

p.271 When Tectonic Plates Meet

Tectonic plates may contain oceanic lithosphere, continental lithosphere, or both types of lithosphere. As tectonic plates move, they collide, separate, and grind past each other. Places where two or more tectonic plates collide are called plate boundaries. There are three main types of plate boundaries. The type of plate boundary that forms is a result of how the plates move relative to each other.

Convergent Boundaries

Plates move toward each other at a convergent boundary, as shown in Figure 2. If both plate edges are continental lithosphere, the rocks are forced together until they crumple to make great mountain belts. But if one plate is thin, dense oceanic lithosphere, it may sink downward into the mantle. As the plate sinks, surrounding rock may melt. Some of this molten rock rises to the surface and makes a line of volcanoes.

Divergent Boundaries

Plates move apart at a divergent boundary, as shown in Figure 2. This process forms a rift-a giant crack in the lithosphere. Volcanic eruptions fill the crack with lava that cools to form new oceanic lithosphere. If a rift tears apart a continent and then widens for millions of years, a new sea forms. The sea may gradually grow into a new ocean.

Transform Boundaries

Two plates slide horizontally past each other along a transform boundary, as shown in Figure 2. The movement of the plates can cause earthquakes in the area of a transform boundary. One of the world's most well known transform boundaries is the San Andreas fault, which cuts right across California.

7.4.a Students know Earth processes today are similar to those that occurred in the past and slow geologic processes have large cumulative effects over long periods of time.

7.4.e Students know fossils provide evidence of how life and environmental conditions have changed.

7.4.f Students know how movements of Earth's continental and oceanic plates through time, with associated changes in climate and geographic conditions, have affected the past and present distribution of organisms

p272 Continental Drift

As the tectonic plates move, they carry the continents along as passengers. Continental drift is the term that is used to describe how continents have moved around Earth's surface throughout Earth's history. As a continent moves across Earth's surface, it carries rocks and fossils with it.