

Name: _____

Date: _____

Period: _____

EDIBLE TECTONICS LAB

Objective: To investigate how plates move about on Earth's surface and to observe how geologic features form as a result.

Hypothesis:

Procedure:

1. Obtain a small Milky Way candy bar and a small piece of paper towel.
2. Carefully unwrap the candy bar and use your fingernail to make a few cracks across the middle portion of its top. The cracked chocolate models the plates of Earth's lithosphere.
3. Hold the candy bar top facing up, with your left thumb and forefinger holding the sides of one end and your right thumb and forefinger holding the sides of the other end.
4. Slowly stretch the candy bar, pulling it apart a few centimeters at most. The chocolate should separate, exposing the caramel. The exposed caramel represents new material that can rise to Earth's surface.
5. Slowly push the stretched candy bar back together again. The brittle chocolate may crumble. On the other hand, "mountain ranges" may form when pieces of chocolate "plates" collide. Alternatively, one chocolate "plate" may slide beneath another.
6. Continue to slowly pull the candy bar apart and push it back together again. Do this until you have a good sense of how plates can be moved about by motion of the caramel underneath. When the plates are pulled apart material from beneath can move to the surface. When plates are pushed together they can collide, or one can slide beneath another.
7. Once you have finished, pull the candy bar completely apart. Look at its exposed interior and think of the candy bar as a model of Earth's layers. The top layer of chocolate represents Earth's brittle lithosphere, broken into plates. The caramel and nougat represent the asthenosphere, where the material is solid yet still able to flow (Figure 1).
8. After answering the questions on the back of this sheet, dispose of your model as instructed. Be sure to clean up your area and wash your hands.

Conclusion Questions:

1. Describe the consistency of the candy bar layers. How do they compare and contrast with one another?
2. Using the candy bar as a model for a portion of Earth, what do each of the three candy bar layers represent?
3. Sketch (and label) the candy bar before, when pulled apart, and when pushed back together. This will mean three sketches. Make sure to draw actual size drawings and in color. Remember those labels!!!
4. Describe what you observed when the candy bar was pulled apart. What might you expect to see at a point on earth where two plates are moving apart?
5. Describe what you observed when the stretched candy bar was pushed together. What might you expect to see at a point on Earth where two plates collide?
6. From your study of plate tectonics, explain the frequent occurrence of earthquakes along the boundaries between plates.
7. One limitation of this model is that human effort (i.e. your fingers pulling and pushing) and not natural geologic processes cause "plate" motion. What natural processes might cause the motion of Earth's plates?