

Lesson Outline**LESSON 3*****The Theory of Plate Tectonics*****A. The Plate Tectonics Theory**

1. The theory of _____ states that Earth's surface is divided into large plates of rock. Each plate moves over Earth's _____ and changes position with respect to other plates.
 - a. When plates _____ on the seafloor, mid-ocean ridges form.
 - b. When one plate dives under another plate, earthquakes can result and _____ can form.
 - c. Earthquakes can also result when plates _____ past each other.
2. Of all Earth's tectonic plates, the _____ plate is the largest.
3. The cold, rigid rock layer on the outermost part of Earth is called the _____. It consists of crust and the upper part of the _____.
4. Below the lithosphere is the _____, which is so hot that it flows like _____.
5. _____ of lithosphere move because they rest on the flowing asthenosphere.

B. Plate Boundaries

1. The place where two plates meet is called a(n) _____.
2. When two plates move away from each other, a(n) _____ forms.
 - a. In the ocean, _____ are located at divergent plate boundaries.
 - b. If divergent plate boundaries separate parts of a continent, _____ form.
3. When two plates slide by each other, a(n) _____ forms. This type of movement causes _____.
4. When two plates collide, a(n) _____ forms.
 - a. When plates collide, the plate that is denser slides under the less-dense plate in the process of _____.

Lesson Outline continued

- b.** When an oceanic plate slides under a continental plate, a deep ocean _____ forms. Near the trench, a line of _____ forms.
- c.** When two oceanic plates collide, a trench and a(n) _____ form.
- d.** When two continental plates collide, neither plate is subducted, and _____ form.

C. Evidence for Plate Tectonics

- 1.** Scientists now use _____ to measure how continents move.
- 2.** The theory of plate tectonics explains why earthquakes and _____ occur in certain locations.

D. Plate Motion

- 1.** Earth's mantle moves because warmer, less-dense materials rise and cooler, denser materials _____.

 - a.** Materials move based on differences in their temperatures and densities in the process of _____.
 - b.** Inside Earth, _____ elements provide some of the thermal energy that causes convection.
 - c.** Convection currents form in the mantle when thermal energy transfers from the _____ to the mantle.

- 2.** _____ forces interact to cause tectonic plate motion.

 - a.** Convection currents in the mantle produce a force that causes motion called _____.
 - b.** Plates are pushed away from each other at mid-ocean ridges by the force of _____.
 - c.** When a plate sinks below another plate, it pulls on the rest of the plate, exerting a force called _____.

E. A Theory in Progress

- 1.** Plate tectonics is the unifying theory of _____.
- 2.** Plate tectonics theory is still being _____ as scientists learn more about how Earth's tectonic plates move.