

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Per. \_\_\_\_\_

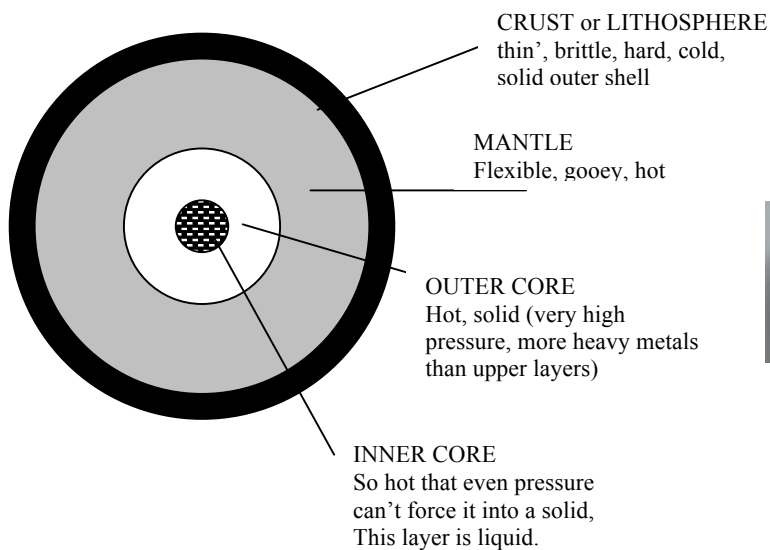
# Milky Way Plate Tectonics

Safety and precautions:

- \*CLEAN UP after yourself
- \* You must finish the first set of questions to obtain a bar.
- \* Eat your bar only when instructed to do so.

The three layers of the Milky Way will be a model for plate tectonics today –

## EARTH'S LAYERS



## LAYERS OF A MILKY WAY

If you cut a Milky Way in 1/2...



CHOCOLATE: breaks easily

CARMEL: gooey, soft

NOUGAT: solid, not very flexible

Question 1: Fill out the table below:

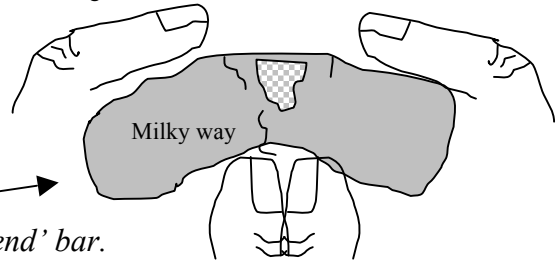
Milky Way layer	Earth layer
Chocolate	
	Mantle
Nougat	

Question 2: If the earth were a milkyway bar, plates of plate tectonics would be made out of \_\_\_\_\_.

Question 3: Which Earth layer is missing from the Milky Way model?

Show this completed page to Mrs. Barge for Milky Way bar

Pointer finger



**DIVERGENT BOUNDARY:**

- Unwrap the candy bar.
- Hold bar with two hands.
- Gently push up in middle of bar with thumbs to 'bend' bar.
- DO NOT separate bar into two halves.
- Set bar down to answer questions.

Question 4: Draw a quick sketch of your 'model' from the side.

Question 5: Which layer 'cracked'?

\_\_\_\_\_

Question 6: When the top layer cracks, this makes a 'hole' to fill in.

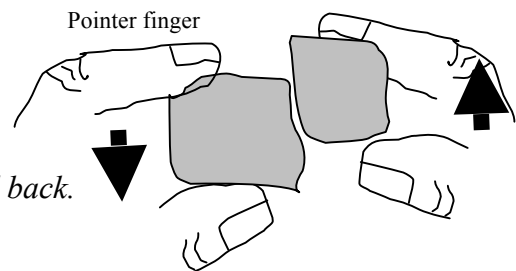
What layer would be most likely to fill this hole? \_\_\_\_\_

Question 7: Why would there be earthquakes at a divergent boundary?

Question 8: In what layer would earthquakes happen? \_\_\_\_\_

**TRANSFORM BOUNDARY**

- Again, return Milky Way to 'original position' as best as possible.
- With fingers & thumbs on long edges of bar, slide your right hand forward, pull your left hand back.



Question 9: Draw a quick sketch of your model.

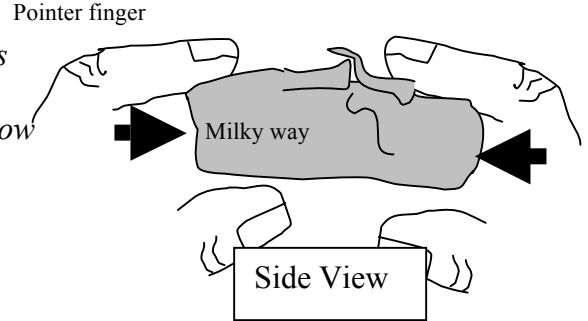
Question 10: Add stars along the edges where you'd expect the most earthquakes to your drawing.

Question 11: Are earthquakes at transform boundaries shallow or deep? Why?

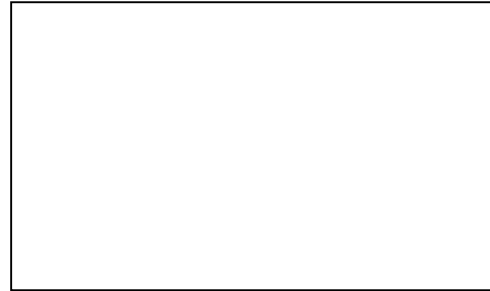


**CONVERGENT BOUNDARY #1**

- Holding Milky Way in both hands restore the bar to its original shape as close as possible.
- Push in from the ends of the bar to force one plate below the other.
- It might work best to put fingers on edges of bar, not on top & bottom.

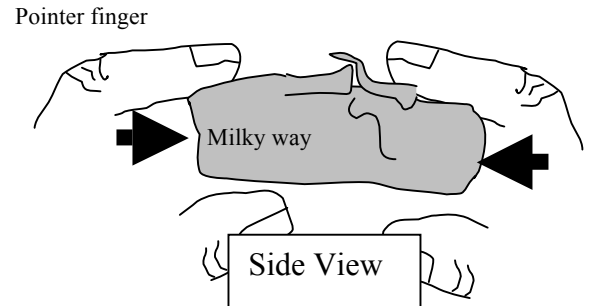


Question 12: Draw a quick sketch of your model from the side.



**CONVERGENT BOUNDARY #2**

- Holding Milky Way in both hands restore the bar to its original shape as close as possible.
- Push in from the ends of the bar to force plates together. It might work best to put fingers on edges of bar, not on top & bottom.
- Try to keep bar in a straight line.



Question 13: Draw a quick sketch of your model from the side.



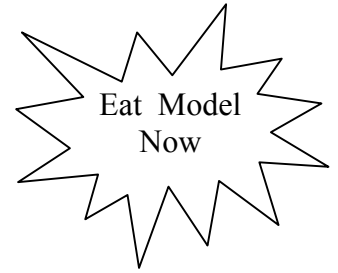
Question 14: Which type of convergent boundary/ies would form mountains from plates pushing each other up?

- Oceanic-Oceanic    Oceanic-Continental    Continental-Continental

Question 15: Which type of convergent boundary/ies would force one plate under another plate? (\*Hint: Oceanic crust is more dense than continental crust.\*)

- Oceanic-Oceanic    Oceanic-Continental    Continental-Continental

Question 16: Which type of boundary might have deeper earthquakes, divergent or convergent? (*Hint: Which type of boundary FORCES crust DOWN into the mantle.*)



Question 17: What does the data look like for each type of boundary?

Boundary Type	Earthquakes	Volcanoes	How is it labeled?
Divergent – Rift Zone			
Transform Zone			
Convergent – Subduction zone			
Convergent – Buckling Zone			