Additional Reflection Questions

1. Why is what you did with the graham crackers, Fruit Roll-Ups, and frosting considered a "model" of plate tectonics?
   The graham crackers, Fruit Roll-Up, and frosting were representing other, real-life objects. We were simulating the plates and their different motions. This represented real-life. Because these are representations, they are considered models.

2. Why do we use models in science?
   Sometimes it is too dangerous to study real-life objects. Sometimes they are too large (planets, solar system), sometimes too small (atoms, cells), sometimes too abstract (weather) to study in real-life. Models are good for showing how multiple parts interact together.

3. Why was it beneficial (helpful) to use a model of the plates and the plate movement?
   The plates are too large and their motion too unpredictable to study directly. Also, some movements happen really quickly and others very, very slowly to study directly. Models allow us to understand all the parts and how they fit together as a whole.

4. What were some of the limitations of this model? In other words, what are some things that this model cannot demonstrate about plate tectonics?
   The model cannot accurately demonstrate how the magma from the mantle interacts in real-life. Also, the model cannot demonstrate earthquakes, volcanic eruptions, and other phenomenon associated with plate movement. We are not able to demonstrate island arcs or get a good representation of trenches.

5. In your model, what did each of the parts of your model represent?

Part of Model	What it Represented
Graham Crackers	*continental crust*
Fruit Roll-Ups	*oceanic crust*
Frosting	*magma*

6. In this lab, we were able to show plate movement in a few seconds. Why is this not necessarily scientifically accurate?
   Some of the plate tectonic processes happen over thousands or millions of years. For example, we were able to form our little mountain with the graham crackers in a matter of seconds. This takes millions of years to happen.

7. Which type of geological processes might take a very short amount of time and which type might take thousands or millions of years.
   Transform boundaries can shift and cause earthquakes in a matter of seconds. In areas where seafloor spreading is occurring, magma seeps up to the Earth regularly. Mountain building and the process of subduction is a much more slow and gradual process. The mid-Atlantic ridge is spreading at a rate of 2.5 cm per year. The Cocos and Nazca plates in the Pacific Ocean are moving at a rate of 10 cm per year. These plate motions can cause very slow changes or very fast changes.