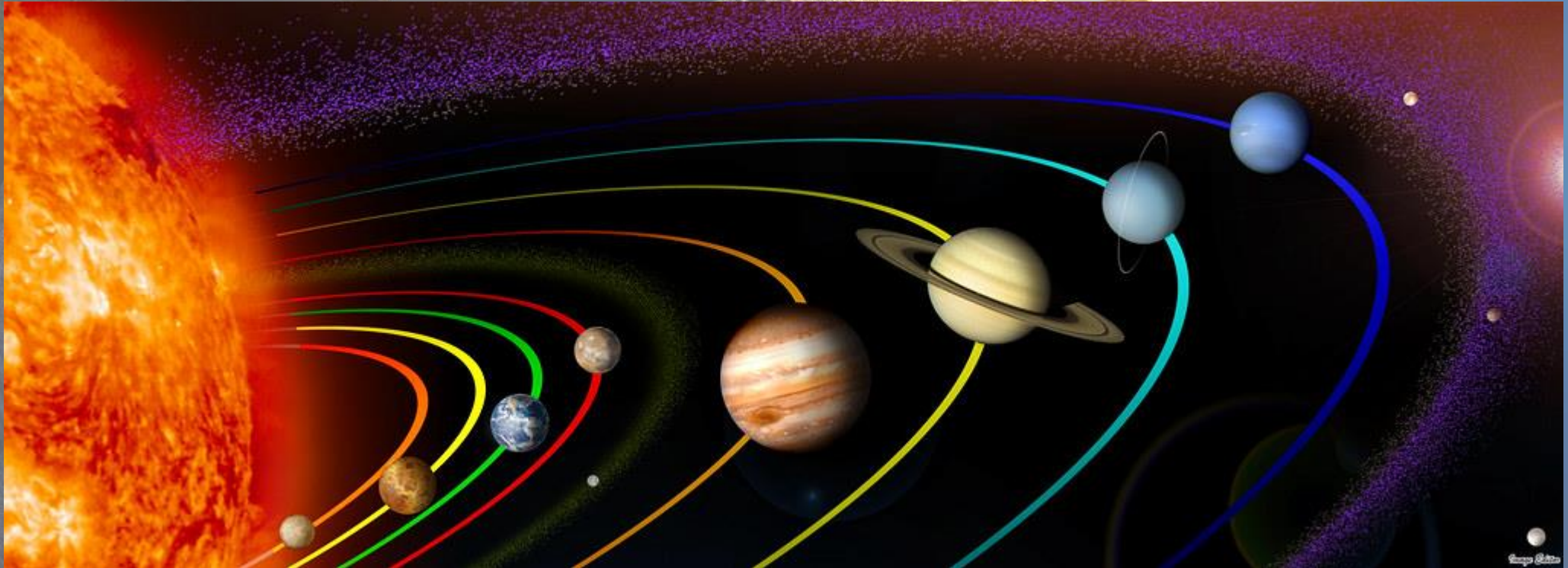


Journey to the Centre of the Earth!

Did you know that the earth is very different to the rest of the planets in the solar system?
Can you think why?





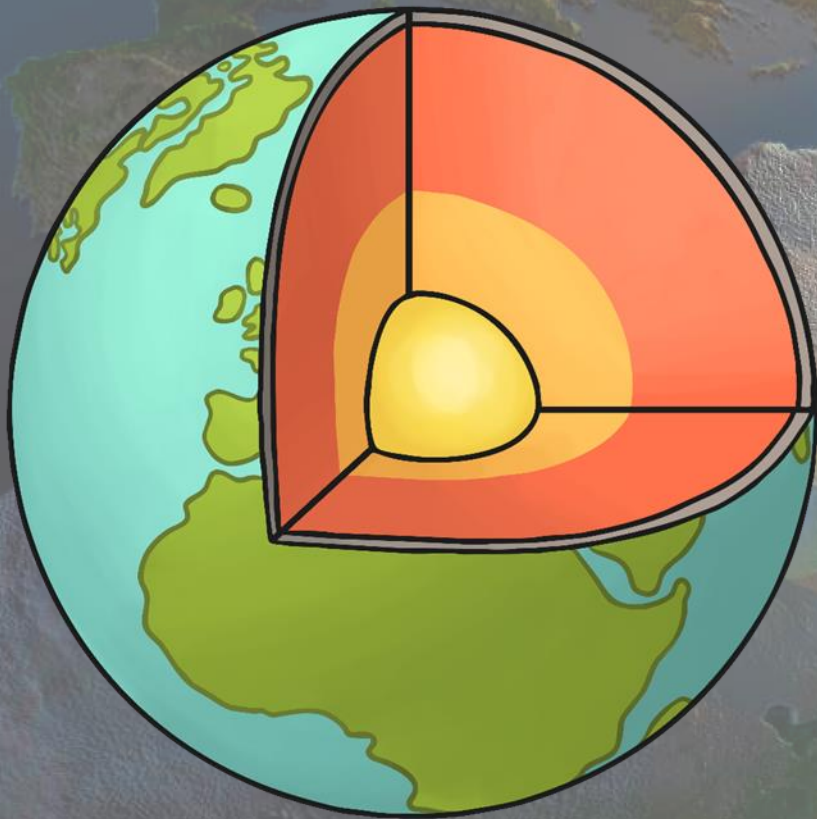
The Earth is unlike every other planet in the Solar System in a number of different ways. It is the only planet that has **liquid water** on its surface This allows life to form and to be sustained.

But what about UNDER our feet?

By using a variety of advanced techniques, scientists have been able to discover what lies beneath the surface of our planet.

Wow! Look at that!
The diagram below shows what is
Going on right underneath our feet!

What can you see - what do you think is going on here?

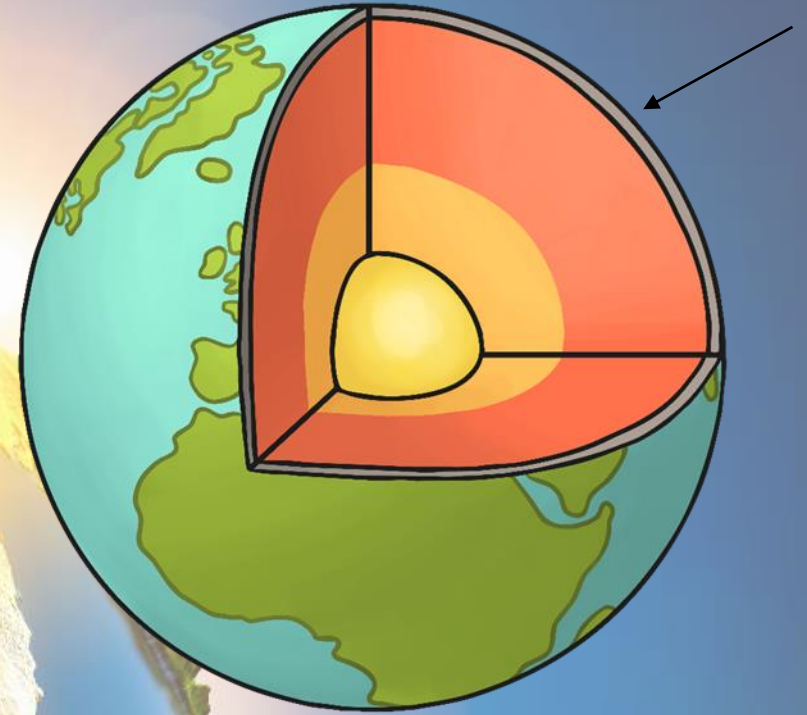


The Crust

The crust is the **top layer** that we live on. The crust looks different in different places, some areas have mountains, oceans, lakes and hills, others don't. The way the crust is put together is the reason that we have all of these different formations.

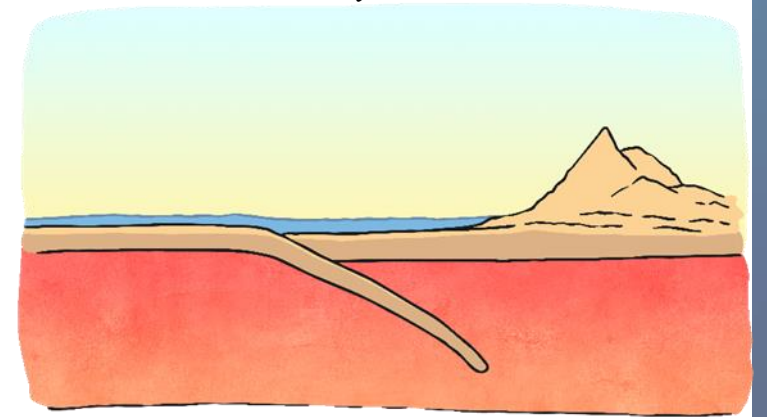
This is because the crust is **not one continuous piece**, it is made up of pieces that overlap to cover the entire planet.

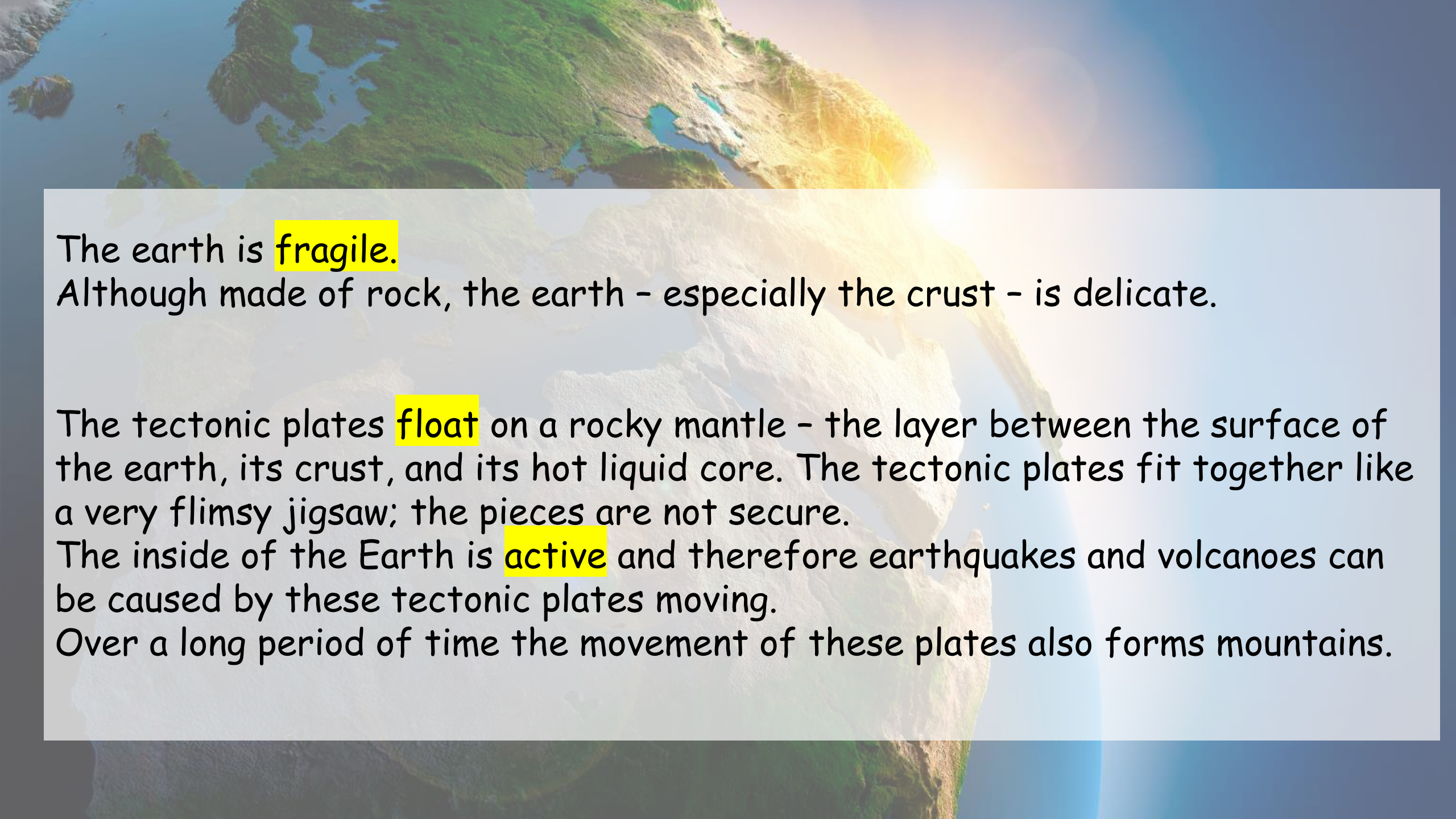
These pieces are called **tectonic plates**.



The crust is, on average, about 22 miles thick. The thickest part is thought to be about 40 miles thick, and the thinnest is only 3 miles thick (that part is at the bottom of the ocean).

Just as a loaf of bread or a pizza has a crust, so does our earth.



The background of the slide is a composite image. The top half shows a view of Earth from space, with green landmasses and blue oceans. The bottom half shows a close-up, low-angle view of a rocky, mountainous landscape under a bright, hazy sky, suggesting a volcanic or tectonic environment.

The earth is **fragile**.

Although made of rock, the earth - especially the crust - is delicate.

The tectonic plates **float** on a rocky mantle - the layer between the surface of the earth, its crust, and its hot liquid core. The tectonic plates fit together like a very flimsy jigsaw; the pieces are not secure.

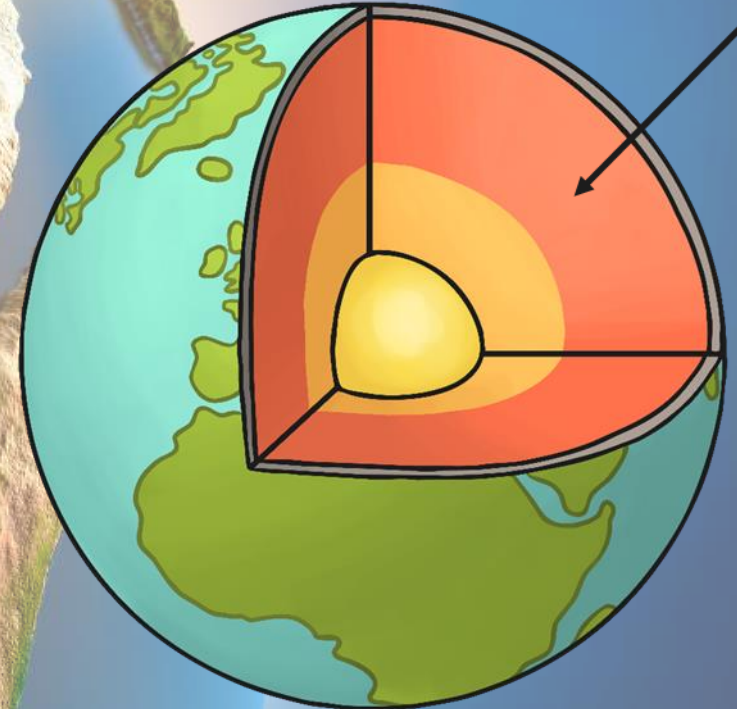
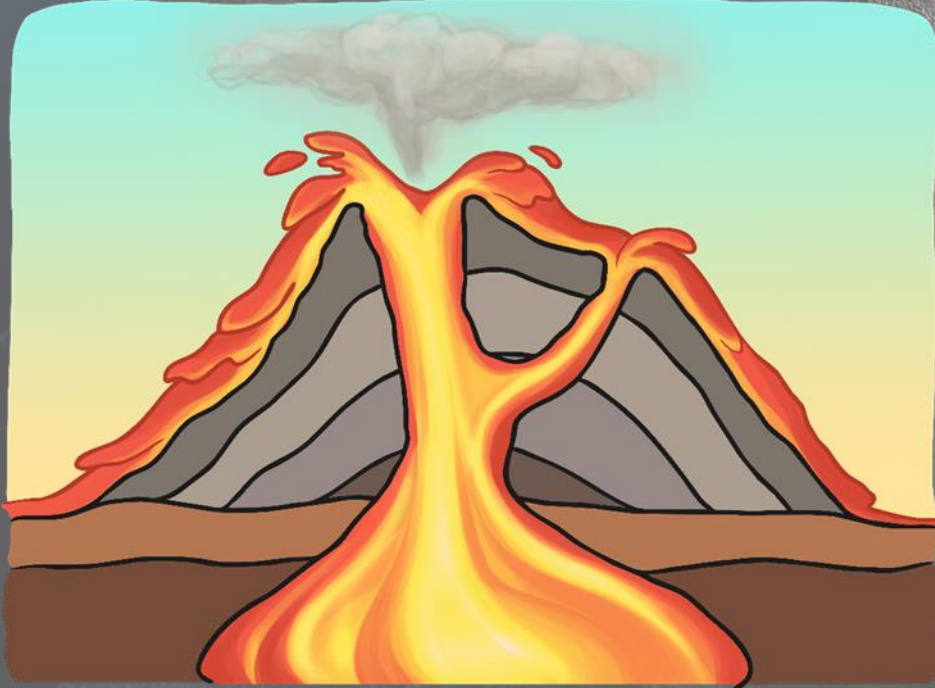
The inside of the Earth is **active** and therefore earthquakes and volcanoes can be caused by these tectonic plates moving.

Over a long period of time the movement of these plates also forms mountains.

THE MANTLE

The mantle accounts for 60% of the Earth's mass, making it the thickest layer of the Earth. Its temperature ranges from 500 degrees Celsius (500°C) at the crust to $4,000^{\circ}\text{C}$ near the outer core.

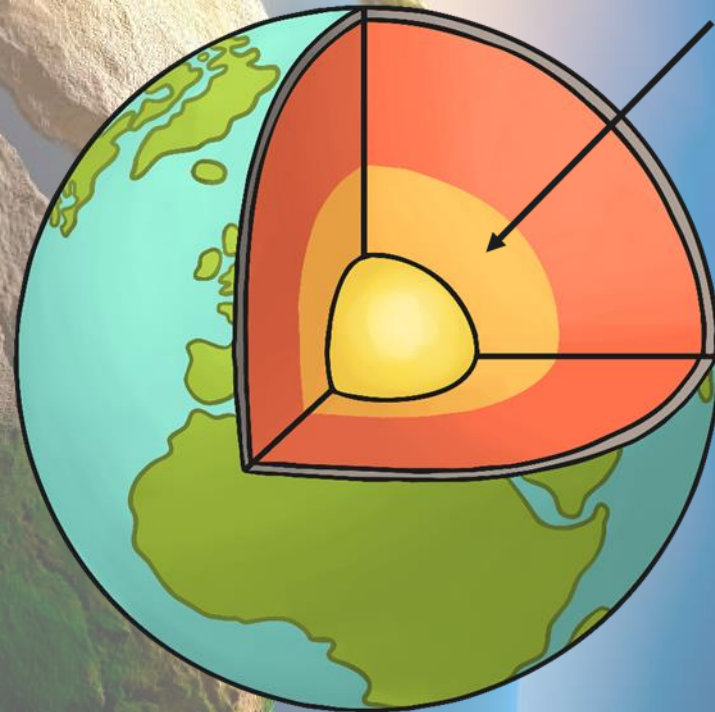
The upper mantle mixes and moves, causing pressure underneath the crust. This pressure can sometimes cause the mantle to leak out onto the surface of the Earth - a volcano! What you see as lava is actually boiling hot liquid rock squeezed out like an enormous zit!



The outer core

The outer core is about 30% of the Earth's mass. Its temperature ranges from 4440°C to 6100°C (which is as hot as the Sun!)

The outer core is a **super-heated liquid** made of iron and nickel.

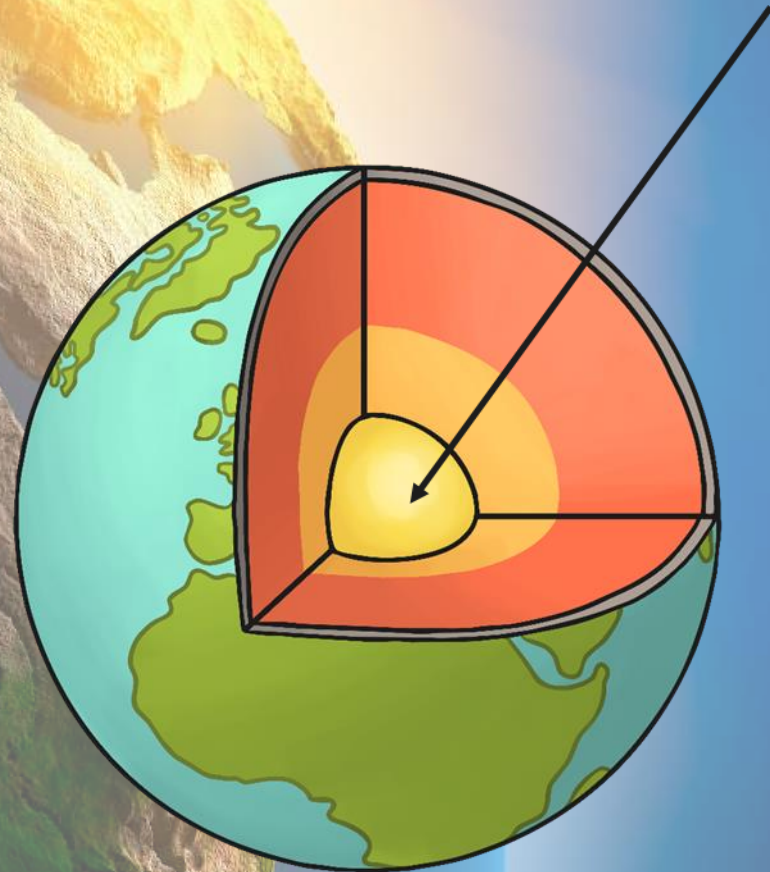


The inner core

is made up of the same metals as the outer core (iron and nickel) but, instead of being liquid, it is a solid. The inner core reaches temperatures of up to $5,500^{\circ}\text{C}$.

With its immense heat energy, the inner core is like the engine room of the Earth.

It is basically a solid ball with a radius of about 760 miles (about 70% of the size of the Moon).





What Have You Learned?

Take this quick quiz to see how much you have remembered about the Earth's surface.

1. How many layers does the Earth have?
2. Name the layers.
3. What are the pieces of the Earth's crust called?
4. What causes earthquakes?
5. Which is the thickest layer of the Earth?
6. What is created when the mantle leaks out onto the surface?
7. What two metals is the core made of?
8. Is the outer core a solid or a liquid?
9. What is the inner core like?

Now continue to read the next slides for your other tasks

As you know scientists (called geologists), have discovered that there are five layers - the crust, the upper mantle, the mantle, the outer core, and the inner core.

The earth is like a massive crème egg:

the foil wrapper could represent the _____
the chocolate outer could represent the _____
the creamy white could represent the _____
the yellow yolk could represent _____

Can you now draw your own Planet Earth showing the layers?
Remember to make your layers the correct depth - for example
the crust is a lot thinner than the mantle.



One last task!

Draw a line to match the layers of the earth with their descriptions.

Crust

Has the properties of a solid but can flow.

Mantle

Made from liquid nickel and iron.

Inner Core

Made from solid nickel and iron.

Outer Core

The outer layer, relatively thin and rocky.