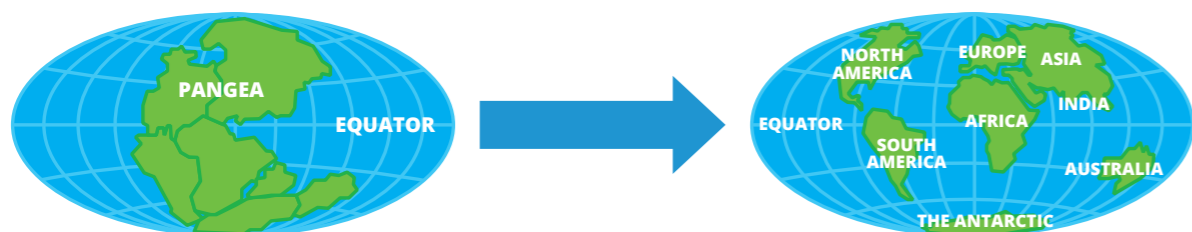


# 1.4 Alfred Wegener and tectonic plates

## Alfred Wegener and continental drift:

In 1912 Alfred Wegener suggested that all of the continents were once joined together in one supercontinent, called Pangaea. And over millions of years they drifted apart..



This idea of 'continental drift' is based on the following observations:

- jigsaw-like fit of the edges of continents, e.g. the west coast of Africa and the east coast of South America
- similar rocks of the same age found on different continents
- similar plant and animal fossils found on opposite sides of huge oceans.

Wegener's theory did not include any attempt to explain how the continents moved and it was dismissed by more renowned scientists of the time.

Convection currents in the mantle were proposed by some scientists as an explanation for plate movement as far back as the 1930s and this was generally accepted as being correct by the 1960s. Wegener's theory of continental drift was refined and became known as 'plate tectonics'.

## Possible 6QER questions:

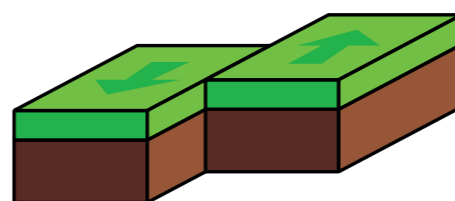
1. Describe Alfred Wegener's theory of continental drift..  
Your answer should include:
  - the evidence he used to support his idea
  - the reason why other scientists did not believe Wegener at that time
  - the evidence that now proves that Wegener's theory was correct.
2. Briefly outline the theory of plate tectonics and use this to describe what happens at one type of plate boundary.

## Tectonic plates:

The surface of the Earth is divided into a number of tectonic plates. These plates are constantly moving due to convection currents in the mantle. The movement of the plates causes the continents to move. The following diagram shows some of the Earth's tectonic plates and the direction in which they move.

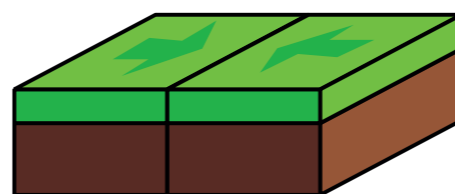


Plate boundaries can be classified according to the direction of movement of the plates.



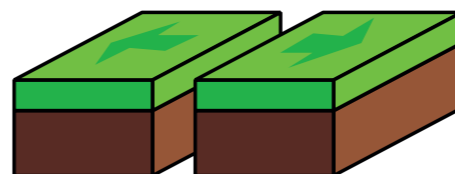
### Conservative boundary:

Plates move in opposite directions (side by side). They overcome friction and move suddenly. This is an earthquake.



### Destructive boundary:

Plates move towards each other. The denser plate sinks and melts. The less dense plate rises, forming mountains.



### Constructive boundary:

As two plates move apart, magma rises into the gap. Then the magma cools and solidifies to form new igneous rocks.