Earth is divided into 8 major plates that slowly move about 1-5 inches or 2-10 centimeters a year. The theory that describes this is called plate tectonics. The place where these plates meet are called plate boundaries. There are three types of plate boundaries: divergent, convergent, and transform fault boundaries.

A divergent boundary happens when plates separate. If that happens under the ocean, it causes sea floor spreading and a mid ocean ridge to form. This happens in the middle of the Atlantic Ocean, and is called the mid-Atlantic Ridge.

If a divergent boundary happens on land, it causes a rift valley to form which can eventually become an ocean. This is how Pangaea split. This is currently happening in Africa and is called the East African Rift zone.

A convergent boundary happens when plates come together. If the plates are not the same density then one plate will go under the other. This is called subduction. Subduction can happen under the ocean when two oceanic crusts collide. It can also happen on the coast when oceanic crust collides with continental crust.

If subduction happens a trench will form where the plate goes under the other. A volcano can also be produced because the magma may rise up where the plate went under the other to create a volcano. If the volcano is under the water and erupts, it can create an island. An example of this is Mariana’s Trench and Mariana’s Island. The Ring of Fire also formed this way.
If a convergent boundary happens on land, it can create a mountain. An example of this is the Himalayan Mountains.

A transform fault boundary happens when two plates slide past one another. This usually causes earthquakes; although earthquakes can also happen at convergent and divergent boundaries. An example of this is the San Andreas Fault.

Hot spots can also create volcanoes and islands, but this is not due to plate boundaries. This happens in the middle of the plates, not on the edges of plates. Magma in the asthenosphere is hotter in that area, so it melts the solid lithosphere above. An example of something that forms this way is Hawaii.

Task #1: Select the best answer choice for the multiple choice questions below.

1. Subduction is when
   A. Earthquakes occur
   B. New crust is formed
   C. One plate slides under another
   D. New islands are formed

2. The mid-ocean ridge occurs along
   A. Convergent boundaries
   B. Transform boundary with subduction
   C. Divergent boundary where sea-floor spreading takes place
   D. A subduction boundary

3. A place where a hot part of the mantle rises through the crust causing volcanic activity near a plate boundary is called a
   A. Divergent boundary
   B. Hot spot
   C. Convergent boundary
   D. Transform boundary

4. What type of boundary separated Pangaea?
   A. divergent
   B. convergent
   C. transform fault
   D. subduction

5. Which of the following CANNOT be created by subduction?
   A. Trench
   B. Volcano
   C. Island
   D. Rift Valley

6. Which of the following is not created by subduction?
   A. Mountain
   B. Trench
   C. Volcano
   D. Island

7. Which of the following was formed before Pangaea split?
   A. Mid-ocean ridge
   B. Rift valley
   C. Volcano
   D. Island

8. Which of the following forms earthquakes?
   A. Divergent boundaries
   B. Convergent boundaries
9. Which of the following was created by a hotspot?
A. Hawaii  
B. Himalayan Mountains  
C. Mariana’s trench  
D. Mariana’s Island

10. Which of the following was NOT created by subduction?
A. Mariana’s Trench  
B. Ring of Fire  
C. Mid-Atlantic Ridge  
D. Mariana’s Island

11. Which of the following is responsible for new sea floor in our ocean?
A. Mariana’s Trench  
B. East African Rift Valley

12. Which of the following is NOT a type of plate boundary?
   a. Transform fault  
   b. Convergent  
   c. Convection  
   d. Divergent

13. Plate tectonics states that
   A. pieces of Earth's crust are in constant, slow motion driven by movement in the mantle  
   B. Pangaea split  
   C. the mid-Atlantic ridge is made by divergent boundaries  
   D. oceanic crust is younger than continental crust
Task #2:

Answer the following questions in complete sentences.

1. How are divergent, convergent, and transform fault boundaries different?

2. Explain how a mid-ocean ridge is formed.

3. Explain what caused Pangaea to separate.

4. How are mountains formed?

5. What three landforms can be created by subduction?

6. How does density relate to subduction?

7. How is a hotspot different than divergent, convergent, and transform fault boundaries?

8. Give an example for each of the following,
   a. An island formed by a hotspot. ____________________________
   b. An island formed by subduction. __________________________
   c. A trench formed by subduction. __________________________
   d. A ridge formed by a divergent boundary. ________________
   e. A mountain formed by convergent boundaries. _____________
   f. A transform-fault boundary.

9. What is currently happening in Africa in reference to plate boundaries?
Task #3

Look at the pictures below. Describe what type of boundary it is and what structure is being formed.

1. 

2. Hint: This is underwater.

3. 

4. 

5.