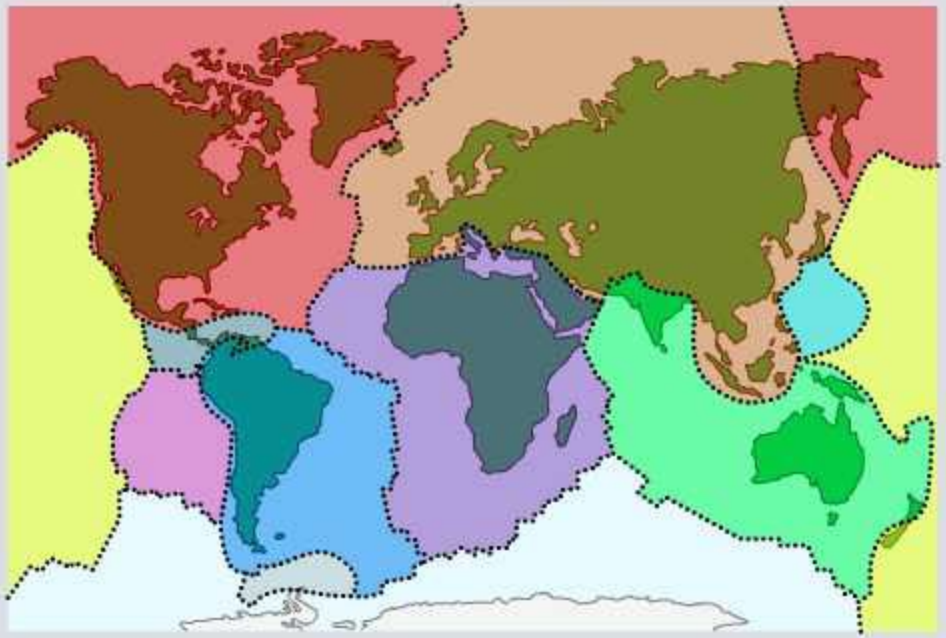
What is Plate Tectonics?

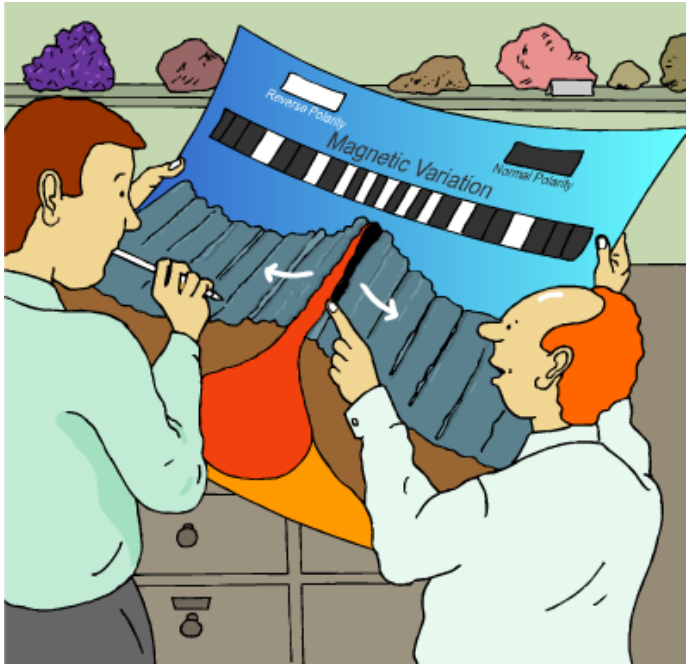


Continental drift

A brief history

At first, no one believed Wegener's theory.

Then, during World War II, U.S. Navy captain **Harry Hess** used submarine detection technology to discover underwater volcanoes in the Atlantic.



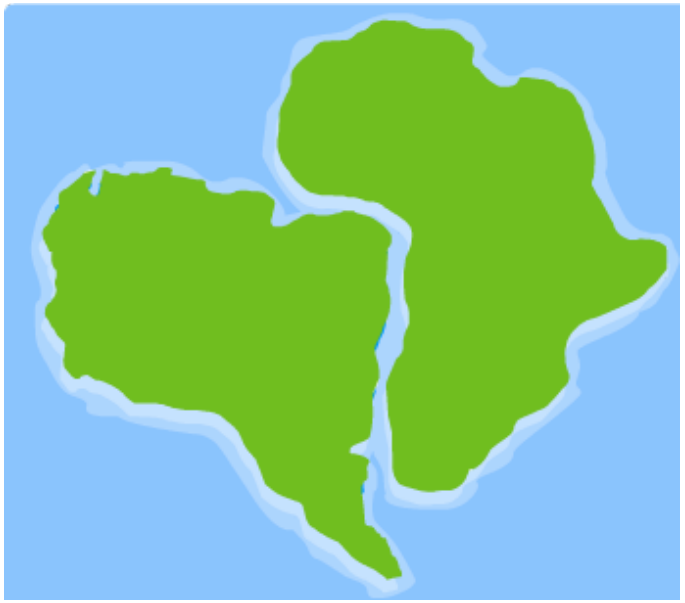
Hess thought the volcanoes were evidence of plates under the ocean moving apart. He called this **seafloor spreading**.

In 1963, British researchers **Fred Vine** and **Drummond Matthews** proved Hess right. They discovered symmetrical magnetic variations on either side of underwater volcanoes. These magnetic variations proved Wegener's theory right.

Evidence for continental drift

It was not until the 1960s that the theory of continental drift became accepted by the scientific community.

- Some continents fit together almost perfectly, e.g. South America and Africa.



- Similar fossils can be found on different continents. This shows these regions were once very close or joined together.
- Almost identical patterns of rock layers on different continents is evidence that the rocks were once close together or joined.

Why are the continents moving?

What is plate tectonics?

In the 1960s, **geologists** used surveys of the ocean floor to explain continental drift with the theory of **plate tectonics**.

- The Earth's surface is made up of a number of large **plates** that are in constant, slow motion.
- The ocean floors are continually moving, spreading from the center and sinking at the edges.
- The edges of these plates – **plate boundaries** – are where earthquakes and volcanoes occur.
- **Convection currents** in the mantle move the plates. The plates 'float' on the mantle and move around the Earth's surface.

How do the plates actually move?

Why do the plates move?

Plate names