

## Project 2: Plate Tectonics Background Information

### A. Theory of plate tectonics

1. According to the theory, the surface of the Earth is broken into large pieces of earth called plates. These plates float over an inner molten layer. The size and position of these plates change over time. An example of such movement is the idea of a super continent called Pangaea that existed millions of years ago. Evidence suggests that the separate continents we know today migrated from this one large land mass.
2. The edges of these plates are sites of intense geologic activity. Earthquakes, volcanoes, and mountain building can occur when they move against each other.
3. Plate tectonics are a combination of two earlier ideas, continental drift and sea-floor spreading.
  - a. Continental drift is the movement of continents over the Earth's surface and their change in position relative to each other.
  - b. Sea-floor spreading is the creation of new oceanic crust at mid-ocean ridges and movement of the crust away from the mid-ocean ridges.

### B. Plate Boundaries

1. Many changes and movements in the earth's crust originate along Lithospheric plate boundaries. These boundaries are not always easy to identify. The familiar outlines of the continents and oceans depicted on maps may not resemble the outlines made by the plate boundaries.
2. Plate boundaries can be in the middle of the ocean floor, around the edges of continents, or within continents. There are several types of plate boundaries, each of which is associated with a characteristic type of geologic activity.
  - a. **Divergent boundaries** are two plates moving apart from each other. Also known as spreading boundary, a divergent boundary occurs where two plates move apart, allowing magma, or molten rock, to rise from the Earth's interior to fill in the gap. The two plates move away from each other like two conveyor belts moving in opposite directions.
    1. The process by which the plates move apart can also be referred to as **sea floor spreading**. At this type of boundary, new oceanic crust is formed in the gap between two diverging plates. Plate area is increased as the plates move apart.
    2. Plate movement takes place laterally away from the plate boundary, which is normally marked by a rise or a ridge. The ridge or rise may be offset by a transform fault.