

Name _____ Date _____ Period _____

Plate Tectonics - A GeoMap Interpretive



Activity 1 – Modeling Mantle Plumes

Materials –

1 – balloon

1 – tablecloth

6 - post it notes

1 – small piece of tape

pen or pencil

Instructions

1. Clear your table of all items
2. Inflate the balloon so that it is about 1/8 full of air
3. Put the inflated balloon near the middle of the table and tape it in place.
4. Gently unfold the tablecloth over the top of the taped down balloon
5. Draw a triangle or volcano on each of the post it notes.
6. Place the first post it note volcano on the table cloth over the top of the balloon.
7. Carefully pull the tablecloth 3 inches towards the front of the classroom.
8. Place another post it note volcano on the table cloth over the top of the balloon
9. Repeat steps 7 and 8 four more times until you have used all 6 volcano post it notes
10. Data – Draw and label a picture that shows all six of your volcanoes.



Analysis Questions

11. What did the balloon represent in this model?
12. What does the tablecloth represent in this model?
13. Which item was moved, balloon or tablecloth?
14. How does this model explain how island chains are formed?
15. Based on this model, why do you think (a hypothesis) the Hawaiian Islands are sinking?
16. Based on this model, how does the formation of island chains support the idea of plate tectonics?

Activity 2 – Plate Tectonics and Maps

Use the plate tectonic map to answer the following questions about plate movement, volcanoes, earthquakes, and hot spot volcanoes.

1. Name 10 of the major tectonic plates and describe the inferred direction of each plate's movement.

2. Find one example of each of the following types of boundaries (name the plates involved):
 - a. Divergent boundary
 - b. Convergent boundary
 - c. Transform (or other) boundary

3. Name the several plates surrounding the mid-Atlantic ridge?

4. Is there a plate boundary near Hawaii? How are the Hawaiian Islands formed?

5. Where is a divergent boundary on land located? _____
6. Which plate has the greatest density of earthquake activity? _____
7. Where on the plate are the quakes located? _____
8. What type(s) of boundaries are nearby the areas with a lot of earthquakes?

9. Name six hot spot volcanoes: 3 in the middle of a plate, 2 located near a boundary, and 1 that is found on land.
Middle of plate: _____, _____, _____

Near boundary: _____, _____

On land: _____

10. What is inaccurate about this map?

11. Locate the East Pacific Rise. What is this feature, and why is this name a good description of it?

12. The Himalayan Mountains are said to be growing around 3-5 cm in height every year. Describe how this is happening. (You need to include the plates involved, the type of boundary, the direction of movement, etc.) Draw a picture in the space below, and label it with the needed information to demonstrate your point.