

STRUCTURE OF THE EARTH

The Earth is made up of two basic layers. One is the rocky or solid part called the **GEOSPHERE** and the other is the layer of gases that surround it called the **ATMOSPHERE**.

Scientists believe the **geosphere** is an almost perfect sphere made up of the following layers:

- Crust - This is a thin outer layer about 100 kilometres thick. The entire crust moves in sections called plates. Only a small portion of the upper part of the crust is used by man.
- Mantle - The Earth's crust lies on a very dense solid layer called the mantle. Although the mantle consists of heated rock that seems to be solid, it behaves like a fluid in that it flows.
- Outer Core - This layer consists of a 2260km layer of very dense liquid at high temperature. The main element of the outer core is iron.
- Inner Core - This is a solid mass about 1220 kilometres thick. The main constituents of the core are thought to be iron with oxygen dissolved in it, silicon and nickel. It is kept solid by the tremendous pressure that exists at this depth.

The **atmosphere** is composed of gases that are held by the force of gravity. Our atmosphere is composed of approximately 78 % Nitrogen, 21 % Oxygen, 0.9 % Argon and traces of many other gases including Carbon Dioxide, Neon, Helium, Hydrogen, Krypton, Xenon, Ozone and Radon. As we move up from ground level, the atmosphere gradually becomes thinner and thinner until there is only the near vacuum of space.

The atmosphere is divided into three main layers based on differences in composition, density and temperature:

- Troposphere – the lowest layer consisting of the gases needed for life and the weather patterns that shape our climate. Temperature falls with increased height.
- Stratosphere – the second layer where the temperature begins to rise again. Ozone layer is found here. Temperature rises sharply above ozone layer.
- Ionosphere - consists of two layers the Mesosphere and Thermosphere. Made up of electrically charged particles, ions and free electrons. Ionosphere reflects radio waves allowing for radio transmission. It is also responsible for the occurrence of aurora.

The region that separates the troposphere and stratosphere is known as the tropopause. The region separating the stratosphere and the ionosphere is known as the stratopause.