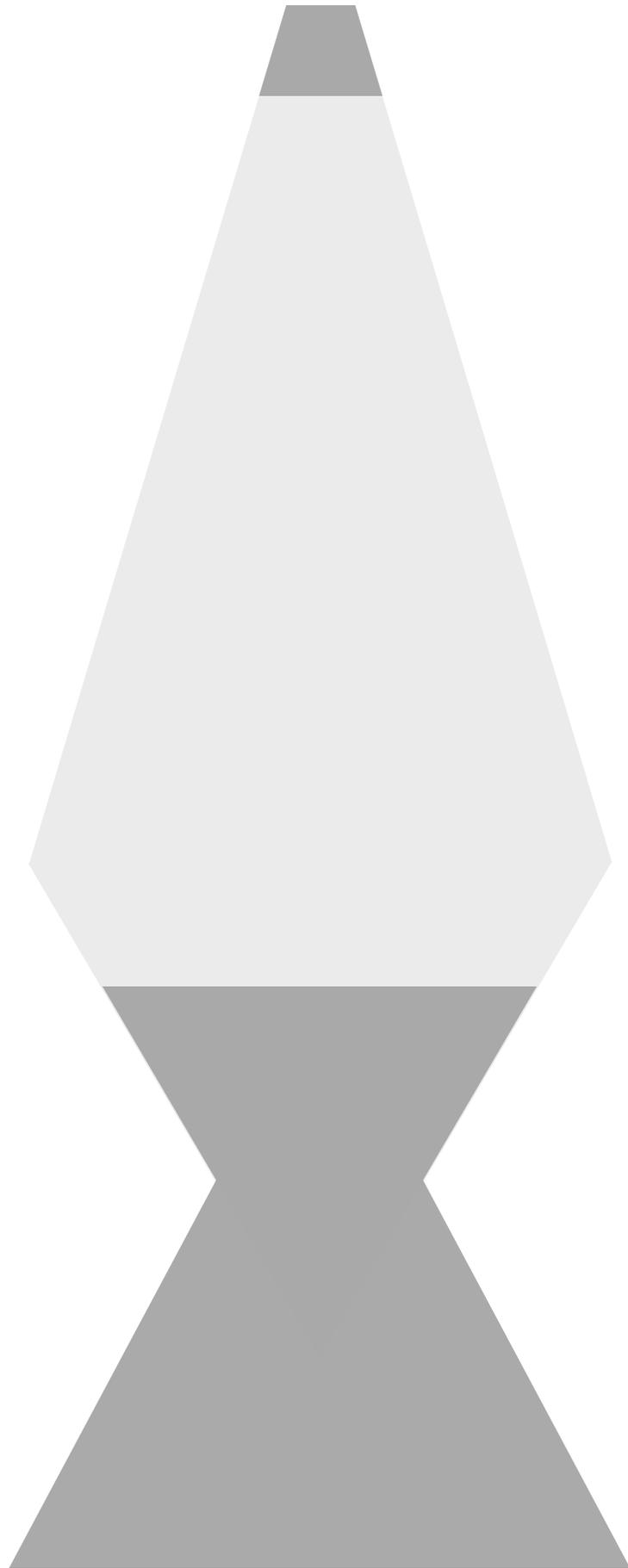
- ✓ Two plates move away from each other
- ✓ Magma rises in the middle forming a ridge Seafloor magnetism matches on either side, rock is older away from the ridge
- ✓ Earthquakes and volcanoes are common
- ✓ Example: Mid-Atlantic Ridge, African Rift Valley



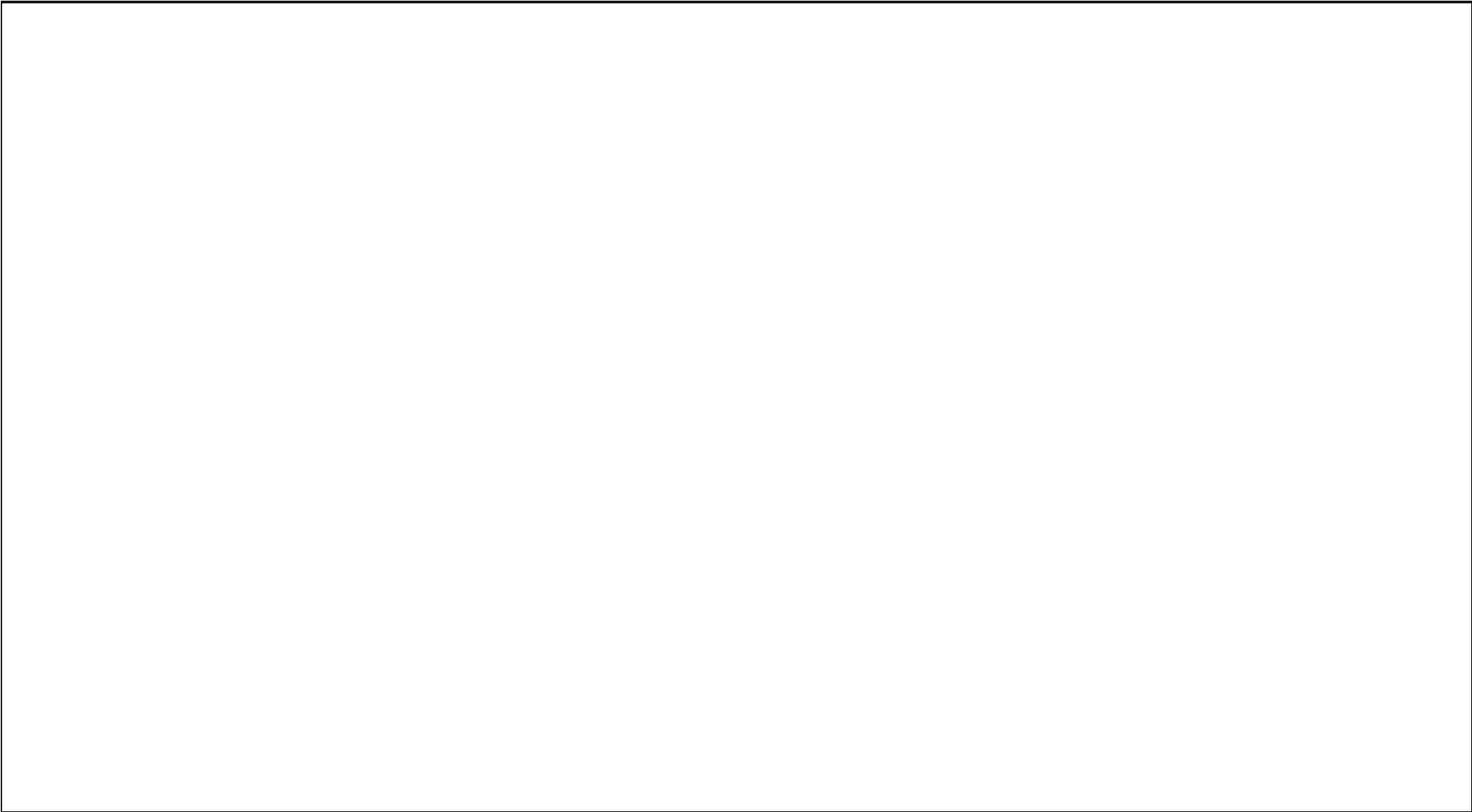
### TRANSFORM

- ✓ Two plates slide past each other
- ✓ Earthquakes are the only common feature due to the grinding of the plates past each other
- ✓ Example: San Andreas Fault which runs through California





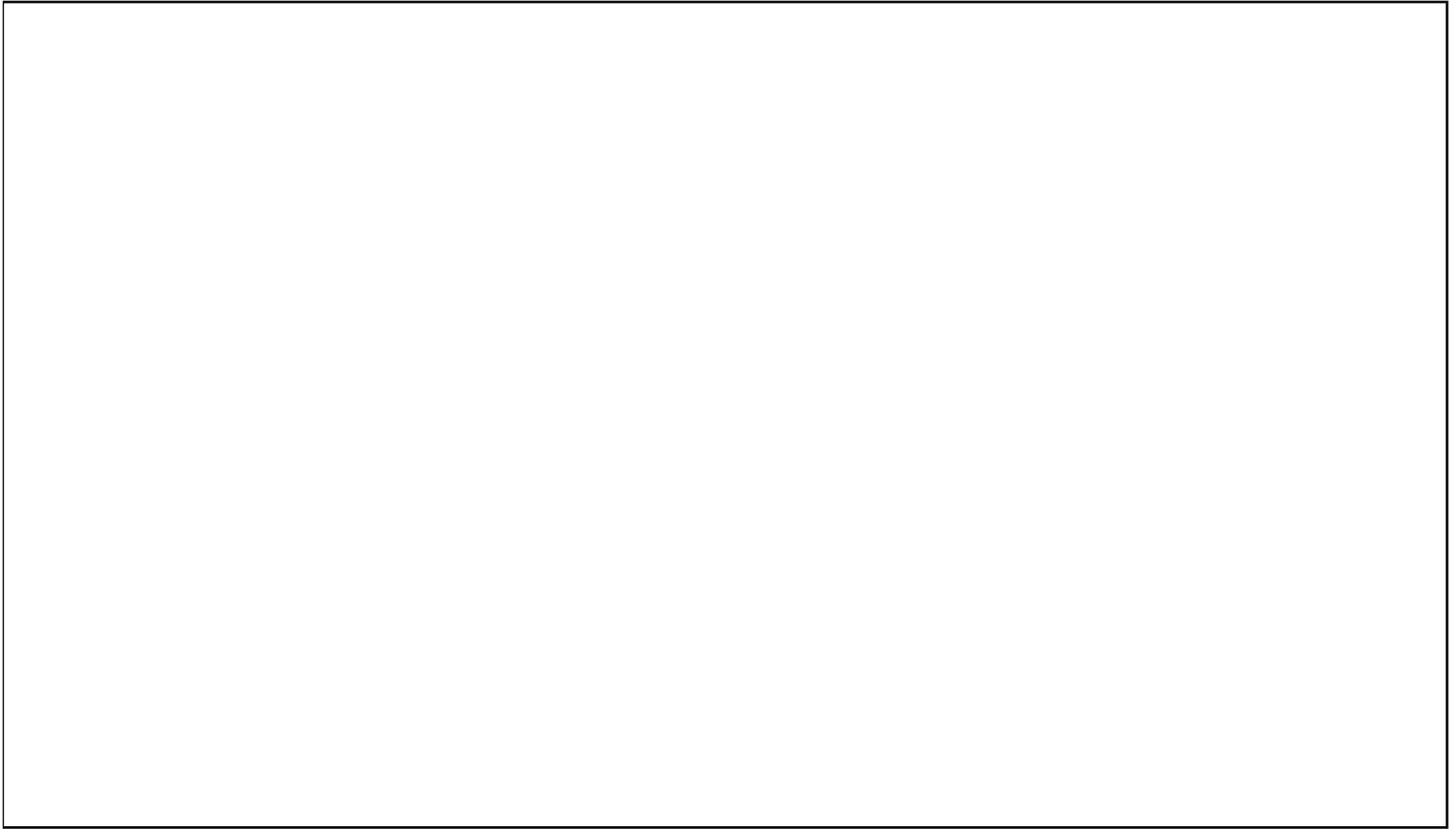
OCEANIC-OCEANIC DIVERGENT PLATE BOUNDARY (SPREADING CENTER, RIDGE)



CONTINENTAL-CONTINENTAL DIVERGENT PLATE BOUNDARY (RIFT ZONE)



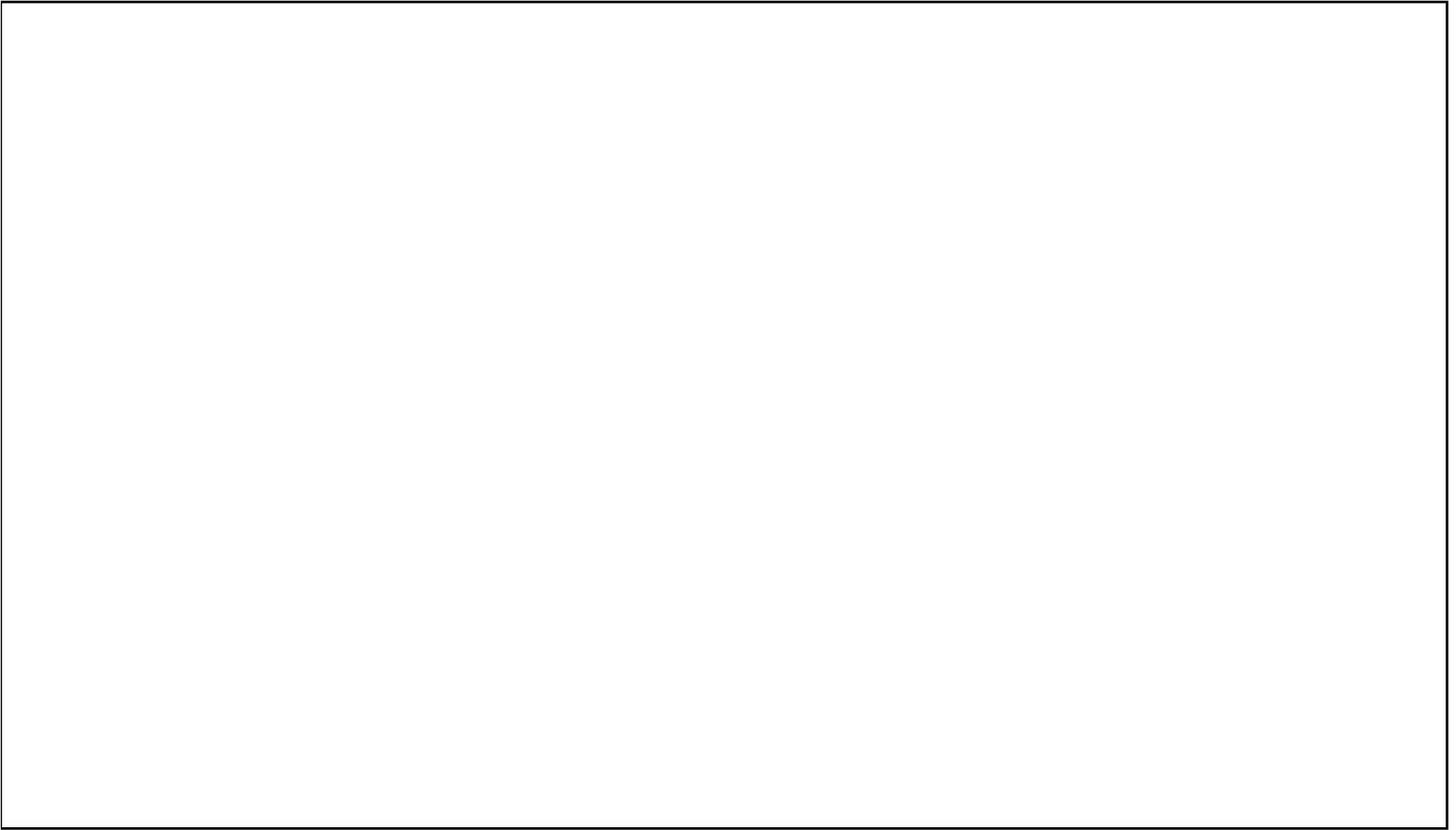
OCEANIC-CONTINENTAL CONVERGENT PLATE BOUNDARY (SUBDUCTION ZONE)



CONTINENTAL-CONTINENTAL CONVERGENT PLATE BOUNDARY (COLLISION ZONE)



OCEANIC-OCEANIC CONVERGENT PLATE BOUNDARY (ISLAND ARC)



TRANSFORM PLATE BOUNDARY



# Hot Spots

- ✓ Hot spots are active volcanoes that are **not** located along plate boundaries
- ✓ The “hot spot” is an area of magma (called a **plume**) that has risen up and broken through the lithosphere, erupting on the surface
- ✓ The hot spot stays in the same spot while plate moves over it
- ✓ The result is a chain of volcanoes, with the only active one directly over the hot spot
- ✓ As the islands get further from the hot spot, the age increases

