

NAME: _____ PERIOD: _____ DATE: _____

LAB PARTNERS: _____ LAB # 18

SNACK TECTONICS

INTRODUCTION

The activity will provide a hands-on approach to learning about the different plate boundaries.

MATERIALS

- One large graham cracker broken in half
 - o To make two squares
- Two 3-inch squares of fruit roll-up
- Cup of water
- Frosting
- Sheet of wax paper
- Plastic knife or spoon

OBJECTIVES

- Work together in cooperative groups to complete the activity
- Create a model that illustrates plate tectonic motions
- Learn how Earth's tectonic plates ride atop the slow flowing asthenosphere layer
- Understand how plates interact at their boundaries, what causes them to interact, and what type of activity occurs because of the interaction.
- Draw the examples created and identify how it relates to plate tectonics

APPROXIMATE 1 Period

TIME PROCEDURE

1. Creating the Model

Each group will receive....

- One foot of wax paper
- A large dollop of frosting
- Two 3-inch squares of fruit roll up
- One large graham cracker broken in half

Answer the following questions about creating the model:

1. What do you think the frosting represents in this model?

2. What do the graham crackers represent?

3. What do the fruit roll-up pieces represent?

2. Creating a Divergent Plate Boundary

- Place the two squares of fruit roll-up (ocean plates) onto the frosting next to each other.
- Press down slowly on the fruit roll-ups while pushing them apart about half a cm.
- Answer the following questions about this boundary:

1. Why did we push the fruit roll – ups down into the frosting? (Hint: What does the fruit roll-up represent?)
2. What do you notice about the frosting as you push the plates apart? (Describe what you have created and how it is different from what you started?)
3. How does this relate to a true divergent plate boundary?
4. Where are the most divergent plate boundaries found?
5. What type of geologic features and activities would you expect to find as a result of this plate boundary?
6. Draw and label the model you created for this section. (Label all the snack materials that were involved , as well as what they represented)



3. Creating a Continental – Oceanic Boundary

- Remove one of the fruit roll – ups from the frosting.
- Place one of the graham cracker halves (continental plate) lightly onto the asthenosphere (frosting). This should set higher than the fruit roll – up on the frosting.
- Gently push the graham cracker (continental plate) towards the fruit roll – up (oceanic plate) until the two overlap and the graham cracker is on top.
- Answer the following questions about this boundary

1. Why should the graham cracker sit higher on the frosting than the fruit roll-up? (Hint: What does each represent?)

2. What type of boundary does this model represent?

3. Explain how this type of model represents a continental – oceanic boundary?

4. What type of geologic features and activity would you expect to find at the boundary?

5. Draw and label the model you created for this section. (Label all the snack materials that were involved , as well as what they represented)



4. Creating a Continent – Continent Boundary

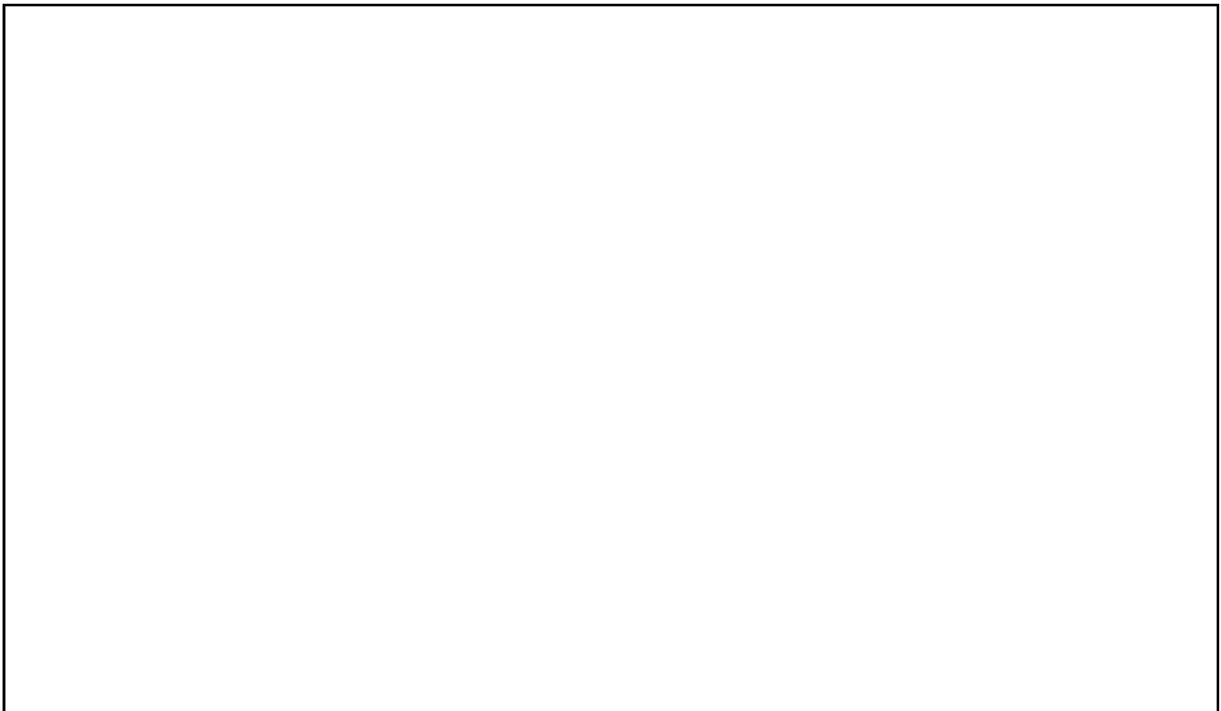
- Remove both graham cracker and the fruit roll-up from the frosting.
- Place one edge of both graham crackers in the water for just a few seconds and place the wet edges facing each other on the frosting.
- Slowly push the graham crackers towards each other.
- Answer the following questions about this boundary:

1. What happens when the graham cracker edges push into each other?

2. What type of boundary does this model represent?

3. What type of geologic features and activity would you expect to find at this boundary?

4. Draw and label the model you created for this section. (Label all the snack materials that were involved , as well as what they represented)



5. Creating a Transform Boundary

- Pick the two graham crackers up off the frosting and turn them so that the two dry edges are touching each other.
- Push the crackers in opposite directions (one up and one down).
- Answer the following questions about this boundary.

1. How does this model represent a transform plate boundary?

2. What is a transform plate boundary that you have learned about and where is it located?

3. What type of geologic features and activities would you expect to find at the boundary?

4. Draw and label the model you created for this section. (Label all the snack materials that were involved , as well as what they represented)



Laboratory Questions:

1. Using the Reference Tables identify the following as a convergent, divergent, or transform boundary:

- a. Mid Atlantic ridge _____
- b. Tonga trench _____
- c. Aleutian trench _____
- d. East Pacific ridge _____
- e. East African Rift Valley _____
- f. San Andreas Fault _____

2. Describe the relative plate motion at each plate boundary and list one geologic feature or geologic activity that happens at the plate boundary.

Convergent: _____

Divergent: _____

Transform: _____

3. What is the probability of having either a major earthquake or having a volcano occur on Long Island? Explain your answer.

