Plate Tectonic

Graham Cracker Lab

After completing the Graham Cracker Plate Tectonic Lab, you will upload your images onto the appropriate slide and into the blue box.

All Blue boxes require an answer.

INTRODUCTION

a. The graham cracker represents (continental crust, oceanic crust, asthenosphere) because….

b. The fruit rollup represents (continental crust, oceanic crust, asthenosphere) because…

c. The frosting represents (continental crust, oceanic crust, asthenosphere) because….

PART 1

Insert image within this box

Insert your picture from Part 1 (pressing down) here.

On the picture you will label the following parts using the tools above (line arrows & textboxes):

Oceanic Crust

Plate boundary

Asthenosphere

Analysis Questions

1. What happened to the frosting between the fruit rollups when you pressed down?

2. What happens to the asthenosphere when it is exposed to the cooler surroundings?

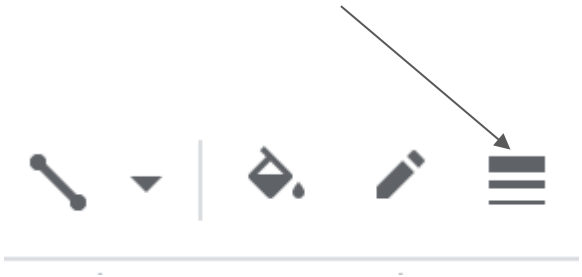
3. What formation would you expect to see if you were walking along the ocean floor (in your words)?

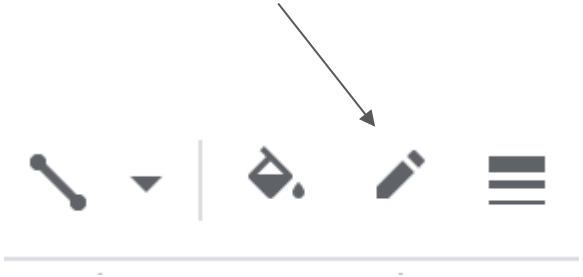
4. What surface features (science term) are formed as a result from dividing (divergent) oceanic plate movements?

Instructions for Map on next page

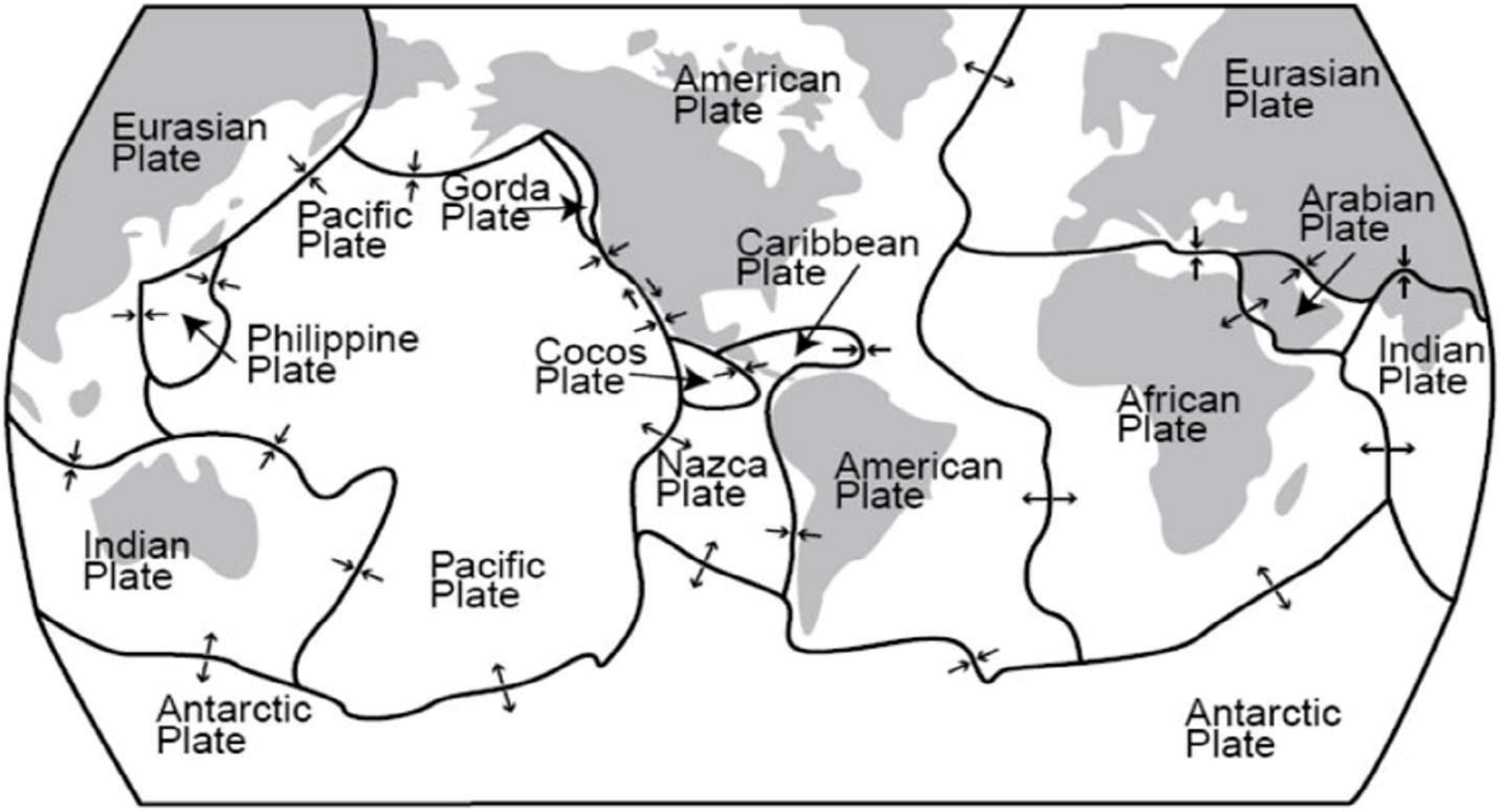
Follow these instructions for the next part:

1. From the toolbar, select the line dropdown menu; choose “scribble”
2. On the map (on the next page) you will draw a line along a divergent OCEANIC boundary.
3. When done the line will appear in a “textbox” with the “textbox” showing click on the width button and choose “4pt” then click on the pen icon and choose “red”.





1. Repeat this step for 2 more divergent OCEANIC boundaries on earth


American Plate
Eurasian Plate
Eurasian Plate
Pacific Plate
Gorda Plate
Arabian Plate
Caribbean Plate
Philippine Plate
Cocos Plate
Indian Plate
African Plate
Nazca Plate
American Plate
Indian Plate
Pacific Plate
Antarctic Plate
Antarctic Plate

Research

Go online and find out the names of the 3 boundaries that you highlighted on the map. (note: they must be oceanic/oceanic boundaries)

Place a text box NEXT to the boundary on the map on the prior slide and label it.

PART 1

Insert image within this box

Insert your picture from Part 1 (crackers; not pressing down) here.

On the picture you will label the following parts using the tools above (line arrows & textboxes):

Continental Crust

Plate boundary

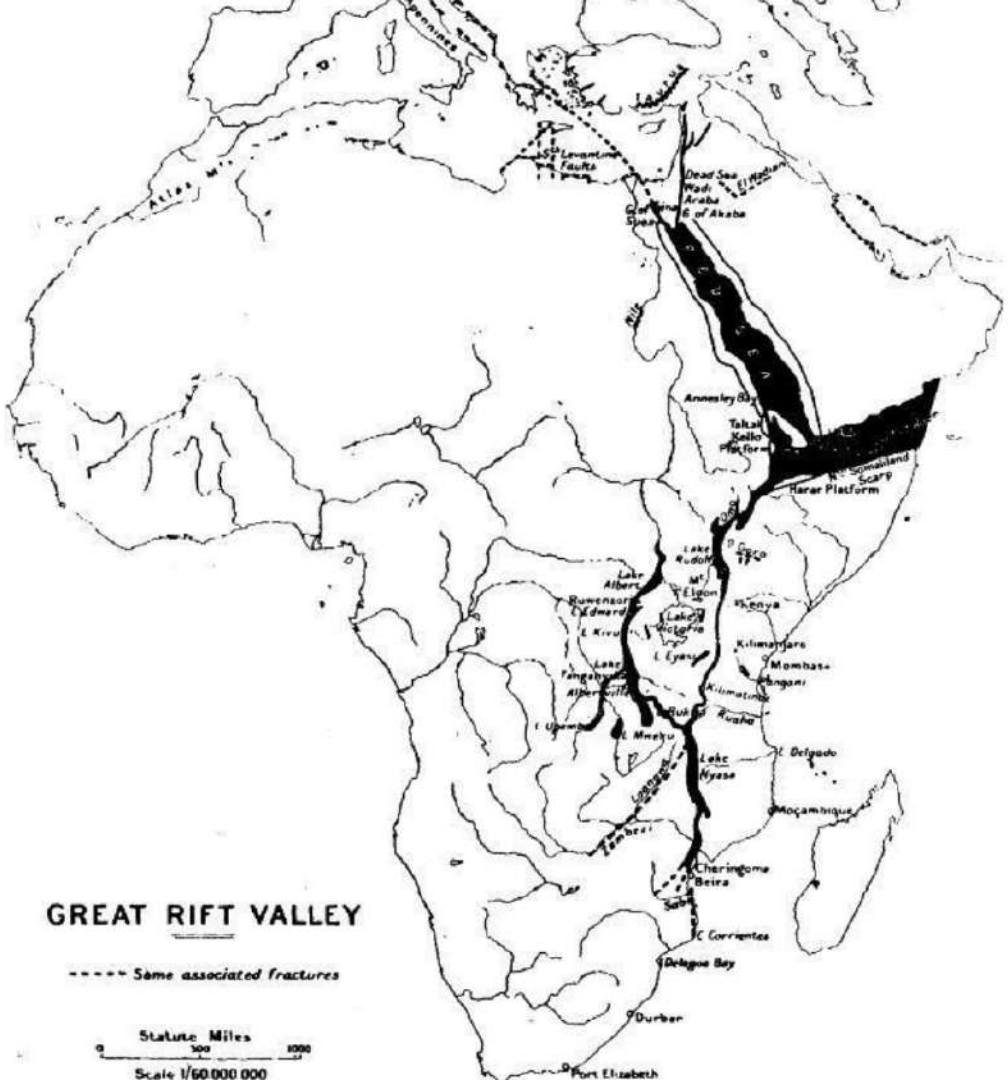
Asthenosphere

6. Is this plate movement a constructive or destructive force? Why?

7. What happened to the frosting between the graham crackers when you moved them apart?

8. On the next slide is a picture of Africa. The great rift Valley extends from the Red Sea all the way down to the Indian ocean. You can see where the continent and thus the lithospheric plates are diverging. Place 2 arrows on the map showing which direction each for the plates is moving. Arrows should be 4pts thick and BLUE.

9. Is this plate movement a constructive or destructive force? Why?



GREAT RIFT VALLEY

----- Same associated fractures

Statute Miles
0 500 1000

Scale 1/60 000 000

Go to the following website: https://atmos.eoas.fsu.edu/~odom/ESC1000/tectonics/dpb.html
Read the information on Divergent plate boundaries. Then answer the following questions:

10. What happens to the composition of the crust as the convection currents rise up underneath it?

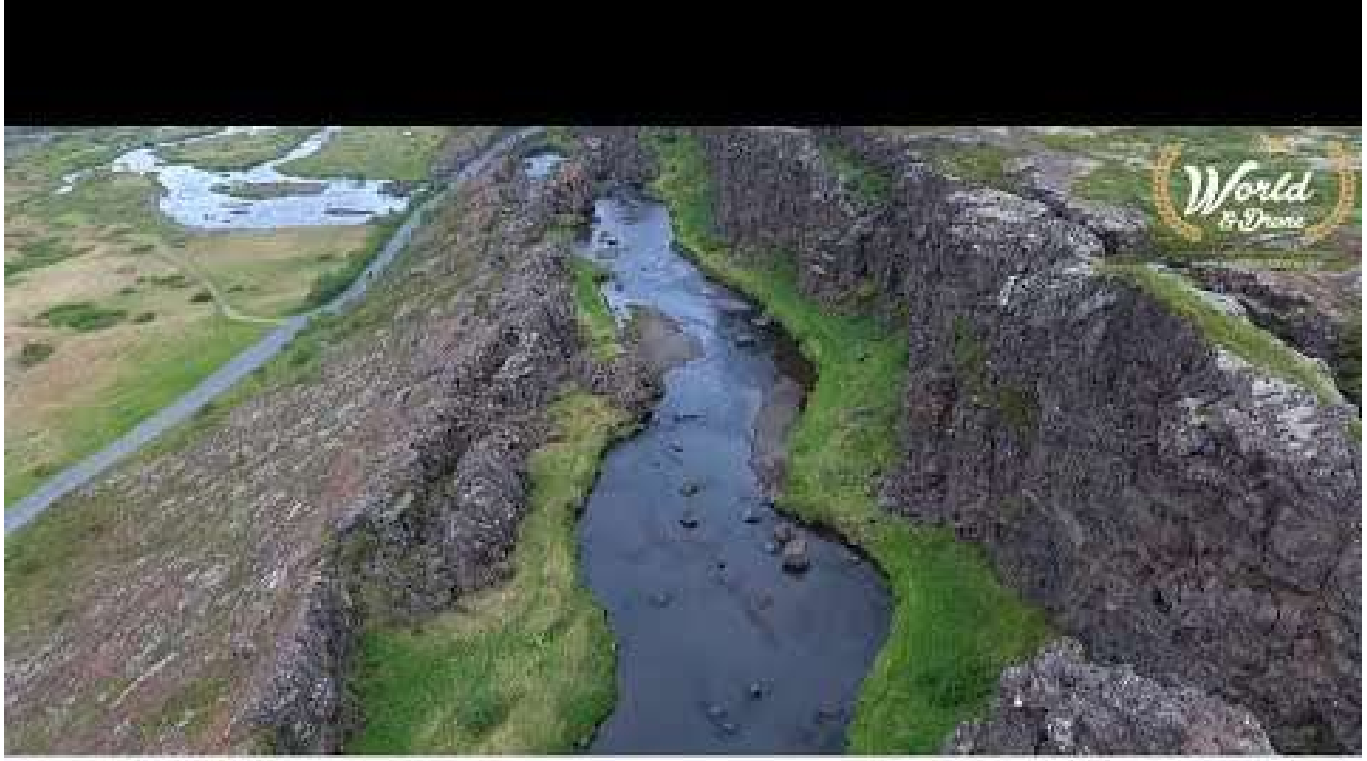
11. The **stress** from the convection currents moving upward has what effect on the curst?

12. Once the plates separate, what is the valley filled with?

13. What continues to drive the separation of the 2 plates?

14. What forms once the valley is filled with ocean water?

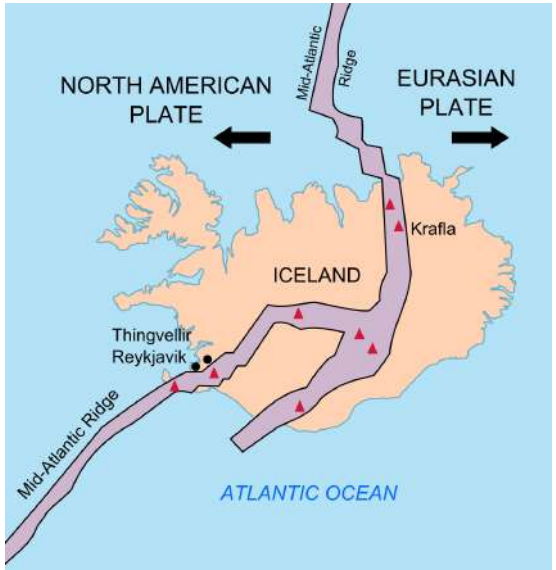
Check out the next few videos on Iceland's Diverging Lands. See for yourself the amazing works of the Earth's Asthenosphere!!! One is on YouTUbe- so you may have to watch at home.



Iceland - Thingvellir (Pingvellir) National Park

https://www.insider.com/iceland-swim-between-touch-continents-2017-8

What diverging plates look like under the ocean….(as the Atlantic fills the separating land masses



PART 2

Insert image within this box

Insert your picture from Part 2 (BEFORE) here.

On the picture you will label the following parts using the tools above (line arrows & textboxes):

Oceanic Crust

Plate boundary

Asthenosphere

Continental Crust

PART 2

Insert image within this box

Insert your picture from Part 2 (AFTER) here.

On the picture you will label the following parts using the tools above (line arrows & textboxes):

Oceanic Crust

Subducted plate

Asthenosphere

Continental Crust

Analysis Questions

1. Explain what happens to the 2 plates (oceanic/continental) when they collide causing subduction.

2. Explain why oceanic crusts always move under continental crusts..(read the introduction for the answer)

3. Is this plate movement a constructive or destructive process?

4. What features are formed on the continent along this type boundary?

PART 3

Insert image within this box

Insert your picture from Part 3 (BEFORE) here.

On the picture you will label the following parts using the tools above (line arrows & textboxes):

Continental Crust

Plate boundary

Asthenosphere

PART 3

Insert image within this box

Insert your picture from Part 3 (AFTER) here.

On the picture you will label the following parts using the tools above (line arrows & textboxes):

Continental Crust

Plate boundary

Asthenosphere

Analysis

1. What happened to the graham crackers when you pushed them together?

2. What feature do the resulting ends of the wet crackers represent?

3. Is this plate movement constructive of destructive process?

PART 4

Insert image within this box

Insert your picture from Part 4 (BEFORE) here.

On the picture you will label the following parts using the tools above (line arrows & textboxes):

Oceanic Crust

Plate boundary

Asthenosphere

Continental Crust

Analysis

1. Nothing happens at the beginning, but as the pressure is increased, the crackers break up. What is it called when the Earth's crust vibrates and breaks up?

This is similar to the situation in California along plate boundaries at the San Andreas Fault. Pressure builds up as rocks get caught against one another. Then as some rocks break the crust suddenly lurches sending energy waves that vibrate the crust for miles.

2. What surface feature changes occur with this type of plate movement?

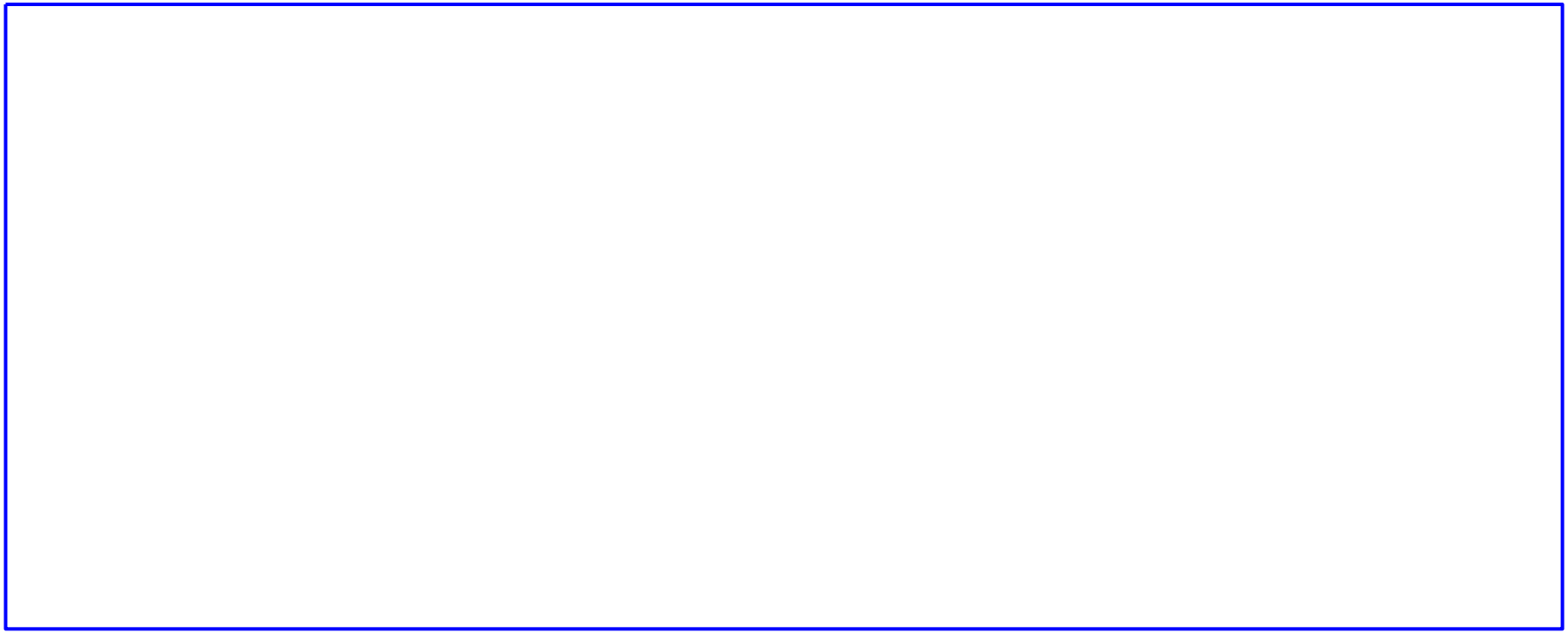
3. Is this plate movement a constructive or destructive process?

CONCLUSION: Write a CER for each of the questions on the next 2 slides.

Describe the results of one section of the lab as your evidence for that section.

(Do not just say “it was like when we pushed the two graham crackers together” you need do describe the results)

1. How does plate movement directly affect the construction of Earth’s surface features?



2. How does plate movement directly affects the destruction of Earth’s surface features?