**Resource Card - Graham Cracker Modeling**

*Explore*

Materials:

* 4 Graham Crackers
* Cake Frosting
* Wax Paper
* Plastic Knife
* Cup of Water

Procedure

Part 1

1. Break a whole cracker into two rectangular pieces by following the perforations on the cracker.
2. Using the plastic knife or spoon, spread a thin amount of frosting in the center of the wax paper.
3. Lay two pieces of graham cracker against one another on the top of the frosting.
4. Press down lightly on the crackers as you slowly push them in opposite directions (apart), less than a centimeter.
5. Record.

Part 2a

1. Break a whole cracker into two rectangular pieces by following the perforations on the cracker.
2. Dip one end of **one** of the two graham crackers two centimeters (one inch) into a cup of water. Immediately remove the cracker and lay both crackers end-to-end on the frosting with the wet edge nearly touching the dry edge of the other cracker.
3. Slowly push the two crackers together.
4. Record.

Part 2b

1. Break a whole cracker into two rectangular pieces by following the perforations on the cracker.
2. Dip one end of each of the two graham crackers two centimeters (one inch) into a cup of water. Immediately remove the crackers and lay them end-to-end on the frosting with the wet edges nearly touching.
3. Slowly push the two crackers together. The wet ends of the crackers will curl and fold upwards as the crackers are pushed together.
4. Record.

Part 3

1. Break a whole cracker into two rectangular pieces by following the perforations on the cracker.
2. 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 you are pulling the other toward you.
3. Record.

**Resource Card – How is Oil Made?**

*Explore*

Instructions:

1. Pick one of the following resources to learn about how oil is formed:
   * Video: <https://www.youtube.com/watch?v=8YHsxXEVB1M>
   * Interactive: <http://www.adventuresinenergy.org/What-are-Oil-and-Natural-Gas/How-Are-Oil-Natural-Gas-Formed.html>
2. Draw a flowchart in your student guide to show how oil and natural gas are formed.
3. Read the article below to help you discover the types of plate interactions that help to form oil and natural gas.

Plate tectonics affect the location of oil and gas reservoirs. Most of the oil and gas in the world today are found in deserts, arctic areas, river deltas, and edges of the continents where it meets the ocean.

As you know, most of the oil we are getting from the earth now was formed from tiny dead organisms from tens of millions of years ago. Most likely, these tiny organisms were originally deposited in swamps, river deltas, and mild climates. Then, tectonic plates moved, subducted, and collided which moved around those tiny dead organisms from where they were originally to where we find oil now.

Lastly, plate movements are also responsible for creating the "pressure cooker" that slowly matures the dead organisms into oil and gas. This process usually takes millions of years, giving the oil and gas deposits plenty of time to migrate around the globe on the back of plate movements. Sometimes, collisions between tectonic plates can free the mature oil and gas from deep within the ocean and leave it in reservoirs. We call these reservoirs “oil and gas fields.”

As you can tell by this description, the process of creating oil and natural gas takes a very long time! To keep up with demand, humans are removing oil and natural gas from the Earth at a very fast rate—too fast for Earth to replenish, or renew, the supply. This is why we call these nonrenewable resources. At this rate, scientists are certain that we will soon run out of these precious natural resources.

Source: Adapted from *Scientific American* article, “Why is oil usually found in deserts and arctic areas?” by Roger N. Anderson.