

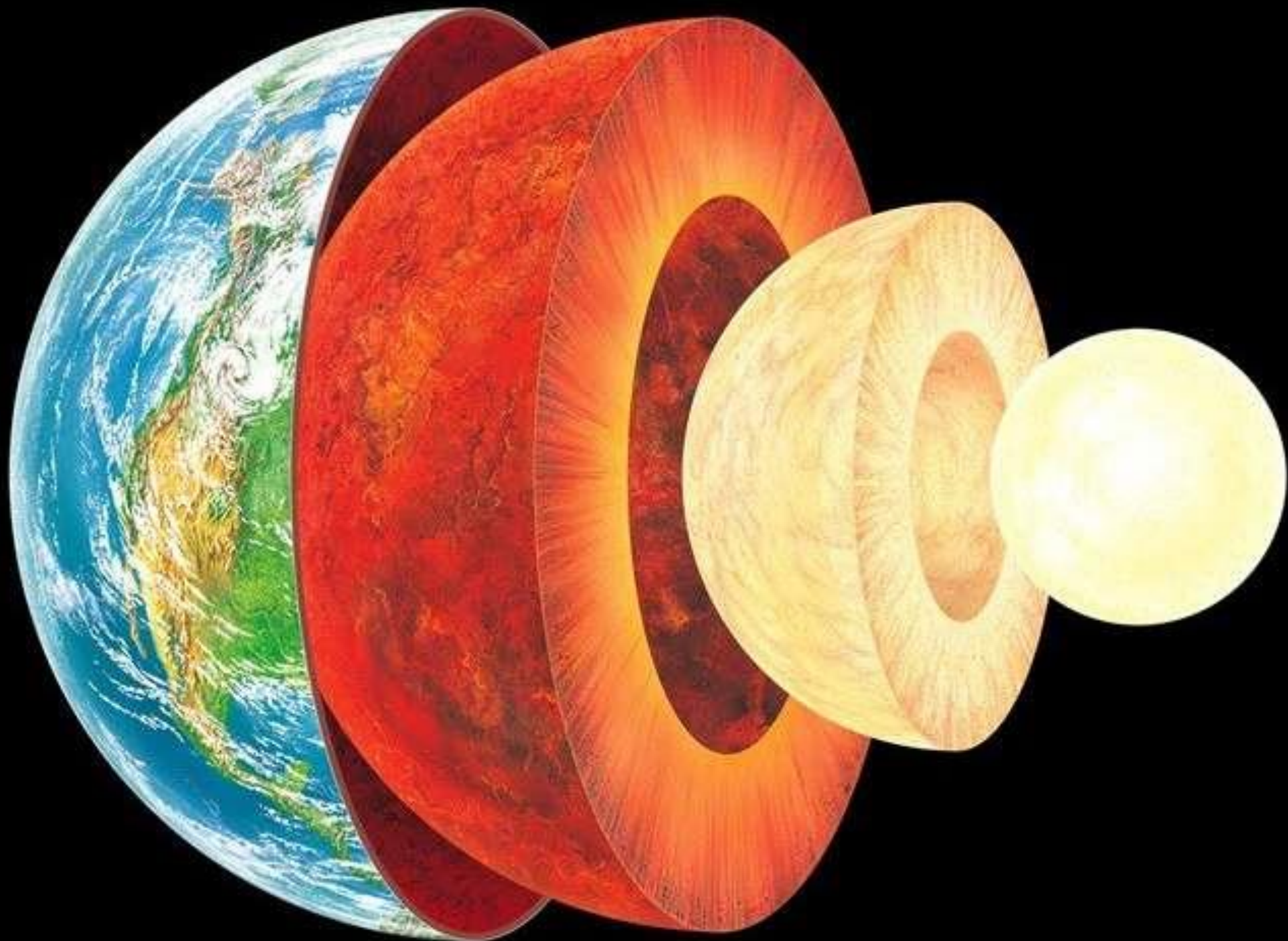


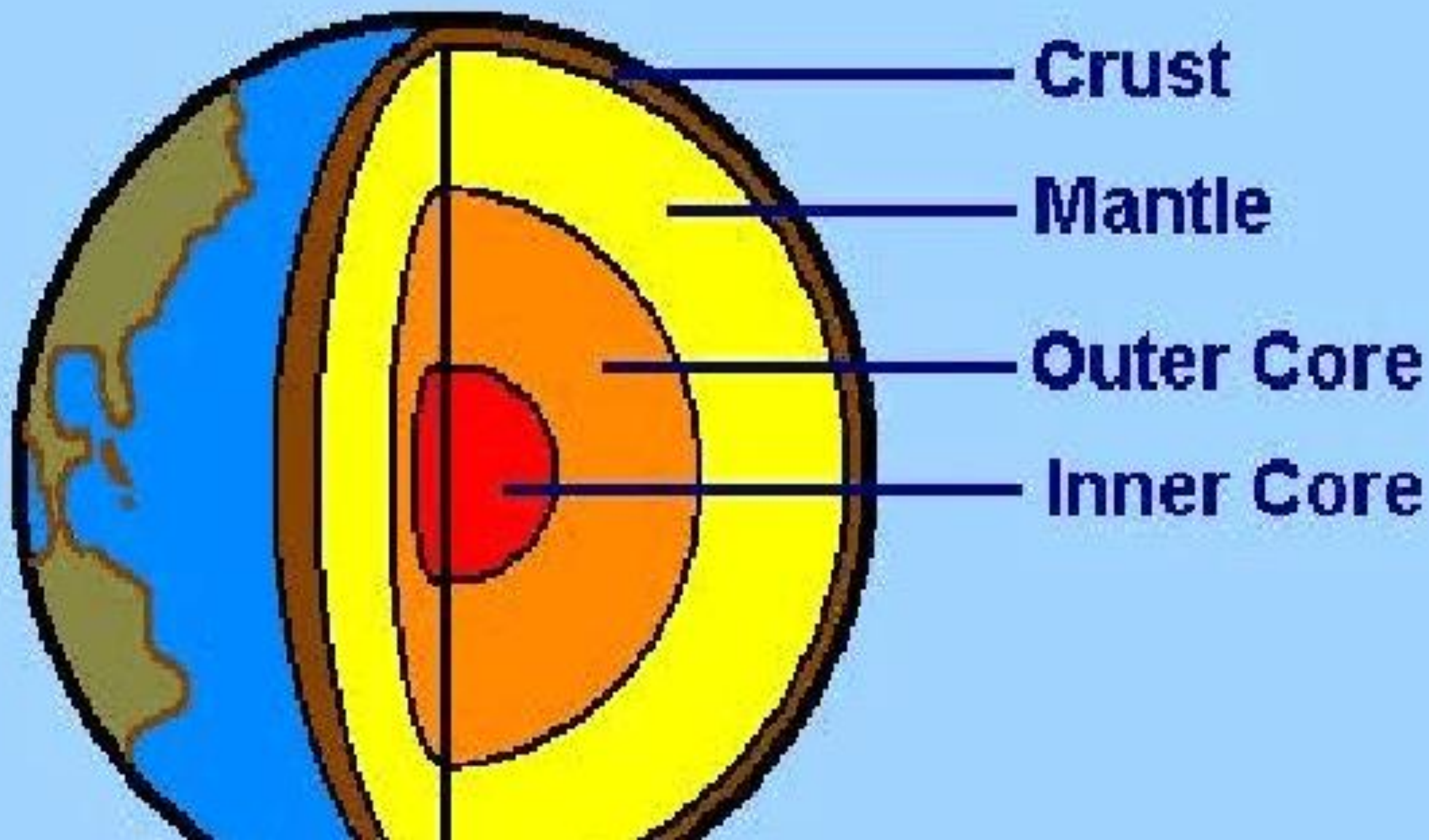
INSIDE OUR EARTH

LAYERS OF EARTH, ROCKS AND MINERALS



LAYERS OF THE EARTH

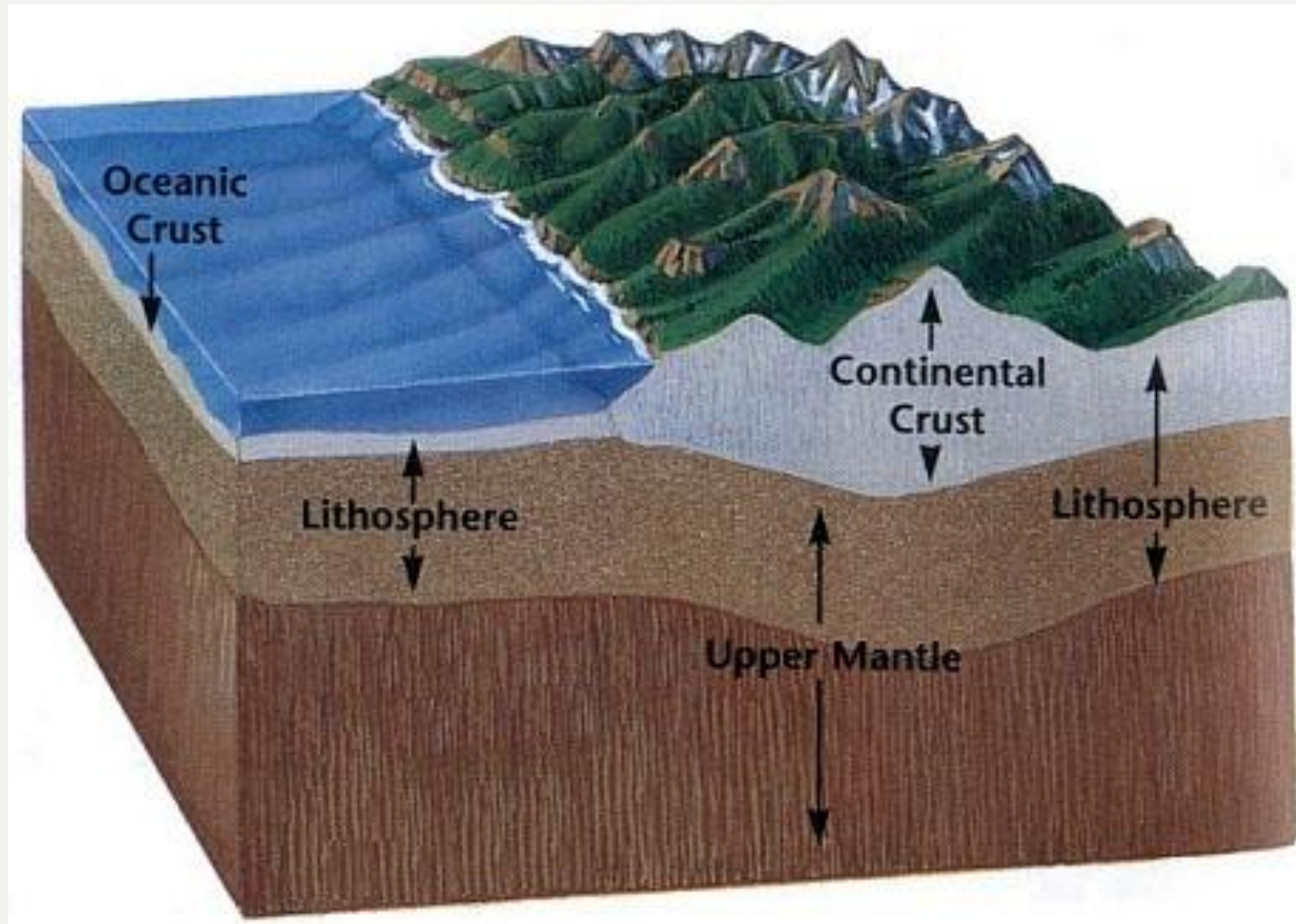




CRUST

- **It is the outermost solid layer of the earth.**
- **It is made up of the lightest materials.**
- **It is 35 kms on the continental masses and 5 km on the oceanic masses.**
- **The continental crust is mainly made up of silica and alumina hence called SIAL.**
- **The oceanic crust is made of silica and magnesium hence called SIMA.**
- **The crust comprises only 1 percent of the earth's crust.**

CONTINENTAL AND OCEANIC CRUST



MANTLE

- **Mantle is made up of the molten rocks.**
- **It is 2900 kms deep beneath the crust.**
- **The average temperatures in this layer are 2200 degree Celsius.**
- **It is made up of denser material.**
- **Mantle comprises 84 percent of the earth's surface.**

THE FIERY MANTLE

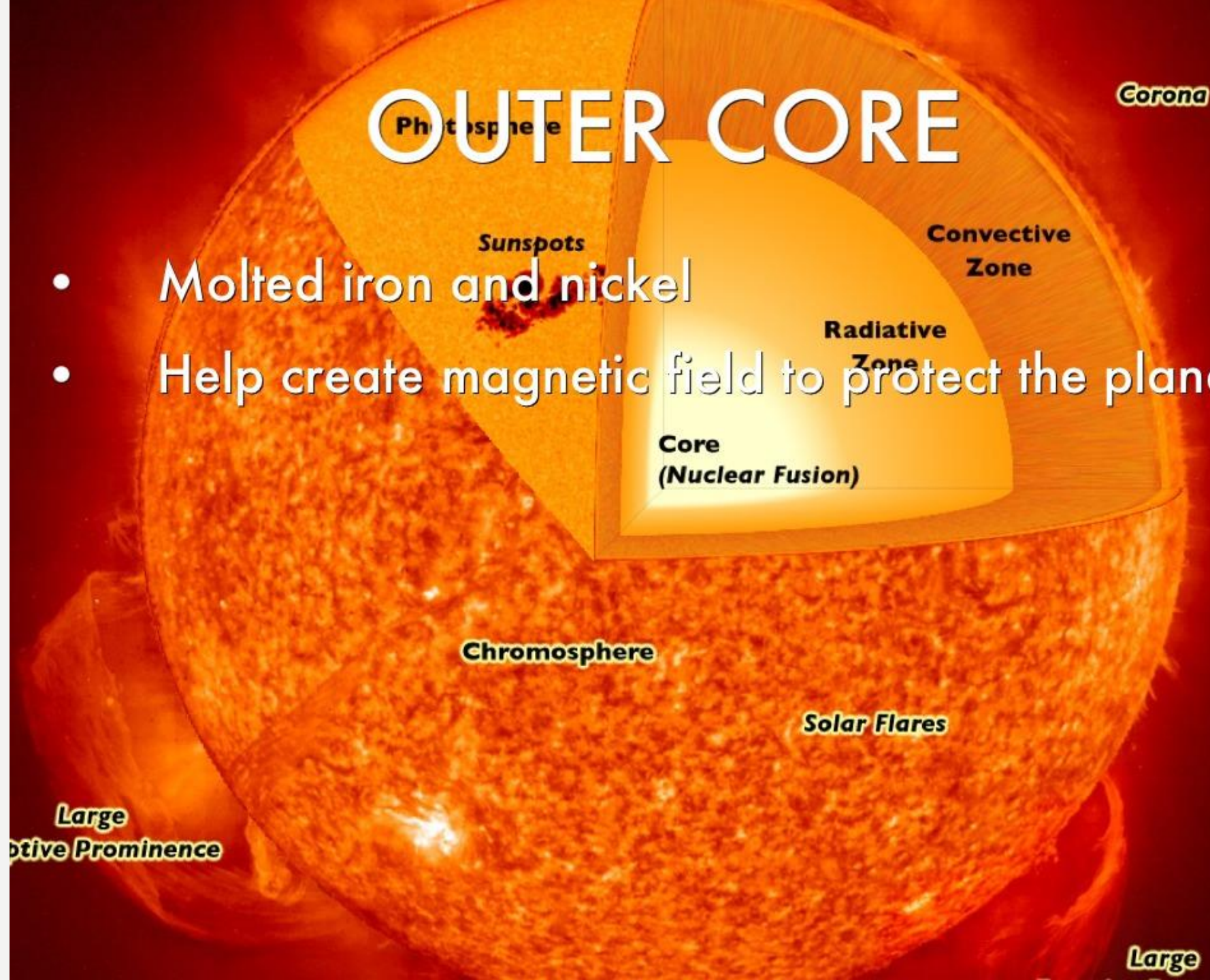


CORE

- **It is the innermost, hottest and densest layer of the earth.**
- **The main ingredients in this layer are nickel and iron. Hence it is called NIFE.**
- **The inner core has average temperatures of 6000 degrees Celsius.**
- **Due to the extreme pressure of the overlying layers, the inner core is in solid state.**
- **It comprises of 15 percent of the earth's volume.**

OUTER CORE

- Molten iron and nickel
- Help create magnetic field to protect the planets



FUN ACTIVITY – MAKE YOUR OWN EARTH’S LAYERS WITH COLOURED CLAY, OR BAKE A CAKE



A decorative graphic on the left side of the slide consisting of two parallel, wavy vertical lines. The inner line is yellow and the outer line is white, both set against a dark brown background.

TYPES OF ROCKS

IGNEOUS ROCKS



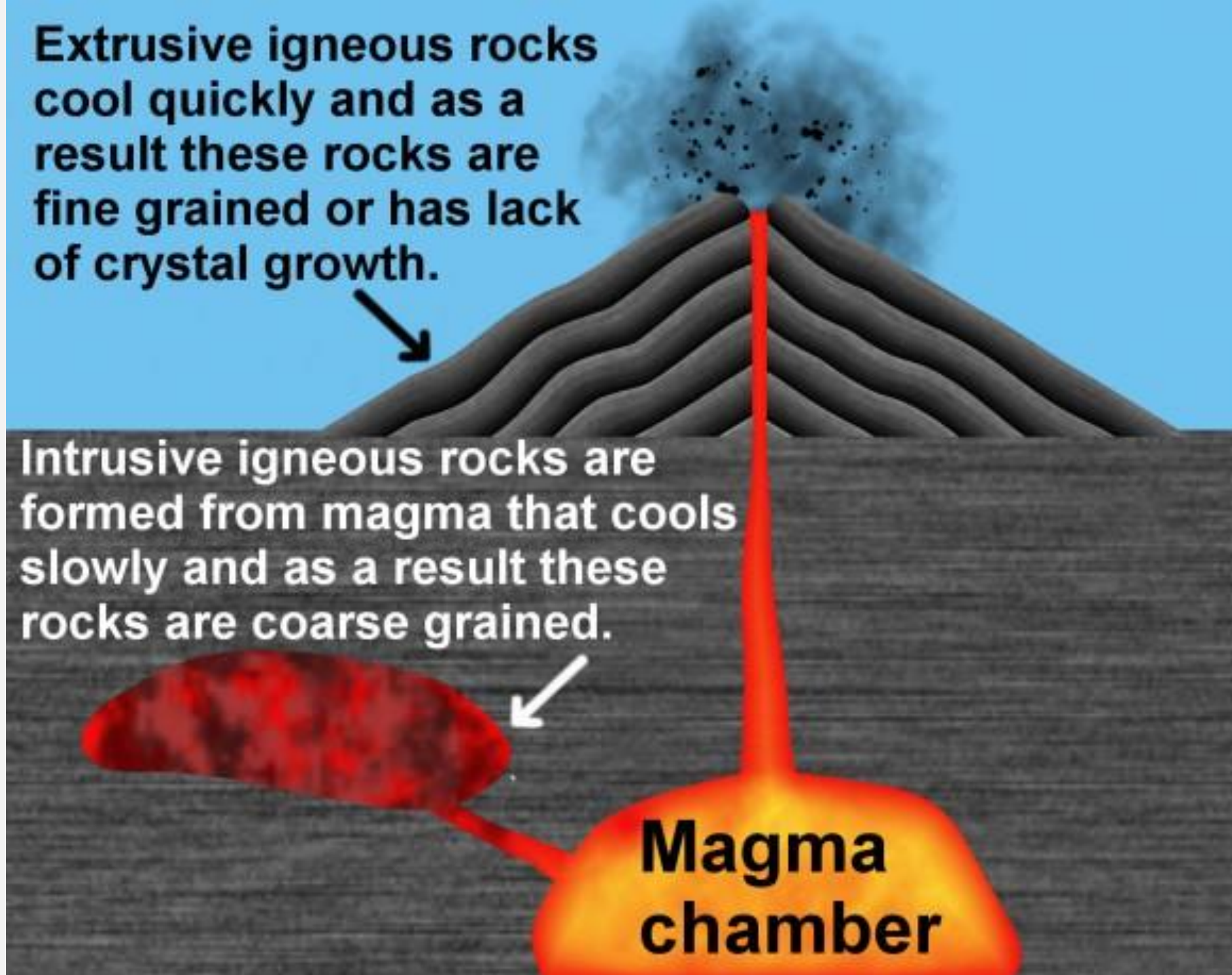
Extrusive igneous rocks cool quickly and as a result these rocks are fine grained or has lack of crystal growth.



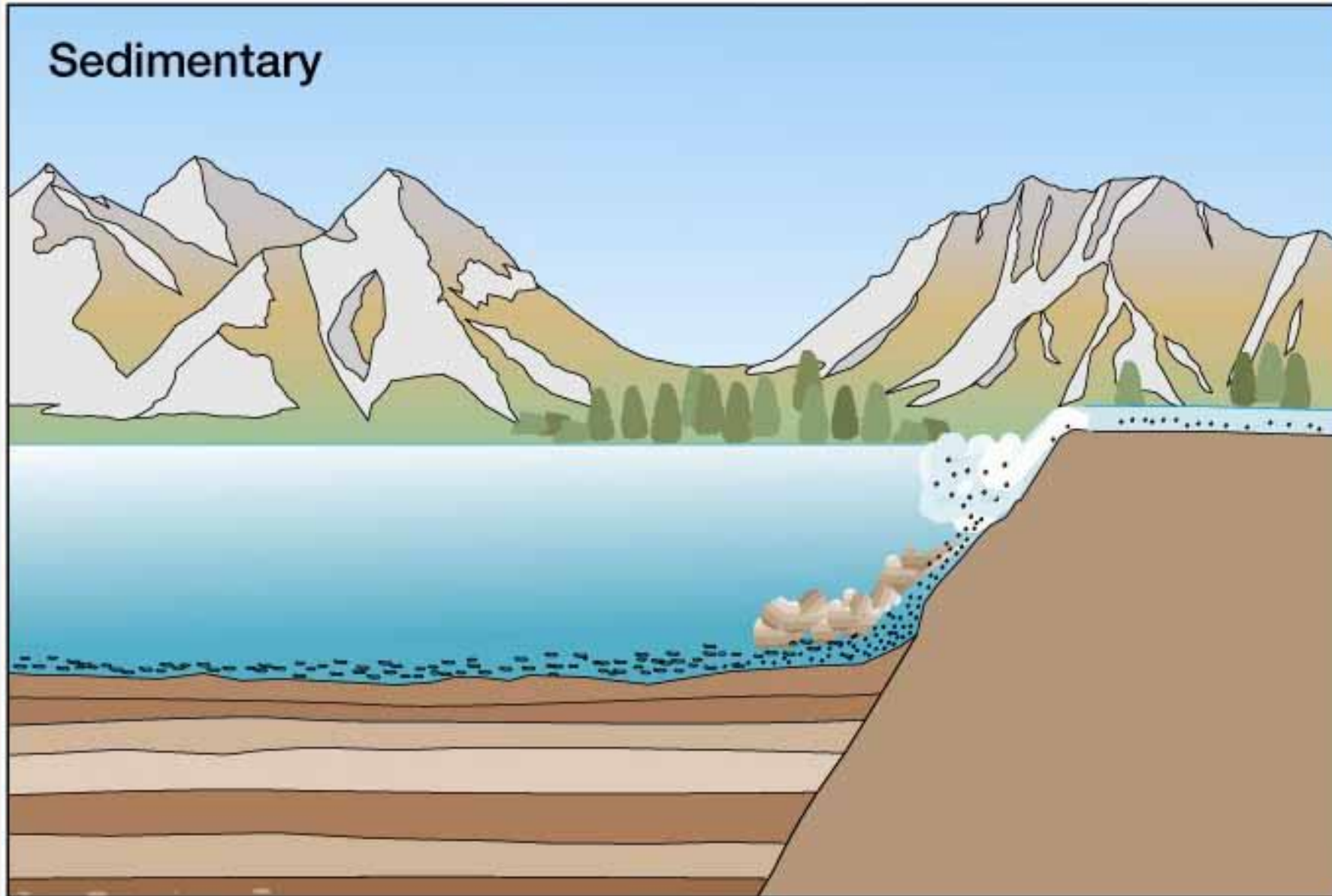
Intrusive igneous rocks are formed from magma that cools slowly and as a result these rocks are coarse grained.



Magma chamber



SEDIMENTARY ROCKS



Land

Eroded sediments end up in the water and begin to settle
(**sedimentation**)



With time, more layers pile up and presses down the lower layers
(**compaction**)



More layers (strata) and further compaction forces out water of the layers



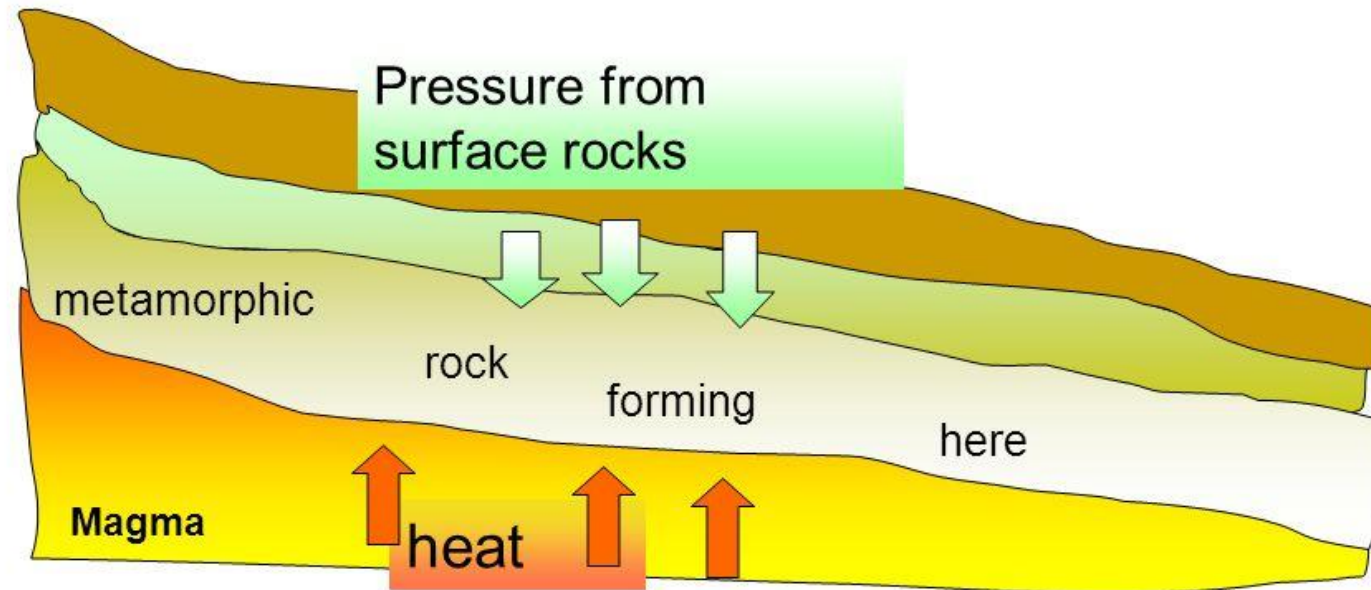
Salt crystals glue the layers together (**cementation**)
Rock mass formed is sedimentary



METAMORPHIC ROCKS

Metamorphic Rocks

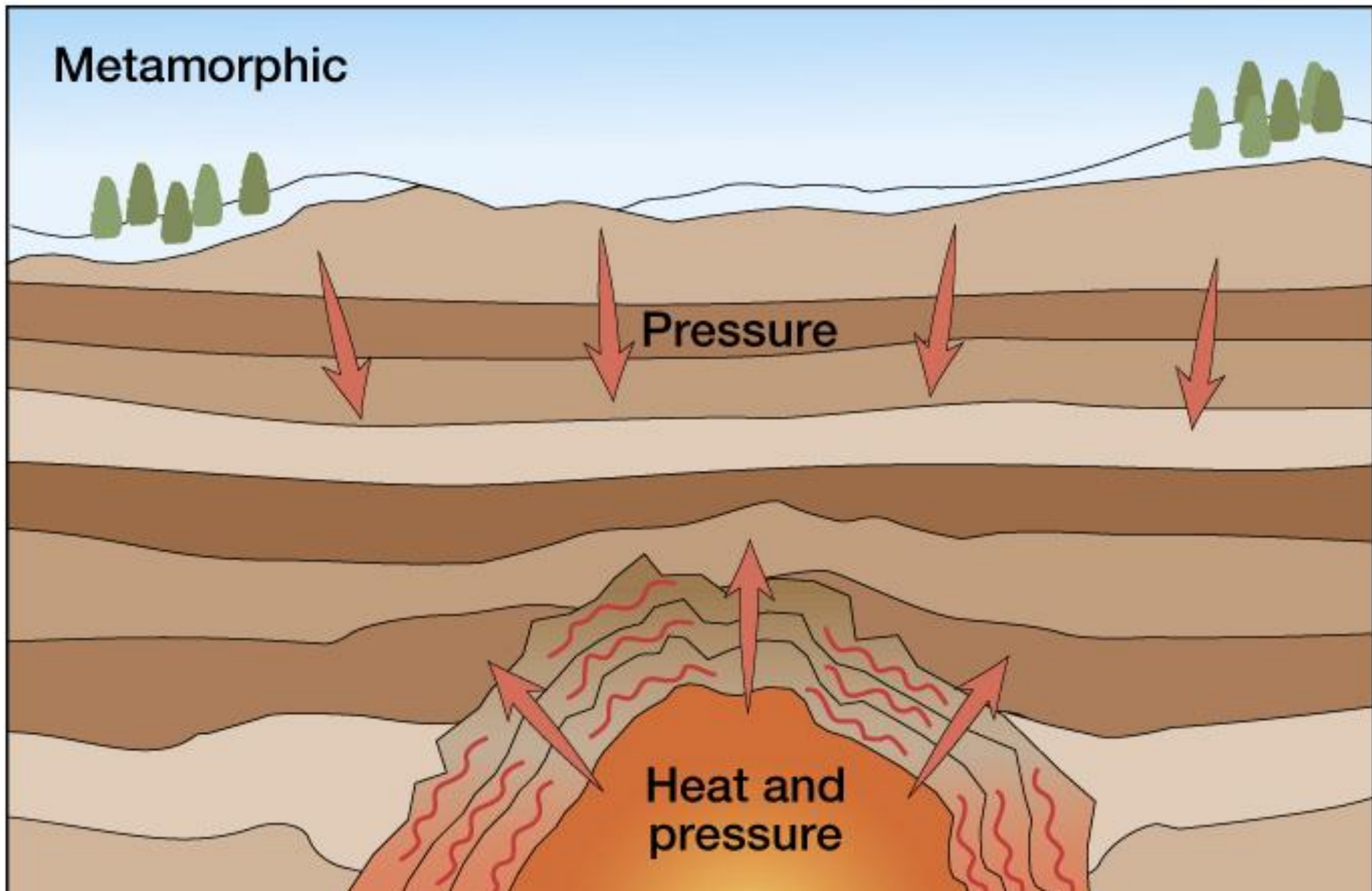
- Metamorphic rocks are formed due to the effect of heat and pressure on existing rocks.
- Metamorphic means “changes formed”
- This can greatly affect the hardness, texture or layer patterns of the rocks.



Metamorphic

Pressure

**Heat and
pressure**



IGNEOUS ROCKS



GRANITE



DIORITE



FELSITE



BASALT



OBSIDIAN

SEDIMENTARY ROCKS



CONGLOMERATE



SANDSTONE



SHALE



LIMESTONE



DOLOMITE

METAMORPHIC ROCKS



SLATE



SCHIST



SERPENTINE



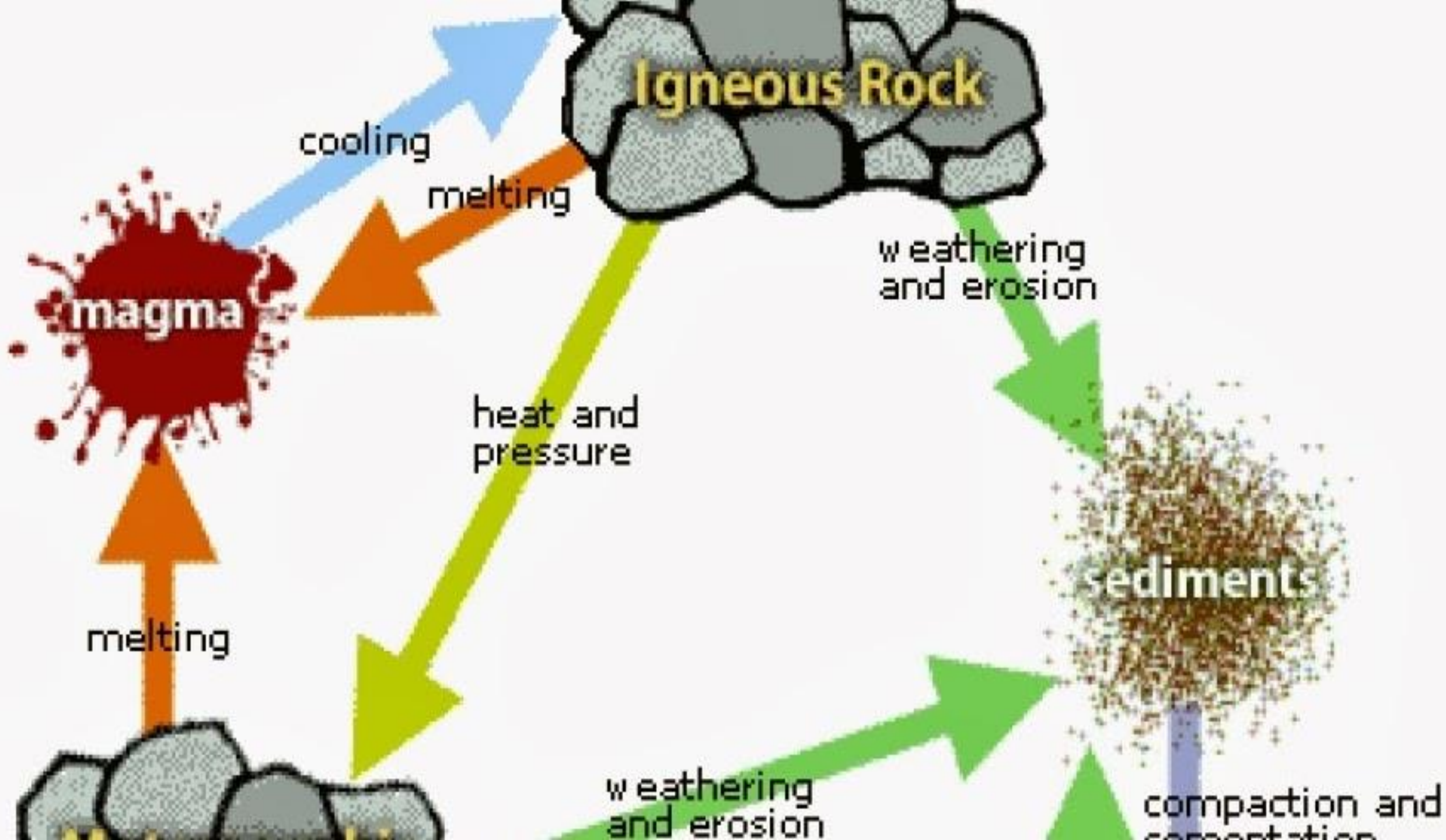
QUARTZITE



MARBLE

ROCK CYCLE

- **When the molten magma cools; it solidifies to become igneous rock.**
- **These igneous rocks are broken down into small particles that are transported and deposited to form sedimentary rocks.**
- **When the igneous and sedimentary rocks are subjected to heat and pressure they change into metamorphic rocks.**
- **The metamorphic rocks which are still under great heat and pressure melt down to form molten magma.**
- **This molten magma again can cool down and solidify into igneous rocks**



FUN ACTIVITY – CHOCOLATE ROCK CYCLE

Look! Lava!

But which one is made from chocolate?



Layering of weathered material into sedimentary rocks



Metamorphic rocks



Heat and pressure changing the form

Weathering of choco rocks



A decorative graphic on the left side of the slide consisting of three parallel, wavy vertical lines. The outermost line is white, the middle line is yellow, and the innermost line is white. They are set against a solid dark brown background.

MINERALS

WHAT ARE MINERALS

- **Minerals are naturally occurring substances which have certain physical properties and definite chemical composition.**
- **Some are used as fuels. For example, coal, natural gas and petroleum.**
- **They are also used in industries – iron, aluminium, gold, uranium, etc, in medicine, in fertilisers, etc.**

USES OF MINERALS:

Quartz makes glass.



Diamonds make jewelry.



Many things that we see and use every day are made from iron.

Hematite can be used to make art.



- The earth's interior is made of three distinct concentric circles – crust mantle and core.
- Crust is our home – the outermost layer – made of lightest material – forming continental and oceanic crusts,
- Mantle forms the biggest part of earth's volume and is made of molten rocks.
- Core is the densest layer made of iron and nickel that is responsible for earth's gravity.
- There are three major types of rocks – igneous, sedimentary and metamorphic.
- Igneous are formed by the solidification of lava. When the weathered rock segments are solidified – sedimentary rocks are formed. The rocks under heat and pressure are metamorphosed to form the metamorphic rocks.
- Rocks contain substances of definite chemical compositions called minerals that are useful in various industries.

RECAP