

Class: IX

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Subject: GEOGRAPHY

Date: 20/5/24

CHAPTER-4

STRUCTURE OF EARTH

Good Morning Students,

This is the lesson of Class IX Geography. In this lesson we will study about Sources of Earth's Interior and Structure of Earth.

Introduction

- The Study of Interior of the Earth is outside the domain of Geography.
- Its elementary knowledge is very essential for the Geographers because the Nature, Mechanism and Magnitude of Endogenetic Forces that originates from deep inside the Earth.
- It is very difficult task to have a perfect knowledge about the Earth's Interior, but **Seismology** has helped to gain some valid knowledge about the Earth's Interior.

Sources of Earth's Interior

(1) Temperature:

- As we go down the surface of the Earth, the temperature goes on increasing at the rate of 1°C for every 32 metres. At this rate, temperature at the depth of 48 kms is between 1200°C to 2000°C .
- The source of Volcanic Eruption is at the depth of about 48 kms because all the materials present at this depth cannot remain in solid state due to high temperature.
- The Temperature at the core of the Earth is more than 4000°C .
- In the upper layer of the Earth, important source of heat is **Uranium** and **Thorium**.

- The minerals inside the Earth is found upto a depth of 100 kms. Below this depth they are found in minimum quantity.

THERMAL CONDITIONS OF EARTH

* At 48 kms → 1200°C

* At 400 kms → 1500°C

* At 5100 kms → 4300°C

(2) Pressure:

- The pressure exerted by the weight of the Atmosphere inside the Earth's Surface is also used to determine the Structure of Earth's Interior.
- One Atmospheric Unit equals to a pressure of about 14.7 lb per sq inch.
- At this rate, at the depth of 2500 kms, the pressure is about one million Atmospheric Unit.
- Moreover, the pressure is estimated about 3.5 million Atmospheric Units.

(3) Density:

- The average density of the Earth is 5.5 g/cm^3 .
- The surface layer of the continents that is composed of SIAL has density of 2.7 g/cm^3 .
- The middle layer that consists of SIMA has density of 4.3 g/cm^3 .
- The core of the Earth that consists of NIFE has density of 16 g/cm^3 .