

Name:

Science

Lesson 35

8th - NTI Day 6

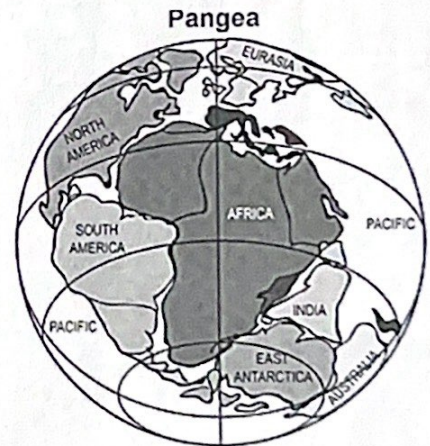
Plate Tectonics: Mountains, Volcanoes, and Earthquakes

Our Earth's crust, including both continents and oceanic basins, is perpetually in motion. Sections of the crust gradually slide towards, underneath, or away from each other. This continental drift happens at an incredibly slow pace (approximately 1.5 inches annually), making it virtually unnoticeable unless considered over a span of millions of years.

Have you ever assembled a jigsaw puzzle? Consider the continents as massive puzzle pieces. Do they all fit perfectly? Take a closer look at their coastal edges.

In the year 1912, a German scientist named Alfred Wegener authored a book titled *The Origins of Continents and Oceans*. In his book, he put forth the idea that the continents of our Earth were once a single supercontinent. He named this massive landmass **Pangea**, which translates to *all lands*. His theory is presently referred to as **continental drift**.

The **lithosphere** is made up of Earth's **crust** and **outer mantle**. This lithosphere is split into sections referred to as tectonic plates. These tectonic plates float atop the lower segment of Earth's mantle. What propels these plates to move? The heat emanating from deep within Earth's core causes the mantle's rock to heat up and ascend. It then pushes its way between two **plate boundaries**, forcing them apart. This continuous process pushes the plates further and further apart.



Areas where plates drift apart are referred to as **divergent boundaries**. This kind of plate movement leads to **seafloor spreading**, which resulted in the creation of the Mid-Atlantic Ridge and the East Pacific Rise.

Conversely, at **convergent boundaries**, the plates move towards one another, leading to a collision. When continents exist on both sides of the plates, the impact causes the crust to crumble, fold, tilt, or rise, leading to the formation of mountains. The Himalayan Mountains are a result of a convergent boundary. Volcanoes can also be found at these boundaries. As one plate slides beneath another, the hot rock material in the upper mantle melts into magma, which can then burst through cracks to form volcanic mountains.

The San Andreas Fault is a well-known instance of a **transform fault boundary**. Faults are enormous fractures in Earth's crust. This type of boundary happens when plates slide past one another in opposing directions without ascending or descending. Sometimes the motion is extremely gradual, but occasionally it can be quite sudden. An earthquake refers to the intense trembling of Earth's crust caused by abrupt plate movements.

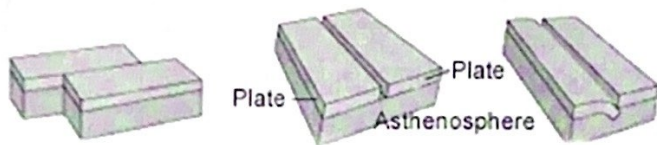
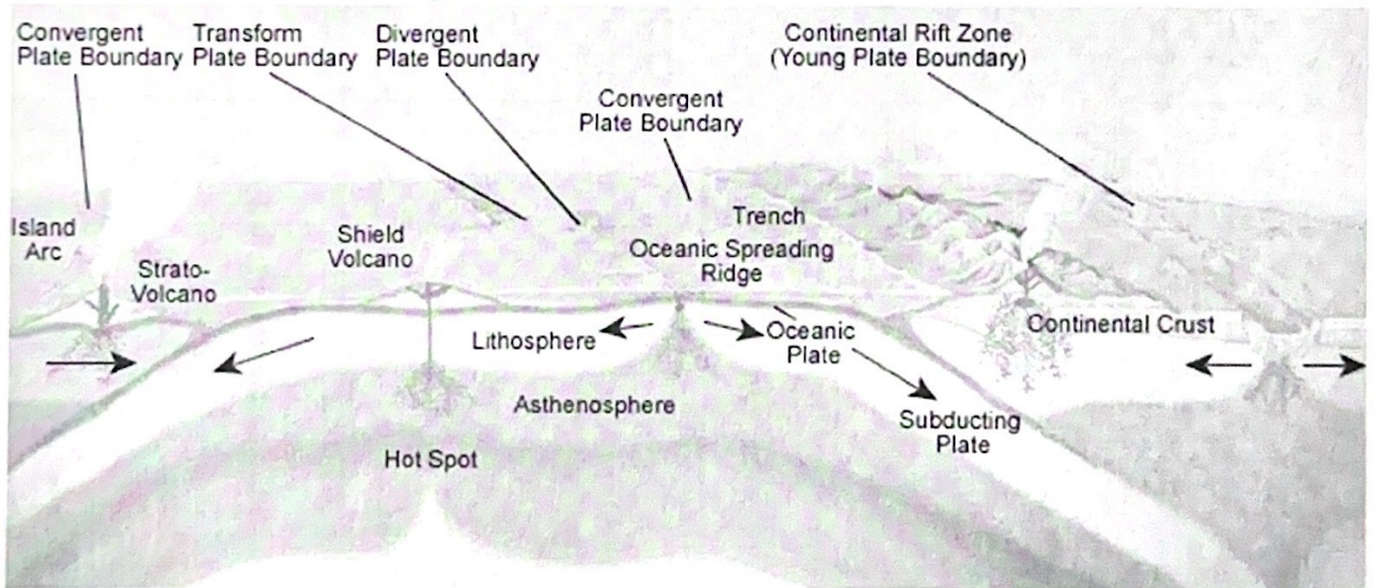


Plate Tectonic Diagram



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1. What does the lithosphere consist of?

- A. Earth's crust and outer core
- B. Earth's mantle and inner core
- C. Earth's crust and outer mantle
- D. Earth's atmosphere and mantle

2. What is the pace of continental drift?

- A. 15 inches per year
- B. 1.5 miles per year
- C. 15 miles per year
- D. 1.5 inches per year

3. What is Pangea?

- A. The name of a scientist
- B. A supercontinent that existed in the past
- C. A tectonic plate
- D. The name of a book

4. What happens at a convergent boundary?

- A. Plates drift apart
- B. Plates collide with each other
- C. Plates slide past each other
- D. Plates stay still

5. Who proposed the theory of continental drift?

- A. Isaac Newton
- B. Charles Darwin
- C. Albert Einstein
- D. Alfred Wegener

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6. What is the San Andreas Fault an example of?
- A. A divergent boundary
 - B. A convergent boundary
 - C. A transform fault boundary
 - D. A tectonic boundary
-
7. How was the Mid-Atlantic Ridge formed?
- A. Convergent boundary
 - B. Divergent boundary
 - C. Transform fault boundary
 - D. Lithosphere boundary
-
8. What causes tectonic plates to move?
- A. The Earth's rotation
 - B. The pull of the moon
 - C. Heat from deep within Earth
 - D. The Earth's magnetic field
-
9. What does the term **all lands** translate to?
- A. Lithosphere
 - B. Tectonic
 - C. Wegener
 - D. Pangea
-
10. What is an earthquake?
- A. The vigorous shaking of Earth's crust due to sudden plate movements
 - B. The process of continents drifting apart
 - C. The process of seafloor spreading
 - D. The formation of mountains due to plate collisions
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