Sci 8 Modeling **Tectonic Plate Interactions Take Home Lab Activity /20**

Materials: One cracker (any kind), a piece of bread, butter knife, toaster or oven, thick condiment like peanut butter, jam, honey, etc, camera.

**Procedure:**
1. Toast the bread, fairly crisply.

2. While toast is still warm, generously spread your favorite condiment.

3. Cut the slice down the center.

4. Cut **one of your halves** in half again to make two squares.

5. Place slices together to make a sandwich with the full half on the bottom, butter side up, and the two quarters on top, face down, side by side, touching, but not overlapping. It should look something like the image below:

 *The top two pieces represent the* ***solid lithosphere*** *sliding around on top of the gooey, not quite solid asthenosphere*.

6. **Simulate a Divergent Boundary:** *There is tremendous pressure below the Earth’s crust.* Firmly but gently press down on the two top halves while gently moving them **away** from each other a tiny bit (0.5 – 1 cm). What do you notice? If you have coated your toast with enough peanut butter/jam/honey/whatever, some of your condiment may ooze up between the two top halves. It gets pushed up due to the pressure. Normally the pressure comes from below the Earth’s surface but we had to improvise here. What geological feature does this represent? If your extruded condiment were lava, it would cool and harden into rock, forming new crust.

7. *Take a picture of the spreading center of your divergent boundary. Save it, later attach it to a word doc that is labeled with Boundary Assignment, your Name.*

8. **Simulate a Transform Boundary:** Push the two top halves together again so they are **touching** and slowly slide them past each other. Do the slices glide past each other or do they grind and make a crunching noise? Can you feel the vibrations? What do you think this represents?

9. Take a picture of your transform boundary.

Save it, later attach it to your word doc.

**Simulate Convergent Boundaries**. *Remember there are THREE different types of Convergent Boundaries because there are different types of crust. Oceanic crust is thinner and denser than Continental Crust.* Compare your toast to your cracker in terms of thickness and compactness (density). Which do you think represents Continental Crust and which is oceanic crust?

10. Remove ONE top piece of toast and set aside. You will need it later.

11. Spread same condiment on your cracker and place it face down where your toast piece was.

12. Push cracker and top piece of toast toward each other. Keep going. What happens? Does one slide under the other? What is this called?

13. Take a picture of this convergent boundary. What specific type of convergent boundary is this called? Add this image to your word document.

14. Remove your cracker and replace it with that piece of toast you removed earlier. From start position of your two top halves of toast touching, gently push them together. Keep going a little. What happens to these top pieces?

15. Take a picture and add this to your word document. You can eat your top pieces of toast.

16. **TURN IN: ONE WORD DOCUMENT with the following:**

1. **Title**: Plate Boundaries Take Home Lab, Your Name. (1pt)
2. Attach your **3 images** and *place a caption* below each one with a **correct label** of what type of boundary it represents. (6pt)
3. **Answers** to the questions below. (13pt)

**Questions**

1. What layer of Earth do the top pieces represent in your model?
2. What layer of Earth does the condiment represent?
3. A. What is it called when one plate slides beneath another?
4. Which type of crust is more likely to do this?
5. Why is this?
6. A. What happens when two continental plates collide (two pieces of toast)?
7. What geological *formation* would you expect to see when this happens?
8. Give a real life example (check your notes if you are not sure)
9. A. What geological *formation* would you expect to see at a Divergent Boundary?

B. Give a real life example.

1. A. What geological *event* might occur at a transform boundary?

B. What geological features DO NOT normally form at transform boundaries?

1. A. What action would you expect to see if you pushed two *crackers* together?
2. What type of boundary would this represent?