

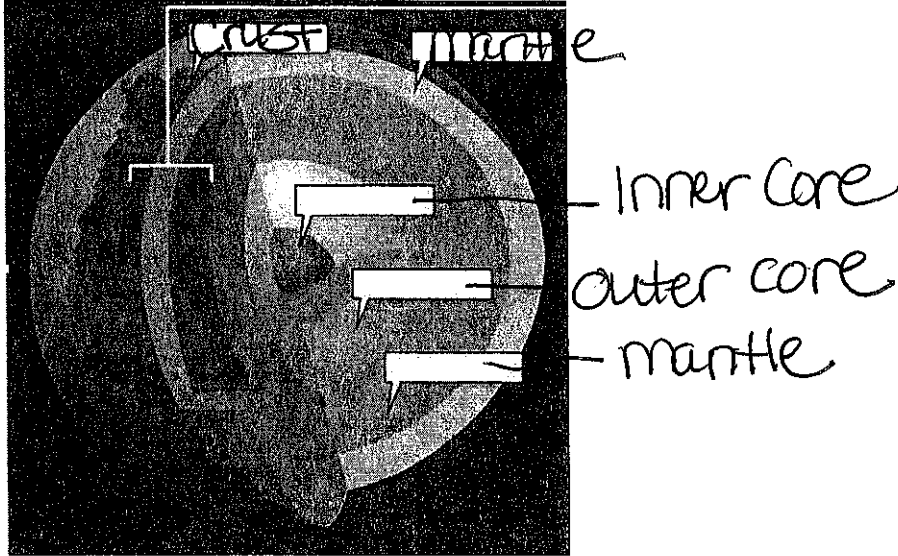
Name Key

Date _____ Period _____

Plate Tectonics Web-Quest - Link sent via Classroom

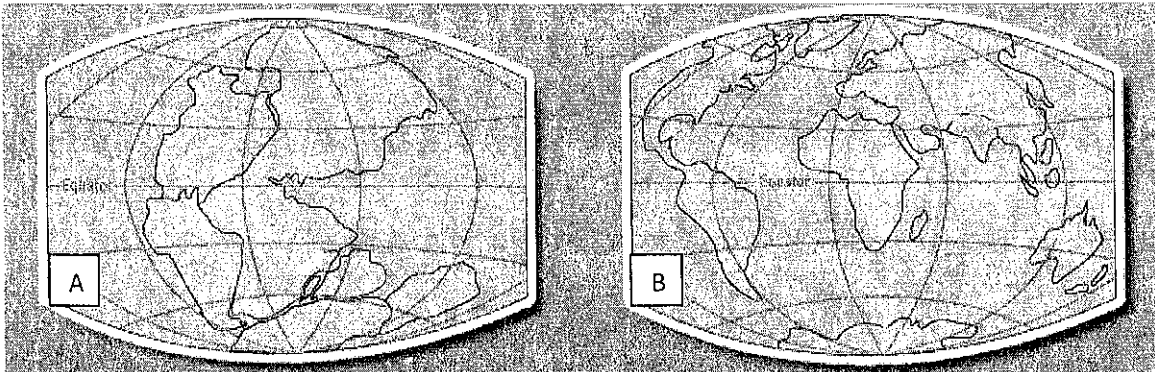
Part I: Earth's Structure.

1. Label the layers of Earth in the diagram below.



2. The lithosphere is made up of the Crust and a tiny bit of the Upper mantle
3. The plates of the lithosphere move (or float) on this hot, malleable Semi liquid zone in the upper mantle, directly underneath the lithosphere. This is known as the Asthenosphere
4. The layer of Earth that is the only liquid layer is the outer core.

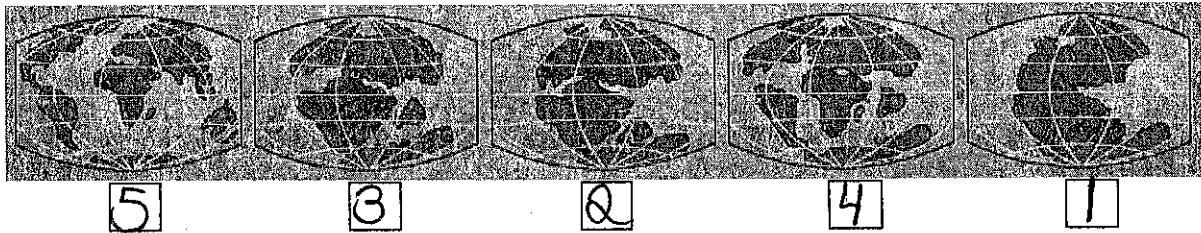
Part II. Plate Tectonics.



1. True or False? Image A depicts what Earth looks like today. (circle the correct answer)

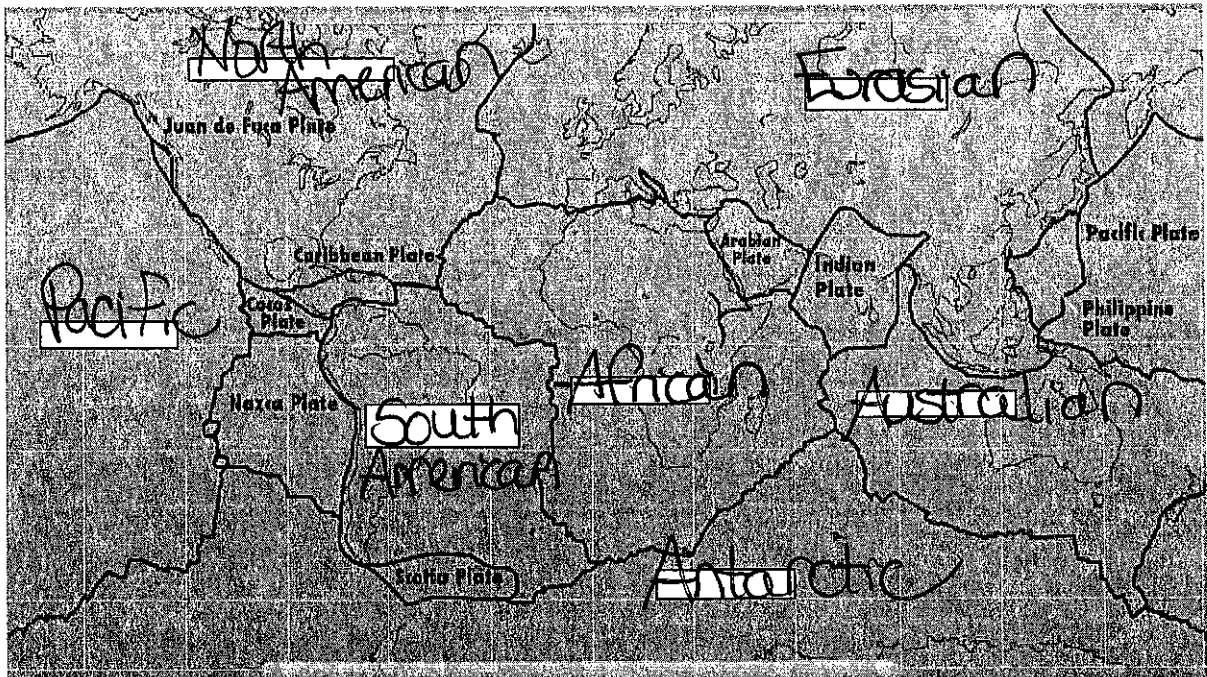
2. What did Earth look like 250 million years ago? The continents of Earth were clustered together in formation that a scientist named Pangaea. The scientist that named "Pangaea" was a German scientist by the name of Alfred Wegener. He theorized that "Pangaea" split apart and the different landmasses, or continents, drifted to their current locations on the globe. Wegener's theories of plate movement became the basis for the development of the theory of Plate Tectonics

3. Order the images of Earth's plates in order from oldest or earliest (1) to most recent (5).



Part III. Plates and Boundaries.

1. Name the missing tectonic plates in the blanks on the image below.



2. The place where the two plates meet is called a boundary. Boundaries have different names depending on how the two plates are moving in relationship to each other.

A. If two plates are pushing towards each other it is called a Convergent boundary

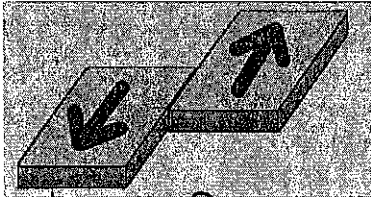
B. If two plates are moving apart from each other it is called a divergent boundary

Name _____

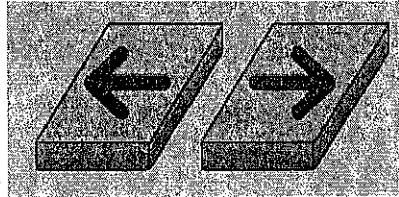
Date _____ Period _____

C. If two plates are sliding past each other it is called a transform boundary

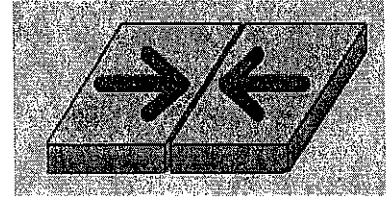
3. Label the type of boundary depicted in each image below.



transform



divergent



convergent

4. Plates and Boundaries Challenge. Follow directions for the challenge. Record your results below:

Part I. Number of correctly placed plates = varies

Part II. Number of boundary types correctly labeled = varies

Part IV. Slip, Slide, and Collide.

1. At **convergent boundaries**, tectonic plates collide with each other. The events that occur at these boundaries are linked to the types of plates (oceanic or continental) that are interacting.

Subduction Zones and Volcanoes

At some convergent boundaries, an oceanic plate collides with a continental plate. 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 **subduction zone**. As the oceanic crust sinks, a deep oceanic trench, or valley, is formed at the edge of the continent. The crust continues to be forced deeper into the earth, where high heat and pressure cause trapped water and other gasses to be released from it. This, in turn, makes the base of the crust melt, forming magma. The magma formed at a subduction zone rises up toward the earth's surface and builds up in magma chambers, where it feeds and creates volcanoes on the overriding plate. When this magma finds its way to

Name _____

Date _____ Period _____

the surface through a vent 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 Ring of Fire.

Roll your mouse over the image to find the definitions of the words below:

Subduction Zone - area where one plate is pulled under the edge of another

Magma - molten rock, gases, & solid crystals & minerals

Trench - a steep sided depression in the ocean floor

Volcano - a vent in the earth's surface through which magma & gases erupt

Volcanic Arc - arc chain of volcanoes formed above a subduction zone

Fill in the type of crust converging in the image below.

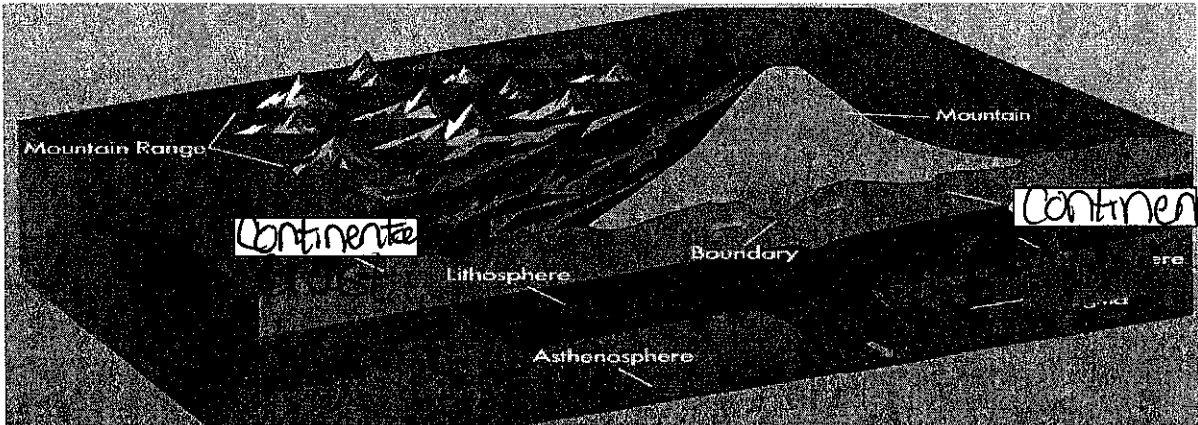


A subduction zone is also generated when two oceanic plates collide — the older plate is forced under the younger one, and it leads to the formation of chains of volcanic islands known as island arcs.

Collision Zones and Mountains

What happens when two continental plates collide? Because the rock making up continental plates is generally lighter and less dense than oceanic rock, it is too light to get pulled under the earth and turned into magma. Instead, a collision between two continental plates crumple and folds the rock at the boundary, lifting it up and leading to the formation of mountains.

Fill in the type of crust converging in the image below.



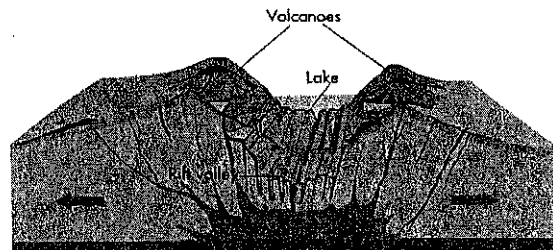
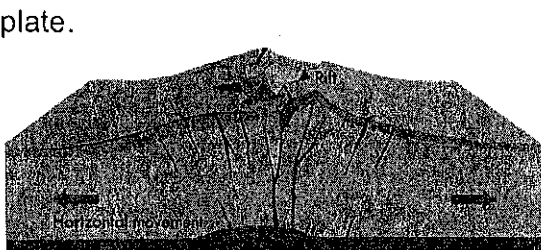
Roll your mouse over the image to find the definitions of the words below:

Continental Crust - Earth's crust that makes up the continents

Mountain - high, large mass of earth & rock that rises above the earth's surface with steep ^{on sloping} sides

2. At **divergent boundaries**, tectonic plates are moving away from each other. One result of huge masses of crust moving apart is seafloor spreading. This occurs when two plates made of oceanic crust pull apart. A crack in the ocean floor appears and then magma oozes up from the mantle to fill in the space between the plates, forming a raised ridge called a mid-ocean ridge. The magma also spreads outward, forming new ocean floor and new oceanic crust.

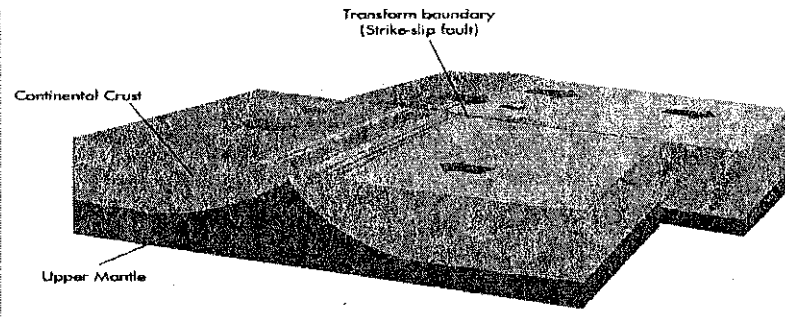
When two continental plates diverge, a valley-like rift develops. This rift is a dropped zone where the plates are pulling apart. As the crust widens and thins, valleys form in and around the area, as do volcanoes, which may become increasingly active. Early in the rift formation, streams and rivers flow into the low valleys and long, narrow lakes can be created. Eventually, the widening crust along the divergent boundary may become thin enough that a piece of the continent breaks off, forming a new tectonic plate.



3. At **transform boundaries**, tectonic plates are not moving directly toward or directly away from each other. Instead, two tectonic plates Slide past each other in a horizontal direction. This kind of boundary results in a fault. A fault is a crack or fracture in the earth's crust that is associated with this movement.

Transform boundaries and the resulting faults produce many earthquakes because edges of tectonic plates are jagged rather than smooth. As the plates grind past each other, the jagged edges strike each other, catch, and stick, "locking" the plates in place for a time. Because the plates are locked together without moving, a lot of Stress builds up at the fault line. This stress is released in quick bursts when the plates suddenly slip into new positions. The sudden movement is what we feel as the shaking and trembling of an earthquake.

The motion of the plates at a transform boundary has given this type of fault another name, a Strike-slip fault. The best-studied strike-slip fault is the San Andreas Fault in California.

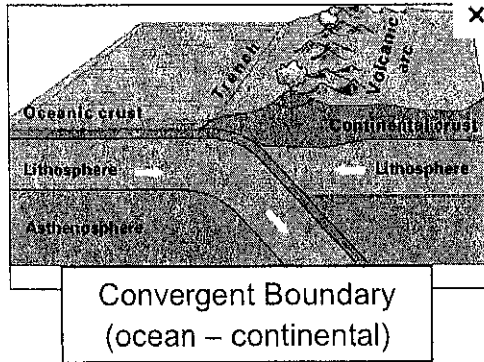


4. Complete the Plate Interactions Challenge and Test Skills questions.

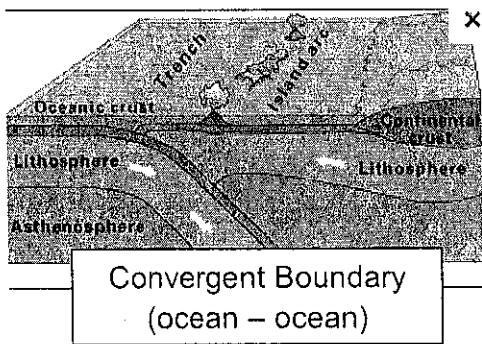
My score for Plate Interactions Challenge = 100%
 My score for Test Skills questions = _____ out of 30 or _____ %

Part V. Questions you should be able to answer now that you completed this webquest.

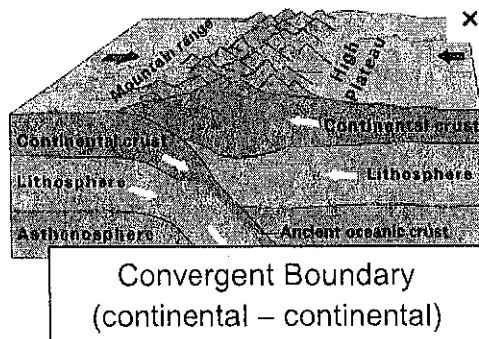
Note - you may go back to the website and review to assist in answering the following questions.



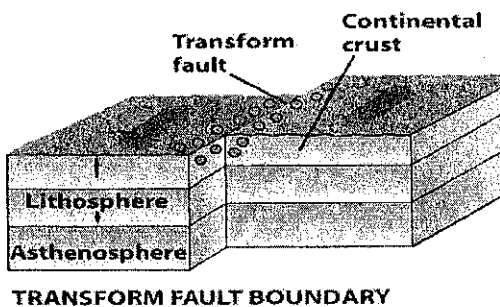
1. Deep-ocean trench and volcanoes are created by convergent boundaries of ocean and continental crust.



2. Deep-ocean trench, volcanoes, and island arc are created by convergent boundaries of ocean and ocean crust.



3. Mountains are created by convergent boundaries of continental and continental crust.



4. Another type of boundary neither creates nor consumes crust. This type of boundary is called a transform boundary because two plates move against each other, building up tension, then release the tension in a sudden jerk of land called an earthquake.

Name _____

Date _____ Period _____

4. Circle the correct type of boundary for each description below:

A. The boundary where two plates meet and trenches are formed.

Divergent

Convergent

Transform

B. The plates move away from each other allowing magma to create new ocean crust.

Divergent

Convergent

Transform

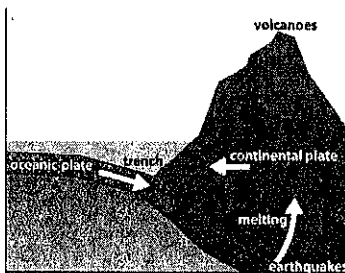
C. The plates move in opposite directions building up tension until they slip causing earthquakes.

Divergent

Convergent

Transform

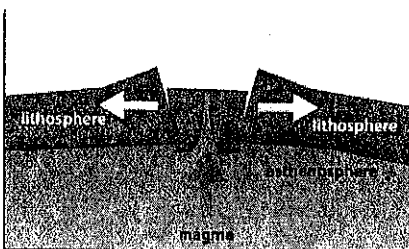
5. Label each type of boundary as either: **Divergent**, **Convergent**, or **Transform Boundary**:



A. Convergent



B. Transform



C. Divergent

The end. Please take a minute and look over your web-quest to make sure you answered all questions and completed all tasks. Make sure your name is on the front and turn it in.