Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Snack Tectonics Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Hour \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Background**

The main force that helps shape the surface of Earth is plate tectonics. The rigid outer layer of the Earth, called the lithosphere, is made of plates that fit together like a jigsaw puzzle. These plates are made of rock, but the rock is in generally lightweight compared to the denser rock beneath it. This allows the plate to “float” on top of the denser material. The fluid dense material is called the asthenosphere and in this activity it is represented by the frosting. However, plates are not all the same. Plates made of continental crust are thicker but less dense than plates made of oceanic crust. In this activity, ocean plates are represented by fruit roll ups and continental crust is represented by graham crackers. In this activity we will practice what we know about plate tectonics and model several plate boundaries.

**Steps**

1.Spread your wax paper out. Spread your frosting on the wax paper. You want the frosting to be about half a cm thick.

2. The frosting represents the asthenosphere the layer on which the Earth's plates ride. The plates in this model are represented by fruit roll up (oceanic crust which is thin and dense) and graham crackers (continental crust which is thick but less dense)

**Divergent Plate Boundary**

3. Place two squares of fruit roll ups (oceanic plates) onto the frosting right next to each other.

4. Press down slowly on the fruit roll ups as you slowly push them apart about half a cm.(because they are dense and will sink a bit into the asthenosphere)

***Checkpoint1(Raise your hand for Ms. Murphy to check your progress, do not move on without approval):*** Notice how the frosting is exposed and pushed up where the plates are separated. How does this represent what happens during plate tectonic movement? (hint what does the frosting represent when it pushed up between two plates?) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Continental-oceanic collision**

5. Remove one fruit roll up (you may eat it)

6. Place one of the graham cracker halves lightly on the frosting (asthenosphere) next to the remaining fruit roll up. The graham cracker represents the continental crust, which is thicker and less dense than the oceanic crust (fruit roll up). It floats high on the astehnosphere so do not push it down.

7. Slowly and gently push the continent (graham cracker) towards the oceanic plate (fruit roll up) until the two overlap and the graham cracker is on top.

***Checkpoint 2 (Raise your hand for Ms. Murphy to check your progress, do not move on without approval):*** What does this represent? (hint: The oceanic plate is \_\_\_\_\_\_\_\_\_\_below the continental one)

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**Continent-continent collision**

8. We now will demonstrate when two continents collide. Remove the graham crackers and fruit roll ups. (you may eat the fruit roll up. But not the graham crackers!)

9. Place one edge of both graham crackers into a glass of water for just a few seconds.

10. Place the crackers onto the frosting with wet edges next to each other.

11. Slowly push the graham crackers towards each other.

***Checkpoint 3 (Raise your hand for Ms. Murphy to check your progress, do not move on without approval):*** What are we demonstrating? What is being made?

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**Transform boundaries**

12. Pick the two graham crackers up off the frosting and turn them around so that the two dry edges are next to each other.

13. Slide one cracker past the other to simulate a transform boundary.

***Checkpoint 4(Raise your hand for Ms. Murphy to check your progress, do not move on without approval) :*** What is created at transform boundaries?

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**Final step**: Eat the remaining model materials (except of course the wax paper and plastic utensils)

Answer the following comprehension questions *using complete sentences.*

1. What did each piece of the model represent? (graham cracker, frosting, fruit roll up)

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3. Describe an oceanic-oceanic collision. What kind of plate boundary is this? (482)

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4. Describe a continental-oceanic collision. Why does subduction occur?

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5. Describe continental-continental collision. What is an example of a continental-continental collision in the world? (483)

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6. Describe a transform boundary. What often results from a transform boundary? (484)

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