# CRACKER PLATE TECTONICS LAB name _____hr___

**MATERIALS**: For this lab you can use peanut butter and crackers, graham crackers and whipped cream, graham crackers and frosting, chips (with straight and flat edges) and salsa, etc.

**READ**: The Theory of Plate Tectonics states that the crust of the Earth is composed of seven major plates and numerous smaller plates. These plates "ride" on the hot, gooey upper mantle called the asthenosphere. This theory also says that most of these plates are in motion, creating a variety of interactions at the plate boundaries. At plate boundaries, plates may converge (crash together), diverge (split apart), or slip past each other in a horizontal motion. In addition, some plates may appear to be inactive.

## Experiment 1- Divergent Plate boundaries – aka Sea Floor Spreading

Lay two crackers side by side on top of the peanut butter. To imitate sea-floor spreading, press down lightly on the crackers as you slowly push down and apart in opposite directions.

**Analysis:**

1. What happened to the peanut butter between the crackers?

2. What do the crackers represent?

3. What does the peanut butter represent?

4. What land formation is formed where the magma rises up? (volcano, underwater mountain range (mid ocean ridge), or mountains on land)

## Experiment 2: Convergent Plate Boundaries- Oceanic and Continental

The right cracker represents the thin but dense oceanic plate while the left cracker represents the less dense continental plate.
Push the two "plate" models slowly toward each other forcing the right one to dive under the left one.

**Analysis:**

5. Which plate is more dense: continental or oceanic?

6. Which plate will subduct or sink under the other?

7. When the plate subducts, it goes deep into the hot Earth. What happens next?

8. What land formation is formed on the left side when the hot magma bubbles up through the plate? (volcano, underwater mountain range (mid ocean ridge), or mountains on land)

**Experiment 3: Convergent Boundaries- Continental and Continental**

Dip one end of each of the two crackers one centimeter into a cup of water. IMMEDIATELY remove the crackers and lay them end to end on the peanut butter with the wet edges nearly touching. Slowly push the two crackers together.

**Analysis:**

9. What happens to the wet ends of the graham crackers?

10. When two continental plates collide in a convergent boundary, what land formation is formed? (volcano, underwater mountain range (mid ocean ridge), or mountains on land)

**Experiment 4: Transform Boundaries**

Place one hand on each of the cracker pieces and push them together by applying steady, moderate pressure. At the same time, also push one of the pieces away from you while pulling the other toward you. If you do this correctly, the cracker should hold while you increase the push-pull pressure, but will eventually do a quick slide past the other cracker.

**Analysis:**

11. What natural disaster occurs often near this type of boundary?

12. Explain what a divergent boundary is.

13. Explain what a convergent boundary is.

14. Explain what a transform boundary is.

15. True or False. When sea-floor spreading occurs, new crust is added to the ocean floor.