Candy Bar Plate Tectonics

a. Snickers and Twix will work best. kids use a plastic knife to make cracks in the chocolate. These cracks represent fault lines. Explain to them how these fault lines are the meeting places of large plates, which are represented by the chocolate.

-<http://www.kidpointz.com/kids-activities/science-activities/view/plate-tectonics>

Background: Plate Tectonics is Geology’s most important theory – it explains so much about our planet!   Most volcanoes and earthquakes occur along the boundaries of tectonic plates. This theory also explains how certain surface features such as mountain ranges, ocean trenches, and fault lines formed.

The lithosphere, which is made up of the entire crust and the uppermost part of the mantle, is broken into separate pieces that fit together like a puzzle - these are the tectonic plates. These plates move because of convection currents underneath them in the asthenosphere. The mantle material that makes up the asthenosphere is a dense, plastic-like layer of solid rock. The extreme heat and pressure causes this rock to move and flow. The plates that sit on top move as well.  The flowing rock in the asthenosphere moves underneath them.

Objectives:

* introduce some of the basic concepts of the Plate Tectonics theory using a scale model

Materials:

* 1 candy bar (Milky Way) per child

Procedure:

1. Carefully unwrap candy bar and place it on top of the wrapper. Using your fingers, make a few cracks across the top of the candy bar.
2. 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 exposing the caramel. The caramel represents molten material that can rise to the Earth’s surface.
3. Slowly pushed the candy bar back together again. The chocolate may crumble. “Mountain ranges” may form where pieces of chocolate overlap. Also one chocolate “plate” may slide beneath another chocolate “plate”. This is called subduction.
4. Continue to pull the candy bar apart and push the candy bar back together until you have a good sense of how the chocolate “plates” can be moved by the motion of the caramel “asthenosphere” beneath.
5. When finished, pull the candy bar completely apart, but don’t eat it yet! Look at the exposed interior and think about the candy bar as a model of the Earth’s layers. The chocolate is the lithosphere, the caramel is asthenosphere and the nougat is the remaining mantle material.
6. Answer the questions below BEFORE eating you candy bar! Questions need to be answered in complete sentences.

LAB QUESTIONS:

1. Using the candy bar as a model for a portion

of the earth, what do each layer represent?

Don’t forget to label your sketch.

2. Describe the consistency of the candy bar layers. How do they compare and contrast with one

another?

3. Using the candy bar as a model for a portion of Earth, what do each of the candy bar layers

represent?

4. Describe what you observed when the stretched candy bar was pushed together. What might

you expect to see at the point on Earth where two plates collide?

5. Your fingers did the pulling and pushing, that’s not a natural geologic process!…What does cause the motion of the plates?

6. If you are standing on top of a very high mountain in the Rockies, Alps or Himalayas, what might you infer about the rate of plate movement or the size of the plate that met?