Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Student Exploration:** **Plate Tectonics**

**Prior Knowledge Questions** (Do these BEFORE using the Gizmo.)

1. **Volcanoes** are openings in Earth’s **crust** where lava, gas, and ash can erupt. Where are most active volcanoes located?
2. An **earthquake** is a violent shaking of Earth’s surface. Where are earthquakes most common?

**Overview:**

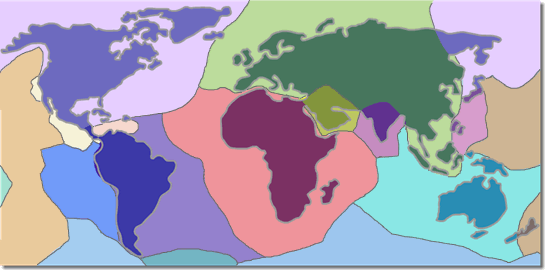
Volcanoes, earthquakes, mountains, and other features of Earth’s surface owe their origin to the movements of **plates**: enormous, slowly-moving sections of Earth’s crust. At plate boundaries, plates collide, move apart, move under or over each other, or slide past one another. The theory of **plate tectonics** describes how the plates move, interact, and change the physical landscape.

**ACTIVITY A: Sliding Plates**

**Question: What happens when plates slide past one another?**

1. Observe: Boundary A is a **transform boundary**. The arrows below the BOUNDARY A label will move the plates. Click the left arrow once to see how the plates move. How would you describe the motion of plates in a transform boundary?
2. Sketch: Draw a bird’s-eye view of the plate boundary before and after the plate motion. Draw an arrow to show which way the plate moved.

Before movement After movement

1. Locate: Turn on **Show location**. Highlight these locations on the map below.

**ACTIVITY B: Colliding Continents**

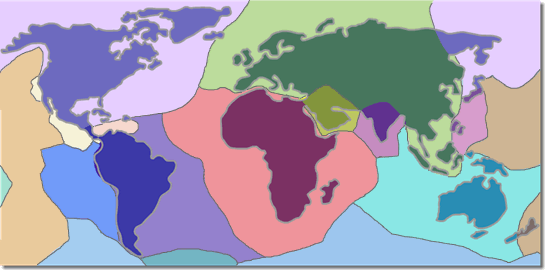
**Question: What happens when two continents collide?**

1. Observe: Boundary B is an example of a **convergent boundary**, where two plates are moving toward one another. When the two converging plates both contain continental crust, it is called a **collision zone**. Click the left arrow four times to see how the plates move.

How would you describe the motion of plates in a collision zone?

1. Sketch: Draw a side view of the plate boundary before and after the plate motion. Draw an arrow to show which way the plate moved.

Before movement After movement



1. Locate: Turn on **Show location**.

Highlight the locations of collision. Zones on the map.

**ACTIVITY C: Oceanic Crust Meets Continental Crust**

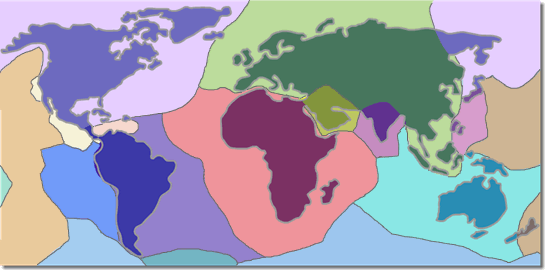
**Question: What happens when ocean crust collides with continental crust?**

1. Observe: Boundary C is another type of convergent boundary called a **subduction zone**. Click the left arrow four times to see how the plates move.

How would you describe the motion of plates in a subduction zone?

1. Sketch: Draw a side view of the plate boundary before and after the plate motion. Draw an arrow to show which way the plate moved.

Before movement After movement



1. Locate: Turn on **Show location**. Highlight the location of each of the subduction zones on the map.

Name 3 countries with major cities located near subduction zones.

**ACTIVITY D: Spreading Plates**

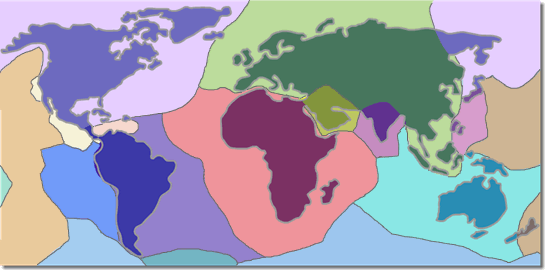
**Question: How is new crust formed?**

1. Observe: Boundary D is a **divergent boundary**. Click the right arrow four times to see how the plates move.

How would you describe the motion of plates in a divergent boundary?

1. Sketch: Draw a side view of the plate boundary before and after the plate motion. Draw an arrow to show which way the plate moved.

Before movement After movement

1. Locate: Turn on **Show location**. Where on Earth can you find divergent boundaries? Highlight these locations on the map below.