ATOMIC ENERGY CENTRAL SCHOOL-1, TARAPUR

MODULE NO.- 1/3

LESSON- 4

AIR

SOCIAL SCIENCE – GEOGRAPHY

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ATMOSPHERE-

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- Our earth is surrounded by a huge blanket of air called atmosphere.

*All living beings on this earth depend on the atmosphere for their survival.

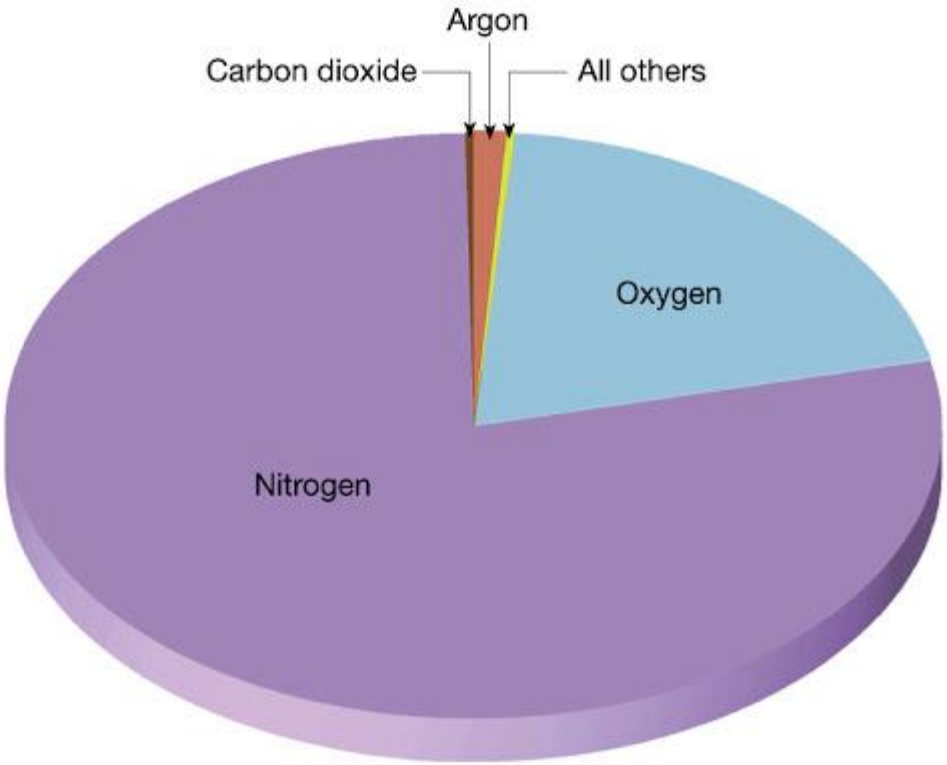
*It provides us the air we breathe and protects us from the harmful effects of the sun’s rays.

*Without this blanket of protection, we would be baked alive by the heat of the sun during day and get frozen during night.

COMPOSITION OF THE ATMOSPHERE

- Nitrogen (78%)and oxygen (21%) are the two gases which make up the bulk of the atmosphere.
- Carbon dioxide (0.03%), argon (0.93%) all other gases (0.04%) like helium, ozone, and hydrogen are found in lesser quantities.
- Apart from these gases, tiny dust particles are also present in the air.

The pie chart showing the constituents of air



NITROGEN

- Nitrogen is the most plentiful gas in the air.
- When we inhale, we take some amount of nitrogen into our lungs and exhale it.
- But plants need nitrogen for their survival. They cannot take nitrogen directly from the air. Bacteria, that live in the soil and roots of some plants, take nitrogen from the air and change its form so that plants can use it.

OXYGEN

- Oxygen is the second most plentiful gas in the air.
- Humans and animals take oxygen from the air as they breathe.
- Green plants produce oxygen during photosynthesis.

CARBON DIOXIDE

- Carbon dioxide is another important gas.
- Green plants use carbon dioxide to make their food and release oxygen.
- Humans and animals release carbon dioxide.
- The burning of fuels, such as coal and oil add billions of tons of carbon dioxide into the atmosphere each year.
- The increased volume of carbon dioxide is affecting the earth's weather and climate.

GREENHOUSE GAS

- Carbon dioxide released in the atmosphere creates a green house effect by trapping the heat radiated from the earth. It is therefore called a **greenhouse gas** and without it the earth would have been too cold to live in.

GLOBAL WARMING

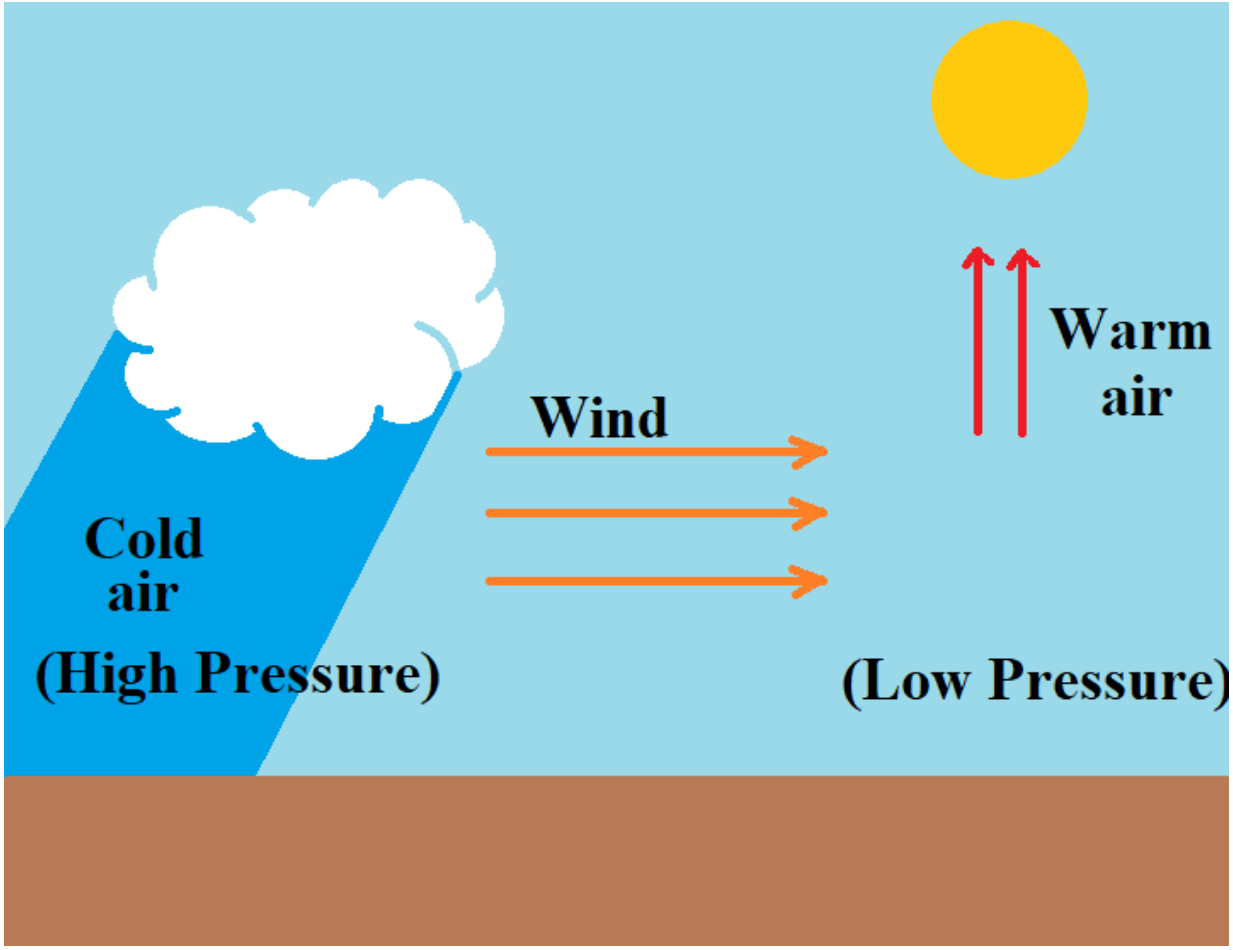
- When the level of carbon dioxide in the atmosphere increases due to factory smoke or car fumes, the heat retained increases the temperature of the earth. This is called **global warming**.

WHAT IS THE GREEN HOUSE EFFECT?

- The greenhouse effect is a process that occurs when gases in Earth's atmosphere trap the Sun's heat. This process makes earth much warmer than it would be without an atmosphere.

DO YOU KNOW?

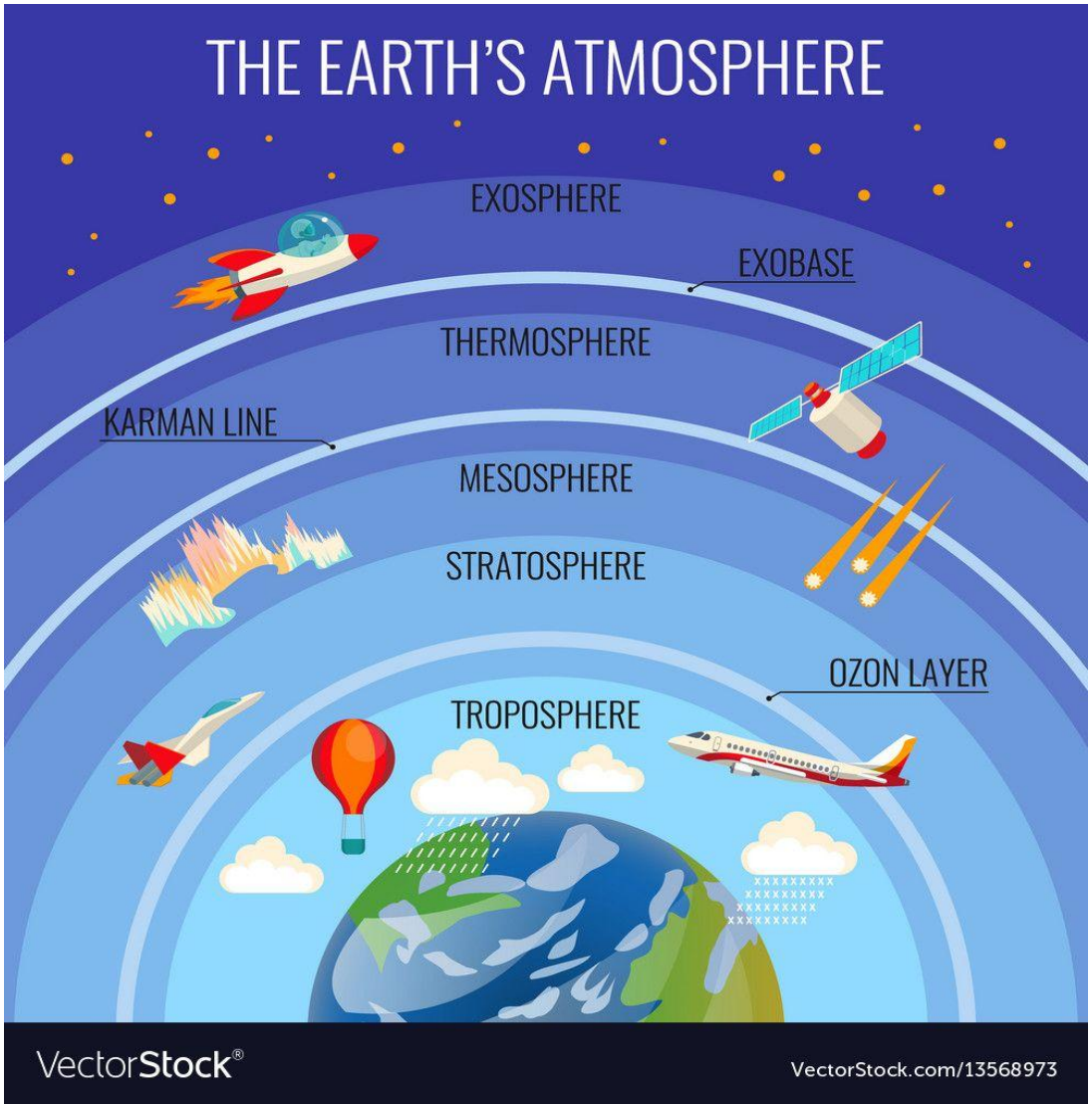
- When air is heated, it expands, becomes lighter and goes up.
- Cold air is denser and heavy. That is why it tends to sink down.
- When hot air rises, cold air from surrounding area rushes there to fill in the gap. That is how air circulation takes place.


Warm
air
Wind
Cold
air
(High Pressure)
(Low Pressure)

STRUCTURE OF THE ATMOSPHERE

- Our atmosphere is divided into five layers starting from the earth's surface. These are
- Troposphere,
- Stratosphere,
- Mesosphere,
- Thermosphere and
- Exosphere.

Layers of the atmosphere



TROPOSPHERE

- The first and most important layer of the atmosphere is the Troposphere whose average height is 13 km.
- The air we breathe exists here.
- Almost all the weather phenomena like rainfall, fog and hailstorm occur in this layer.

STRATOSPHERE

- The second layer is the Stratosphere which extends up to a height of 50 km.
- This layer is almost free from clouds and weather phenomenon, making conditions most ideal for flying aeroplanes.
- It contains a layer of ozone gas and it protects us from the harmful effect of the sun rays.

MESOSPHERE

- The third layer is the Mesosphere which extends up to the height of 80 km.
- Meteorites burn up in this layer on entering from the space.

THERMOSPHERE

- The fourth layer is the Thermosphere which extends from 80 km to 400 km.
- Ionosphere is a part of this layer.
- In this layer temperature rises very rapidly with increasing height.
- It helps in radio transmission. Radio waves transmitted from the earth are reflected back to the earth by this layer.

EXOSPHERE

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

CONT. TO MODULE NO.- 2/3