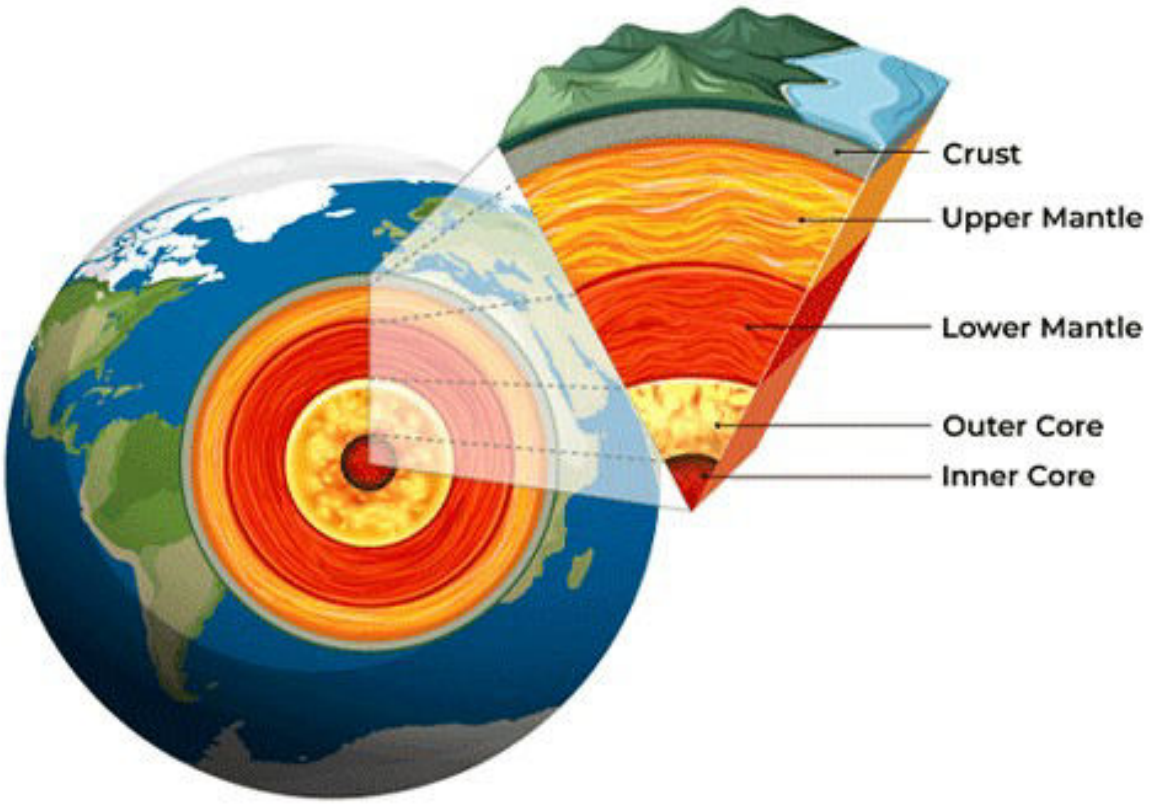
INSIDE OUR EARTH

- The Earth comprises of three layers: **Crust, Mantle and Core** and constant changes take place inside as well as outside the Earth.

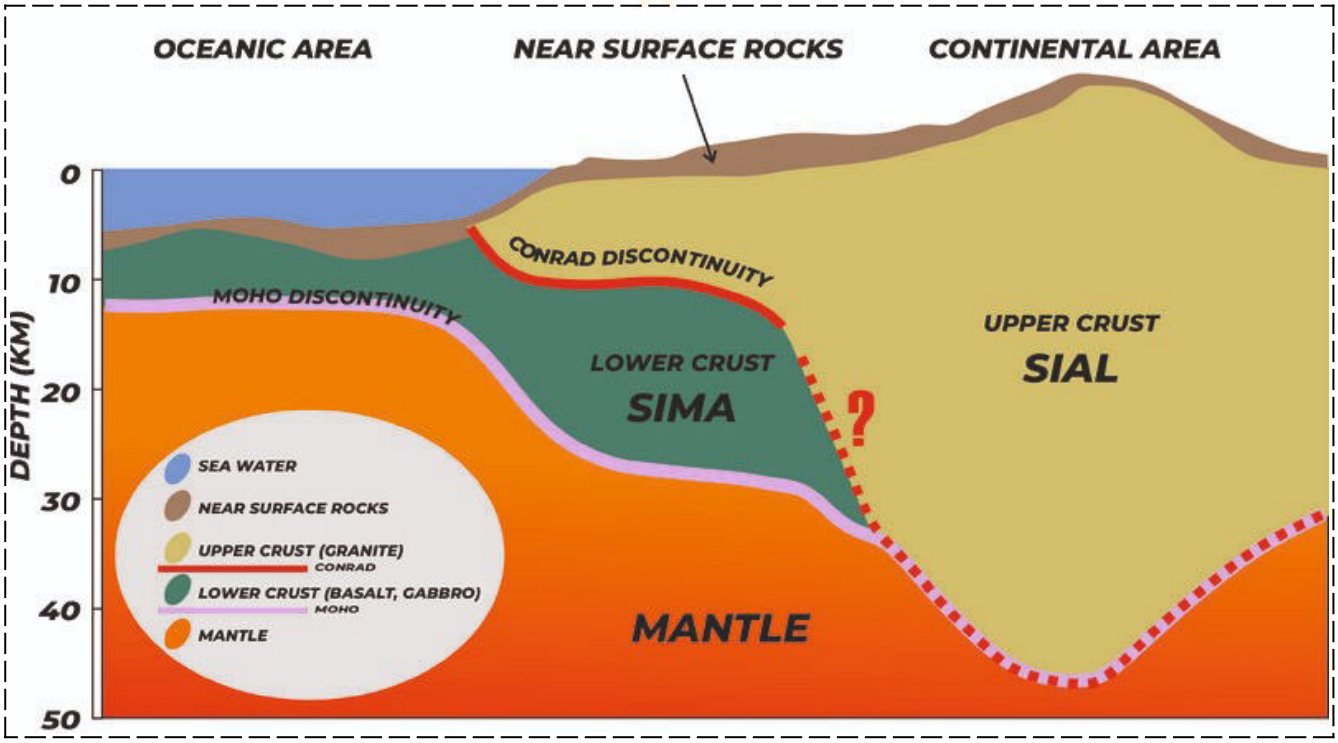
- *The deepest mine in the world is in South Africa which is about 4 km deep.*
- *To reach to the centre of the Earth (which is not possible!) you will have to dig a hole 6000 km deep on the ocean floor.*



INTERIOR OF THE EARTH

- The Earth is made up of several concentric layers.
- **CRUST** –

  (i) The uppermost layer over the earth's surface is called the Crust.
  (ii) It is thinnest of all the layers.
  (iii) It is about 35 km on the continental masses and 5 km on the ocean floors.
- The main mineral constituents of the **continental mass** are **silica** and **alumina**. It is thus called **sial** (*si-silica and al-alumina*).
- The **ocean crust** mainly consists of **silica** and **magnesium**; it is therefore called **sima** *(si-silica and ma-magnesium)*.



- Just beneath the crust is the **mantle** which extends up to a depth of 2900 km below the crust.
- The **innermost layer is the core** with a radius of about 3500 km which is made up of **nickel** and **iron** and is called **nife** *(ni-nickel and fe-ferrous ie. Iron)*.

- *The crust forms only 1% of the volume of the earth, 84% consists of mantle and 15% makes the core.*
- *The radius of earth is 6371 km.*

ROCKS AND MINERALS

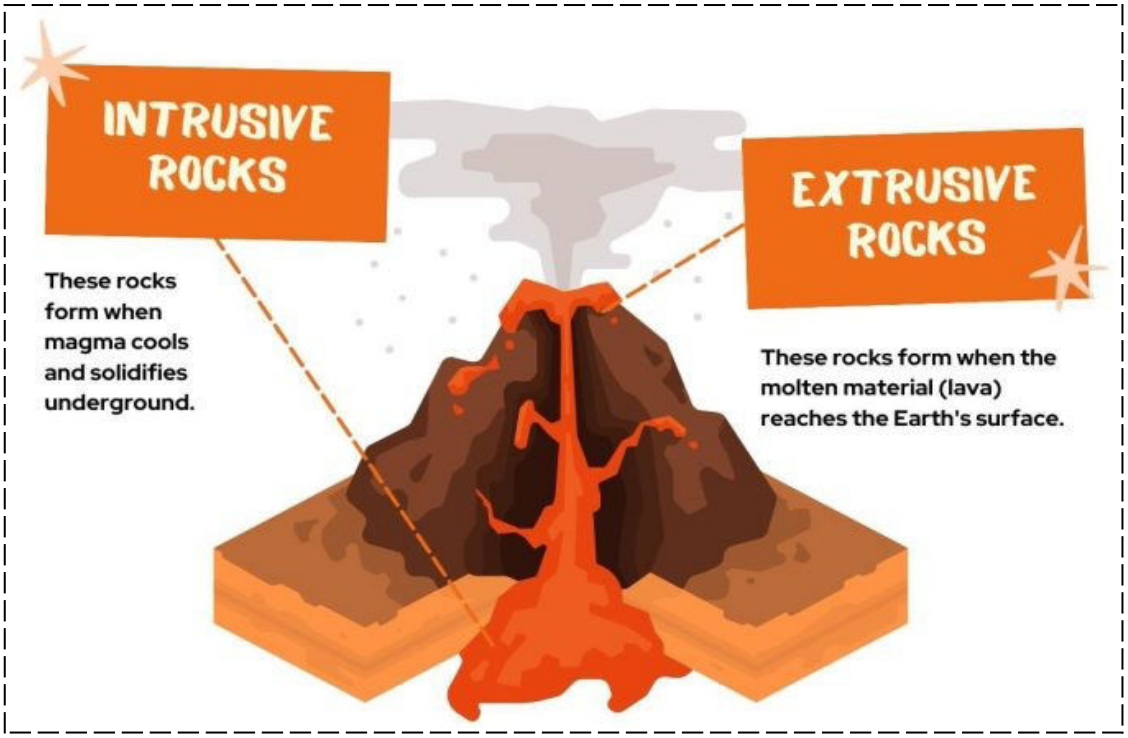
- The Earth crust is made up of various types of rocks.
- Any natural mass of mineral matter that makes up the Earth's crust is called **rock**.

- There are three types of rocks: **Igneous rocks, Sedimentary rocks and Metamorphic rocks**.

1. **IGNEOUS ROCKS** -

- When the molten magma cool, it becomes solid, rocks thus formed are called Igneous rocks (*also called primary rocks*).

- There are two types of igneous rocks -
  (i) Extrusive igneous rocks
  (ii) Intrusive igneous rocks



S. No	Extrusive igneous rocks	Intrusive igneous rocks
(i)	When molten lava comes on earth's surface, it rapidly cools down and become solid. Rocks formed in such a way on the crust are called extrusive igneous rocks.	The molten magma sometimes cools down deep inside the Earth crust. Solid rocks so formed are called intrusive igneous rocks.
(ii)	They have very fine grained structure.	Since they cool down slowly they from large grains.
(iii)	Example – **Basalt** 	Example – **Granite** 

2. **SEDIMENTARY ROCKS** -

- Rocks roll down, crack, and hit each other and are broken down into small fragments. These smaller particles are called sediments.
- These sediments are transported and deposited by wind, water etc.
- These loose sediments are compressed and hardened to form layers of rocks. These types of rocks are called Sedimentary rocks.
- For Example- Sandstones.

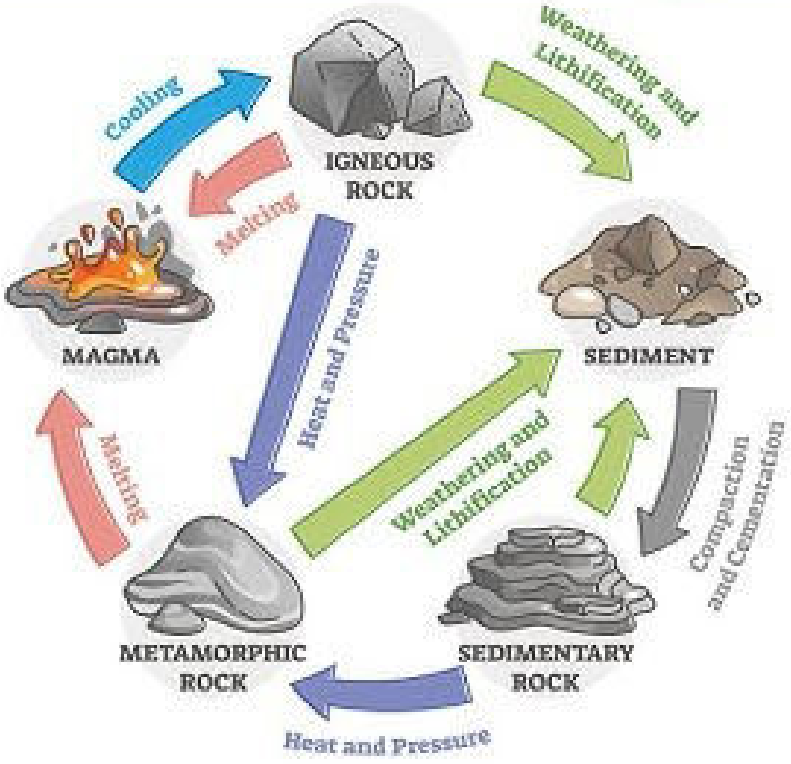
- These rocks may also contain fossils of plants, animals and other micro-organisms that once lived on them.

3. **METAMORPHIC ROCKS -**

- Igneous and Sedimentary rocks can change into metamorphic rocks under great heat and pressure.
- For Example – Clay can change into slate and limestone into marble.

THE ROCK CYCLE

- The process of transformation of the rock from one to another is known as 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 sediments 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.



MINERALS

- ✗ Rocks are made up of different minerals.
- ✗ Minerals are naturally occurring substances which have certain physical properties and definite chemical compositions.
- ✗ Minerals are very important to humankind.
- ✗ Some are used as fuels, for example – coal, natural gas and petroleum, while some are used in industries, for example – iron, aluminium etc.