

Unit 4

by Chandra Kant

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1. Plate tectonic theory and the types of plate boundaries.

The plate tectonic theory is a theory in geography that explains that the outermost and rigid part of the earth (lithosphere) is made up of various blocks of land masses which move across the earth surface relatively to each other. There are three types of plate boundaries that form the earth's mantle; these are the convergent boundaries, divergent boundaries comma and transform boundaries (Molnar 23).

The convergent boundaries are formed when two tectonic plates collide. Whenever the collision involves an oceanic plate then a subduction zone will occur because the denser plate will be subducted underneath the less denser plate. Furthermore, the convergent boundaries may occur when three different scenarios take place. One, when a continental plate collides with an oceanic plate resulting to the denser oceanic plate being subducted underneath the continental plate. An example of a feature formed as a result of this activity is the Andes mountains (Gerya 221). Another scenario that occurs during the formation of a convergent boundary is the collision between an oceanic plate and another oceanic plate which may result to seafloor spreading under the formation of submarine volcanoes. Finally the convergent boundaries may be formed as a result of the collision between continental collapse and another continental plate. An example of a feature from the through this activity is the Himalayas.

On the other hand, divergent boundaries are formed when tectonic plates move away from each other leaving a void which is filled by molten magma. When the movement of this plates occurs in land it resulted to the formation of rift valleys. However the divergent boundaries are currently active in oceanic plates and results to the formation of mid oceanic ridges such as the mid-Atlantic ridge.

Finally, the transform boundaries are formed when the tectonic plates slide each other; the earth's crust is neither formed nor destroyed. This kind of movement may either occur in the continental regions or oceanic regions and because of the friction during this action, there is a considerable amount of pressure that is built. Therefore, the places which these activities take place is usually characterized by frequent earthquakes (Molnar 33).

2. Advanced National Seismic Station (ANSS)

Name of station	Corbin Fredericksburg observatory Virginia
ANSS designation	
Latitude and longitude	Latitude 38.205, longitude -77.373
Elevation (meters)	70

Distance from me (miles)	81
Commenced operations	2001,166

3. USGA Earthquake Fault Map

¹ Name of the fault	Unspecified
Age of the fault	Latest Quaternary
Slip rate	No data

4. Determining ¹ the age of a fault line.

There are two specific approaches which scientist use ¹ when determining the age of a fault line; relative age dating and absolute age date. In determining the age of a fault line through relative age dating scientist assume that, unless an alteration has occurred to the sequence of sedimentary rock layers, the latest rock layers will be on top of the older ones (Reynolds 41). In this case, therefore, the age of the rocks is determined through of the faults that are found indifferent rocks. Other hand hard, absolute age dating is through the measuring of the rate at which radioactive isotopes decay.

5. My Tectonic Plate

¹ My tectonic plate	North American plate
Neighboring plate	Caribbean plate

6. My Tectonic Boundaries

¹ The type of plate boundary found between the North American plate and the Caribbean plate is a transform boundary.

Gerya, Taras V., et al. "Plate tectonics on the Earth triggered by plume-induced subduction initiation." *Nature* 527.7577 (2015): 221.

Molnar, Peter. *Plate Tectonics: A Very Short Introduction*. OUP Oxford, 2015.

Reynolds, Stephen, et al. *Exploring geology*. McGraw-Hill Higher Education, 2015.

Unit 4

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