

# G.D.GOENKA PUBLIC SCHOOL

Subject: S.St

(Geography)

Topic: Major Domains of the Earth

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Grade VI

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## ATMOSPHERE

The word atmosphere comes from a Greek word ‘atmos’ which means vapour and ‘sphaira’ which means sphere or ball. The atmosphere is formed by layers of gases that surround the Earth.

It provides us with the air we breathe and protects us from the harmful effects of sun’s rays.

Atmosphere is composed mainly of nitrogen and oxygen, which make up about 99% of clean, dry air. Nitrogen 78%, oxygen 21% and other gases like carbon dioxide, argon and others comprise 1% by volume.

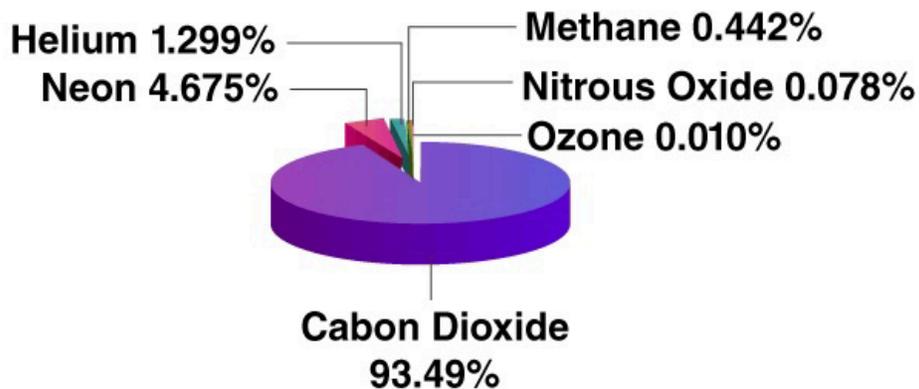
The density of the atmosphere varies with height. It is maximum at sea level and decreases rapidly as we go up. The temperature also decreases as we go upwards. The atmosphere exerts pressure on the earth.

### Composition of Atmosphere – Gases in the Atmosphere

The atmospheric composition of gas on Earth is largely conducted by the by-products of the life that it nurtures.



Dry air from earth’s atmosphere contains 0.038% of carbon dioxide, 20.95% of oxygen, 78.08% of nitrogen and 0.93% of argon.



Traces of hydrogen, neon, helium, nitrous oxide, ozone and other “noble” gases, but generally a variable amount of water vapour is also present, on average about 1% at sea level.

### Structure of atmosphere

The atmosphere has five distinct layers that are determined by the changes in temperature that happen with increasing altitude. Layers of Earth’s atmosphere are divided into five different layers as:

- Exosphere
- Thermosphere
- Mesosphere
- Stratosphere
- Troposphere



## Troposphere:

It is the most important layer of the atmosphere. The air we breathe exists here. It has following features:

- Its average height is 13 km.
- Almost all the weather phenomena occur in this layer. The weather phenomena include: Rainfall, Fog, Hailstorm, etc.

## Stratosphere:

This layer is just above the troposphere and has the following features:

- It extends to a height of 50 km.
  - It is almost free from clouds and associated weather phenomena that occur in the troposphere.
  - It is most ideal for flying aeroplanes since it is free from weather phenomena.
  - It contains a layer of ozone gas which protects us from the harmful effect of ultraviolet rays from the sun. Depletion of the ozone layer of late is a serious concern for all of us.
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## Mesosphere:

It is the third layer of the atmosphere and it lies above the stratosphere. It extends upto a height of 80 km. The burning of meteorites on entering from space occurs in this layer.

## Thermosphere:

It is the fourth layer and the layer above the mesosphere. In this layer, temperature rises very rapidly with increase in height. Ionosphere is a part of this layer.

Thermosphere has the following features:

- It extends between 80 to 400 km.
- It helps in radio transmission. This layer is responsible for reflecting back of the radio waves that are transmitted from the earth.

## Exosphere:

It is the uppermost layer of the atmosphere. It has very thin air. Light gases like helium and hydrogen float into the space from here.

## IMPORTANCE OF ATMOSPHERE

- One of the most important benefits the atmosphere provides is maintaining the Earth's temperature.
- The atmosphere serves as a protective shield against radiation and cosmic rays.
- The atmosphere also serves an important purpose as a medium for the movement of water.
- Vapour evaporates out of oceans, condenses as it cools and falls as rain, providing life-giving moisture to otherwise dry areas of the continents.
- Sound waves are transmitted due to the presence of air.
- It acts as a greenhouse by keeping the earth's surface warm at night.
- The movement of air helps in condensation of moisture and precipitation.