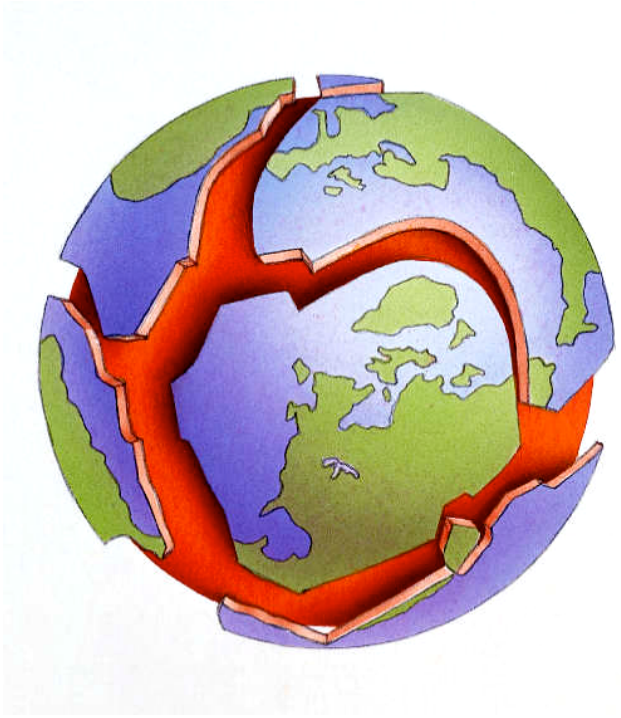
Plate Tectonics Web Quest

Objectives:

-to learn about types of Plate Boundaries
-to learn about Plate Boundary Interactions
-to familiarize yourself with the Plate Tectonic Map of the World
-to understand and familiarize yourself with past Plate Movement and the supercontinent Pangea
-to understand the Hot Spots of Hawaii and Yellowstone



Part 1. Types of Plate Boundaries

There are 3 types of plate boundaries and a fourth called a "plate boundary zone" in which the type of plate boundary is not clearly defined. Go to the website:
http://pubs.usgs.gov/publications/text/understanding.html
and learn about the three types of plate boundaries and answer the questions below.

1. What are the three types of plate boundaries?

2. What directions do the plates move relative to one another in a divergent plate boundary?

3. What is a spreading center and what is made at one?

4. Name one spreading center (or divergent plate boundary).

5. What are the three types of convergent plate boundaries?

6. What two kinds of crust are involved in a subduction zone?

7. What type of convergent boundary is the Himalaya Mountains formed by?

8. What happens along a transform plate boundary?

9. Name a famous transform fault in western North America.

10. Which plates are sliding past each other along the San Andreas Fault?

Part 2. Plate Boundary Interactions

Now go to the website: http://www.pbs.org/wgbh/aso/tryit/tectonics/# and click on "Go directly to Plate Tectonics Activity"

11. Drag each of the arrows in the activity to see the plate interactions. List from left to right each type of plate boundary shown in the activity.

Now, go to http://emvc.geol.ucsb.edu/forteachers/SeafloorSpreading.htm and scroll down to the "Seafloor Spreading" picture and click on the picture. Wait a few seconds for it to load, and there should be a movie.

12. What is happening to the plates at the red line in the center of the screen?

13. What is the red line?

Now, go to http://emvc.geol.ucsb.edu/forteachers/convergence.htm and click on the picture labeled "Subduction". Wait for it to load, and there should be another movie.

14. What two kinds of convergence are shown in the movie?

Part 3. Plate Tectonic Maps

Now go to http://denali.gsfc.nasa.gov/research/lowman/Lowman_map1_lg.jpg and you will see a plate tectonic map of the world. Rest the mouse on the bottom right corner of the map and after a couple of seconds an enlargement icon should appear. Click on this icon to see the map in full size. Now you can use the scroll bars on the side and bottom to maneuver around the map.

15. Using the key at the bottom of the map, what is happening in Idaho, tectonically speaking?

16. Scroll over to Asia and locate the Java Trench. This is where the Indian Plate and Eurasian Plate interact. What kind of plate interaction occurs here, that was responsible for the December 26, 2004 tsunami?

Now open http://emvc.geol.ucsb.edu/2_infopgs/IP4WNACal/dSoCalifTect.html

17. How does the plate boundary along the west coast of the United States change over time?

Now go to http://emvc.geol.ucsb.edu/forteachers/flashmovies/Pangea.swf Wait for the movie to download. This is a movie showing how the plates looked around 150 million years ago, when all the continents were together forming the "supercontinent" Pangea, and how the plates moved through time to their present configuration.

18. What continents did North America used to be attached to during Pangea time?

Part 4. Hot Spots

Now, go to the website: http://pubs.usgs.gov/publications/text/hotspots.html to read and learn about hot spots.

19. What are hotspots and how did they form the Hawaiian islands?

20. Where are some other hotspots located ?

Assignment adapted from Mr. Walstead at Wheeler High School.