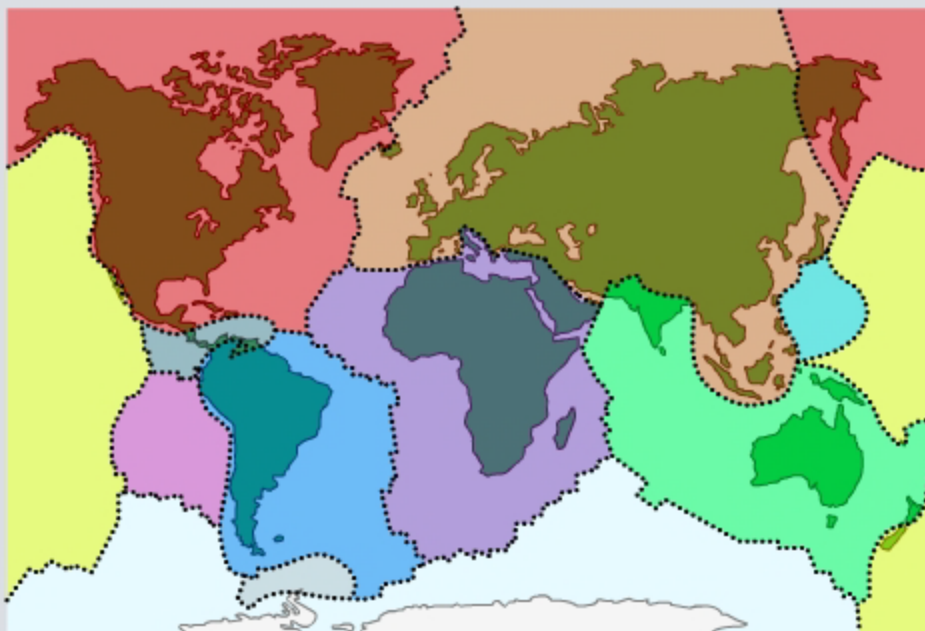


Plate Tectonics



How does the Earth's surface change?

The shapes and positions of the continents make up a very familiar image.



The Earth's surface is a very dynamic place and has not always looked like this.

Earthquakes, volcanic activity and other phenomena have been changing the face of the planet for millions of years.

The key geological theory that explains how the Earth's surface changes now and has changed in the past is called **plate tectonics**.

So what exactly is the theory of plate tectonics and how was it developed?



What is plate tectonics?



Imagine that land on the Earth's surface is like bread floating on a pan of soup (the mantle).

Click "**play**" to see how the Earth's surface changes due to plate tectonics.

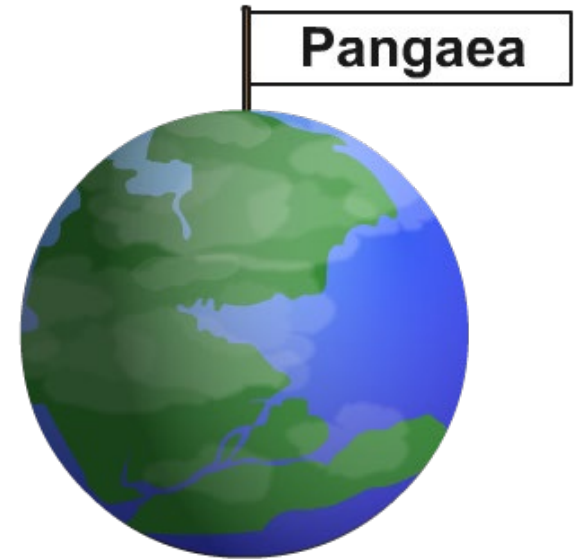


Have the continents moved?

Alfred Wegener was a key figure in changing ideas about the Earth's surface. In 1912, he proposed that all the continents were once joined in a single supercontinent, called **Pangaea**.

Wegener suggested that Pangaea began to break up about 200 million years ago and the pieces drifted apart to form the present day continents.

At the time, Wegener's theory of '**continental drift**' was dismissed by geologists because he could not provide a convincing explanation for how the continents were able to move.



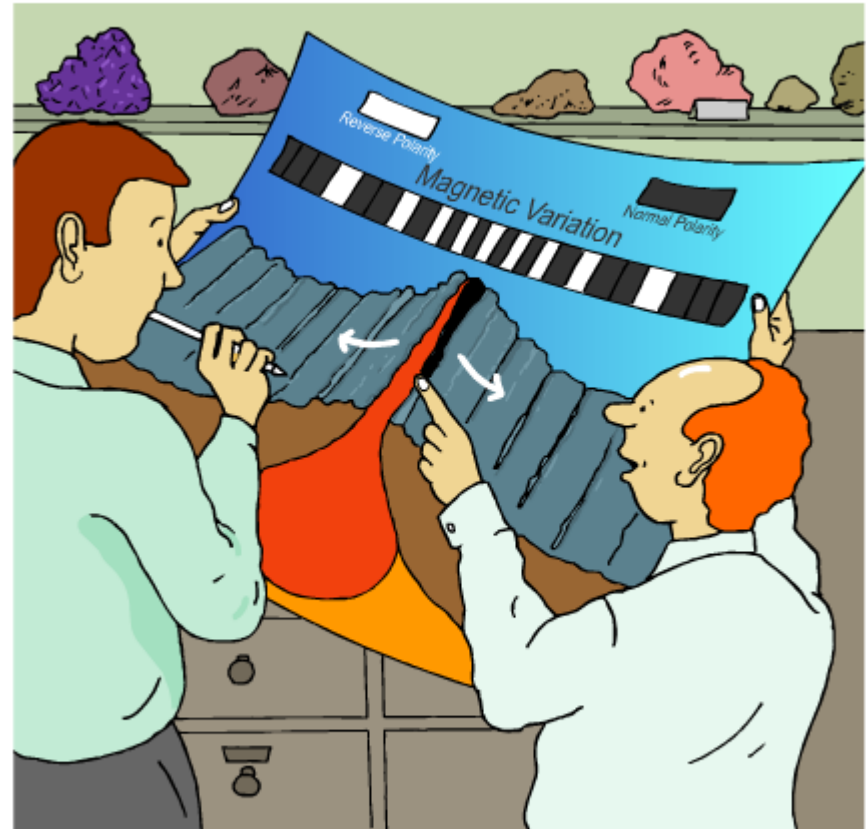


Developing the theory of continental drift

The theory of continental drift was developed over time due to the combined efforts of many pioneering scientists.

The theory had to battle against many criticisms, but ultimately became one of the great milestones in our understanding of the Earth's structure.

Click "**start**" to find out about the development of this theory.



start





What is continental drift?



According to the theory of continental drift, the positions of the continents on the Earth's surface have changed over time.



Click "**start**" to find out more about this.

start



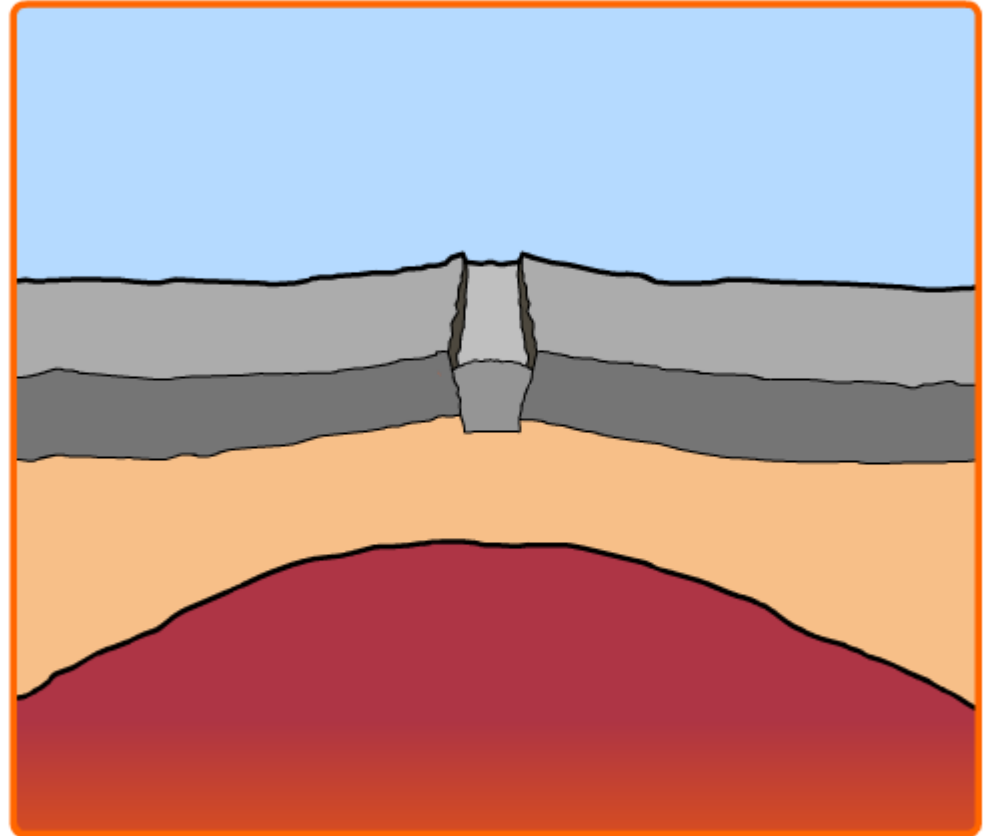
What is seafloor spreading?

What is seafloor spreading?

Seafloor spreading was proposed by **Harry Hess** to explain continental drift.

In seafloor spreading, two oceanic plates move away from each other, resulting in the formation of new oceanic crust.

Click "**start**" to find out more about this process.



start

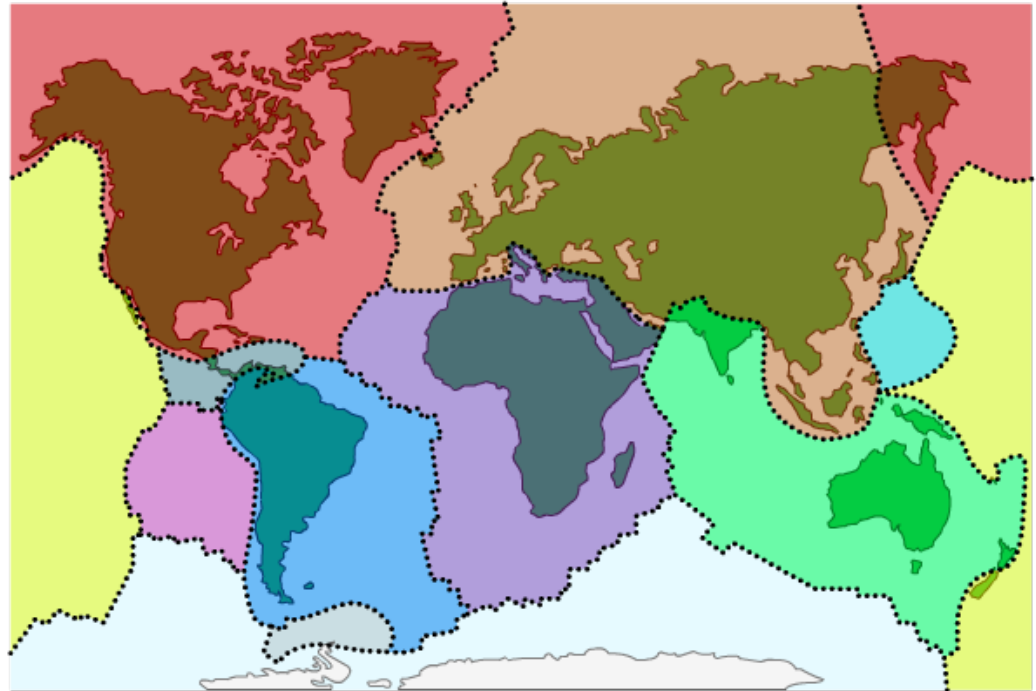


What is the theory of plate tectonics?

The explanation for how the continents move came from observations of seafloor spreading and other effects. In 1967, these ideas were linked in the **theory of plate tectonics**.

According to this theory, the Earth's crust is like a jigsaw puzzle made up of giant sections called **tectonic plates**.

These plates 'float' on top of the mantle and so can move around the Earth's surface.

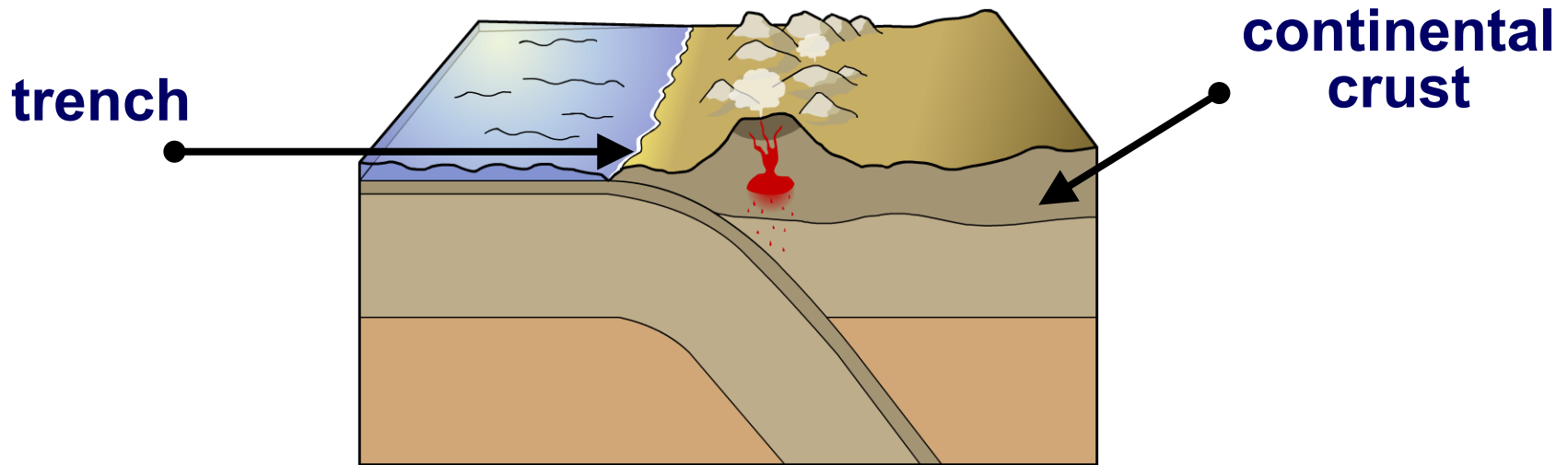


There are 10 major tectonic plates and several minor plates.



What is a plate boundary?

The area where two tectonic plates meet is called a **plate boundary**. Mountains, volcanoes and oceanic trenches are formed at plate boundaries, and earthquakes are more likely to occur here.



There are three types of plate boundary: **divergent**, **convergent** and **transform**.



Identifying plate boundaries



Effects of tectonic plate movements

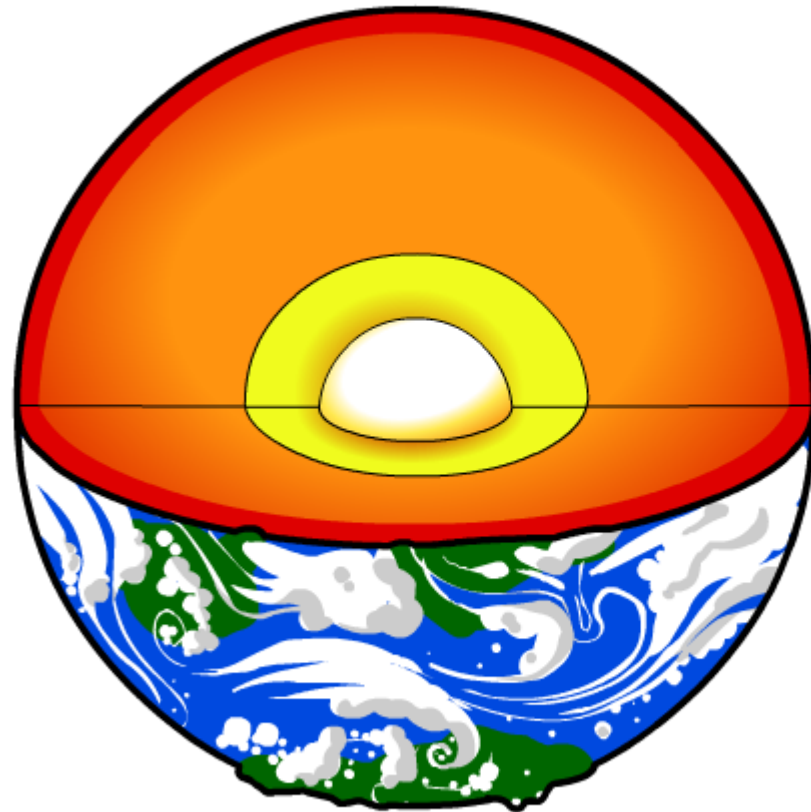


How do convection currents move tectonic plates?

Heat generated in the Earth's core causes the tectonic plates on the Earth's surface to move.

This process occurs due to the formation of convection currents in the mantle.

Click "**start**" to find out how this takes place.



start



Plate tectonics – true or false?



Are these statements about Earth's surface true or false?

1.	The rocky outer layer of the Earth is called the crust.	
2.	The core is the layer of slightly mobile rock beneath the crust.	
3.	The inner core is the hottest area of the Earth and is mainly composed of solid iron.	
4.	Einstein proposed the theory of continental drift.	
5.	Pangaea is the supercontinent that existed before the continents drifted apart.	
6.	Plate tectonics is the theory of shifting plates that explains continental drift.	

true

false



solve

