

# Earth Science

## Plate Tectonics

Read about plate tectonics, then label the three plate movements in the illustrations below.

**Did you ever wonder why the ground shakes during an earthquake?** Have you ever asked yourself why some volcanos are always active, while others only erupt once every millenium? (And some are even less active than that!) Believe it or not, many scientists believe that earthquakes, volcanoes, and even tsunamis are all related to a scientific phenomenon: **plate tectonics**.

About 50 years ago, many scientists came up with an idea about why earthquakes, volcanic activity, and some dinosaur fossils can be found on two continents that are far away from each other.

The theory of plate tectonics states that the second layer of earth, the **lithosphere**, is made up of large, broken-up pieces. Seven or eight giant plates make up earth, with lots of minor plates between them. Tectonic plates are always moving. Sometimes the plates move against or away from each other.

**Scientists have come up with the following names for these plate movements:**

**Divergent:** When two tectonic plates pull away in opposite directions, it is called *divergent plate movement*. This often happens on the oceanic crust, creating large trenches on the sea floor bed where hot magma is exposed by the gap between these plates, contacting icy salt water in large smoke plumes.

**Subduction:** This happens when two plates crash into each other. The plates behave differently depending on whether or not they are **continental** or **oceanic**. For example, when an oceanic plate crashes into a continental slab, the oceanic plate is forced to move under the overlapping continental plate. But, if two continental plates collide into each other, the crust will form mountain ranges out of the compressed plates.

**Lateral Slipping:** A lot of friction happens when two plates move against each other. As the plates grind in opposite directions and cause friction, pressure builds up until it is released. The plates will suddenly jerk apart, creating earthquakes and tsunamis.

Our world is made up of different moving parts that are constantly crashing, pushing, and brushing into one another. The plate tectonic theory helps explain how new landforms are made, where earthquakes come from, and other major questions about our planet's crust.

**Directions:** Label the three plate movements in the illustrations below.

- a. divergent    b. subduction    c. lateral slipping

