Exploring Plate Tectonics

Directions - complete the different activities to learn more about the theory of plate tectonics.

Activity 1 - Candy Bar Tectonics Review

The candy bar is a model of the layers of the Earth. Appropriately label the layers of the candy bar to correspond to the layers of the Earth using the mesosphere, lithosphere, and asthenosphere.



Carefully unwrap your candy bar and place it on top of the wrapper. Use your fingernail to make 3 small cracks in the surface of your "Earth" or candy bar.

Hold the candy bar with both hands with the top of it facing up. Slowly stretch the candy bar. Pull it apart only a couple of millimeters. **DO NOT pull the candy bar completely apart.** The chocolate should separate **BARELY** exposing the caramel.

- 1. What tectonic boundary does this represent?
- 2. What is one possible landform on Earth's surface that might form here?

Slowly push the candy bar back together again. The chocolate may crumble.

- 3. What are 2 motions you notice with the broken pieces of chocolate?
- 4. What tectonic boundary does this represent?
- 5. What is one possible landform on Earth's surface that might form here?

Gently push the right hand piece of candy away from you while pulling the left hand piece toward you. The sides may stick together so you may have to increase the force of your push.

- 6. What are 2 things you observed?
- 7. What tectonic boundary does this represent?

Activity 2 - Plate Tectonics Article

Directions: Go to Canvas and open the assignment titled "Earth's Continents Are Always Moving" Read the article and answer the questions below.

- 1. What are 2 things that are caused when land below us moves?
- 2. How many major plates cover the planet's surface?
- 3. Why are New York and London getting farther from each other each year?
- 4. How does an ocean "close up"?
- 5. What happens when the mysterious "blobs" interact with the ocean floor?
- 6. Why did the plates work differently a long time ago?

Activity 3 - Mapping Different Phenomenon

Directions - Plot the locations of earthquakes, volcanoes, and mountain ranges to identify one method used by scientists to locate tectonic plate boundaries.

Place a **yellow** "o" on the map to represent the earthquakes. Place a **red** " Δ " to represent the volcanoes. Place a **blue** "**x**" to represent mountain ranges. Check it off as you go!

0	Earthquakes		Δ	Volcanoes		х	Mountain Ranges	
	145° W	55° N		150° W	55° N		140° W	60° N
	128° W	45° N		120° W	50° N		130° W	50° N
	120° W	30° N		115° W	45° N		120° W	40° N
	110° W	20° N		100° W	20° N		110 ° W	28° N
	100° W	15° N		75° W	5° S		80° W	0°
	78° W	8° N		70° W	10° S		70° W	19° S
	75° W	25° N		70° w	25° S		75° W	30° S
	75° W	35° N		65° W	39° S		78° W	45° S
	70° E	30° N		100° E	2° S		60° E	30° N
	80° E	25° N		110° E	5° S		78° E	29° N
	90° E	22° N		120° E	5° S		85° E	29° N
	105° E	10° N		130° E	6° S		95° E	27° N
	125° E	10° S		185° E	55° N		160° E	60° N
	170° E	55° S		20° W	15° N		170° E	60° N
	180° E	60° S		15° W	30° N		180° E	65° N



Analysis Questions

- 1. Are the earthquakes, volcanoes, and mountain ranges randomly scattered over your map, or were they grouped together in certain locations?
- 2. Are volcanoes only found in a mountain range? Explain your answer.
- 3. Do all mountain ranges have volcanoes? Explain your answer.
- 4. On this graph, where do most of the earthquakes happen?
- 5. Explain in your own words how you think scientists identify the location of plate boundaries on Earth's lithosphere. This should be 1 to 2 complete sentences.