

Name: _____ Date: _____ Period: _____

Dynamic Earth Web Quest

Directions

- You may write your answers on this paper.
- Go to <http://www.learner.org/interactives/dynamicearth/index.html>
- Click on the link that says Earth's Structure - found along the green band running across the website.

1. Read the information found on the webpage to fill in the following blanks about the Earth's Structure:

In the early part of the 20th century geologists studied the _____ (_____) generated by earthquakes to learn more about the structure of the earth's interior.

2. Roll your mouse over the diagram to learn more about the interior of the Earth to fill in the following blanks:

_____ : The plates of the lithosphere move (or float) on this hot, malleable semiliquid zone in the upper mantle, directly underneath the _____.

3. At the bottom of the screen click on the red link, Next Chapter: Plate Tectonics

- Complete the challenge
- Click on the button, "How Do We Know This?"

A. The modern _____, which has become widely accepted since the 1960s, states that the earth's outer layer, or lithosphere, is broken into several large slabs called _____.

B. The movement of the plates not only supports our understanding that continents are not fixed and moved over time, but also explains how and why _____, _____, and other geologic events occur.

4. At the bottom of the screen click on the red link, Continents Over Time

- Complete the challenge
- Try the bonus question and fill in the following blanks:

A. Since the plates are constantly in _____, some scientists estimate that the continents will come together to form one large _____ again in the future.

B. The name of this future arrangement of continents is _____ (see image)

5. Click on the red link Plate Boundaries to move on to the next chapter

- Read about "Plates & Boundaries" and answer the following questions:

A. Which type of crust is thicker, oceanic or continental crust? _____

B. What is the border between two tectonic plates called? _____

C. Draw a sketch of each of the three types of boundaries and fill in the missing information for examples:

Convergent Boundary	Divergent Boundary	Transform Boundary

6. Click on Slip, Slide & Collide it is on the green banner at the top of the website.

A. Each kind of plate _____ is associated with particular events, so if you know about the movements taking place at a plate boundary, you can often predict what's likely to occur there — volcanoes, earthquakes, _____, _____ — in the future!

7. Click on the red link [see what happens at different plate boundaries](#)

Convergent Boundaries

- A. Oceanic crust tends to be denser and thinner than continental crust, so the denser oceanic crust gets bent and pulled under, or subducted, beneath the lighter and thicker continental crust. This forms what is called a _____.
- B. As the oceanic crust sinks, a deep oceanic _____, or valley, is formed at the edge of the continent.
- C. The crust continues to be forced deeper into the earth, where high _____ and _____ cause trapped water and other gasses to be released from it. This, in turn, makes the base of the crust melt, forming _____.
- D. The magma formed at a subduction zone rises up toward the earth's surface and builds up in magma _____, where it feeds and creates **volcanoes** on the overriding plate. When this magma finds its way to the surface through a _____ in the crust, the volcano erupts, expelling lava and ash. An example of this is the band of active volcanoes that encircle the Pacific Ocean, often referred to as the _____.
- E. A subduction zone is also generated when two _____ plates collide — the older plate is forced under the younger one — and it leads to the formation of chains of volcanic islands known as _____.
- F. Earthquakes generated in a subduction zone can also give rise to _____. A tsunami is a huge ocean _____ caused by a sudden shift on the ocean floor, such as an undersea earthquake.
- G. An example of this mountain-building process is the _____ range in southern Asia... Since the Indian Plate is continuing in its northward movement into Asia, the Himalayas continue to _____ higher each year by small amounts (5 to 20 mm or ___ inch per year).

8. Click on the red [Next](#) to move to continue

Divergent Boundaries

- A. Divergent boundaries in the middle of the ocean contribute to _____. As plates made of oceanic crust pull apart, a crack in the ocean floor appears.
- B. _____ then oozes up from the mantle to fill in the space between the plates, forming a raised ridge called a _____.
- C. The magma also spreads outward, forming new ocean floor and new oceanic _____.
- D. Click on the green "Start" to watch the animation about rift valleys. Describe in words or draw a diagram of what a rift valley looks like.

Transform Boundaries

- A. A _____ is a crack or _____ in the earth's crust that is associated with movement at transform boundaries.
- B. Transform boundaries and the resulting faults produce many _____ because edges of tectonic plates are _____ rather than _____.
- C. The motion of plates at a transform boundary is referred to as a **strike-slip fault**. What is the name of the famous strike-slip fault in California? _____

9. Click on [Plate Interactions Challenge](#)

- Complete the challenge
- When finished, show Mrs. Feldmann your score on the computer screen **and** record the number here: _____

10. If you have time, go back to ["Plates & Boundaries"](#) green link at the top of the website and try the challenge at the bottom to practice naming tectonic plates!