



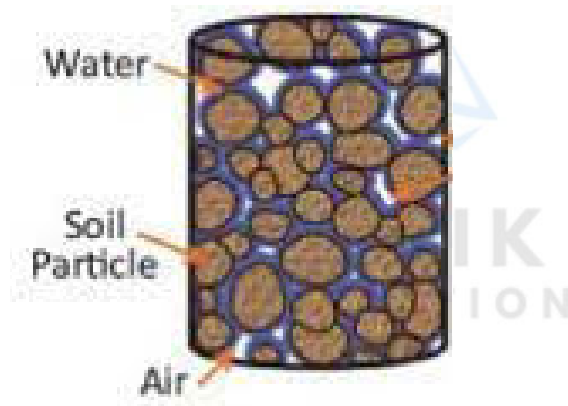
AIR AROUND US

INTRODUCTION TO AIR

All living things on Earth need air to survive. It is present everywhere around us.

Properties of Air:

- Air is a mixture of gases.
- Air is colourless, tasteless and odourless.
- Air is present in the soil as well as in the water of ponds, rivers, lakes, oceans etc.



Uses of Air:

- Air helps in breathing.
- Air is used for burning fuels.
- Air helps the birds and insects in flying.
- Air helps in the disposal of seeds.
- Air plays an important role in the water cycle.
- Compressed air is used to fill the tyre of the vehicles.

Is air present everywhere around us?

- Whether Cock

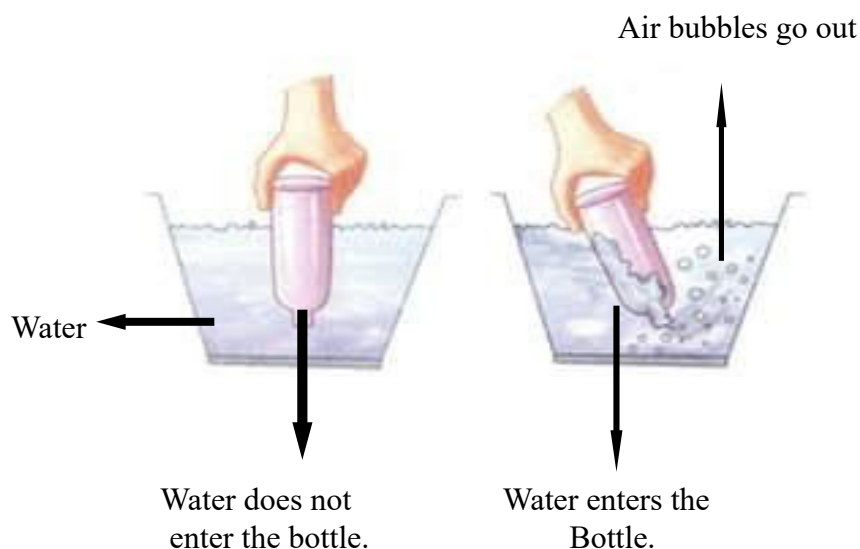


The device whether cock is used to show is used to show the direction in which air is moving at that place. In this device a cock is fixed on an arrow which is attached to a rotating axis. When air pushes the cock, The cock and its arrow rotate and align in the direction of moving air.

- Air occupies space

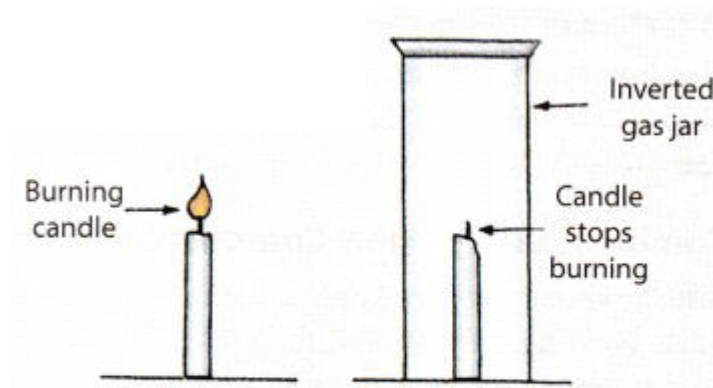
If an empty bottle is dipped in a tub filled with water. The water does not enter into the bottle because the bottle is filled with air. The air present in the empty bottle prevents the water from entering it. We know that the air is present everywhere and it is present in the empty bottle when it is upside.

When we tilt the bottle, the air present in the bottle comes out in the form of bubbles and water enters the bottle.



- Air support burning

A lighted candle is kept on the table. When the candle is covered with a glass after some time the candle get exhausted. The amount of oxygen present in the glass is used for burning. When most of the oxygen is used by the candle, it stops burning. This shows that air supports burning.



- Atmosphere

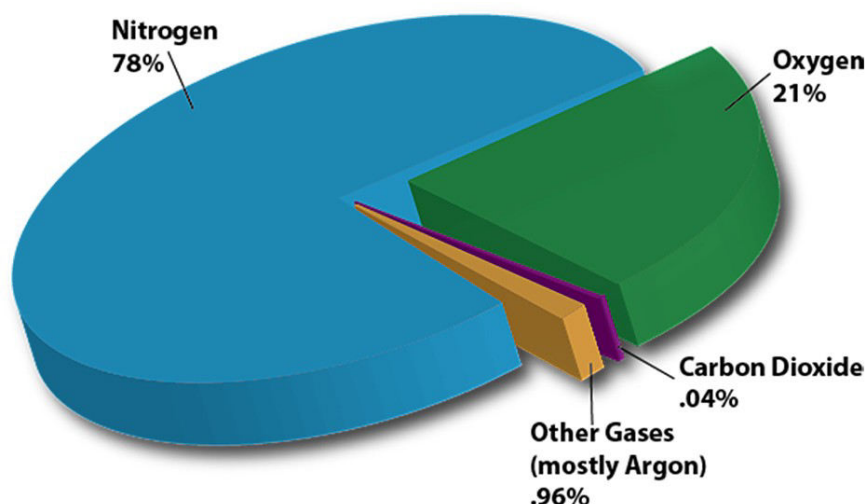
The layer of air which surrounds the earth is called the atmosphere. Earth is surrounded by a layer of air. This layer around the earth extends up to many kilometres above the surface of the earth. As we move higher in the atmosphere, the amount of air becomes less and less.

Due to which, A mountaineer carry oxygen cylinders with them while climbing high mountains because the air at the top of very high mountains is so thin that it does not have enough oxygen for the people to breath.



COMPOSITION OF AIR

Air is a mixture of many gases. These gases are nitrogen, oxygen, carbon dioxide, water vapour, other gases and dust particles.

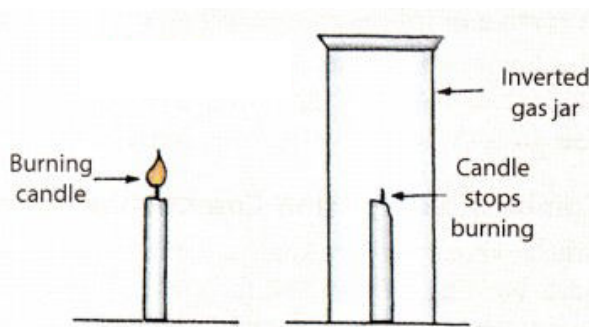


• NITROGEN:

- ✗ Air contains 78% nitrogen.
- ✗ Nitrogen does not support burning.
- ✗ Nitrogen gas is important for all living things.
- ✗ Plants use nitrogen gas of air to make proteins and these proteins are used by plants and human beings for their growth.

• OXYGEN:

- ✗ Air contains 21% of oxygen.
- ✗ Oxygen gas is essential for breathing.
- ✗ Oxygen is necessary for the process of burning fuels such as wood, coal, LPG, kerosene, petrol etc.
- ✗ The example in which a candle covered with a glass stop burning after some time due to the lack of oxygen in the glass.



- **CARBON DIOXIDE:**

- ✕ The amount of carbon dioxide in air is comparatively small but it is very important.
- ✕ Plants and animals consume oxygen for respiration and produce carbon dioxide.
- ✕ Plant and animal produces mainly carbon dioxide on burning so it is advisable not to burn dry leaves and discarded remain of crop, which pollute our surroundings.
- ✕ The plants need carbon dioxide for photosynthesis.
- ✕ Carbon dioxide does not supports burning so it is used as a fire extinguisher.



- **WATER VAPOURS:**

- ✕ The presence of water vapour in air is important for the water cycle in nature.

- **DUST AND SMOKE:**

- ✕ Dust comes into air from blowing of the wind, construction activities etc.
- ✕ Smoke is produces by burning of fuels.



Dust due to construction sites



Smoke due to burning fuels

AIR POLLUTION

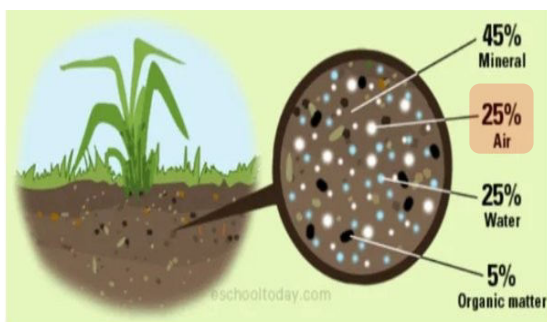
- Air pollution is the contamination of air by an undesirable substance.
- The chimneys in the factories are made long. The long chimney carries the harmful smoke and gases away from the ground and reduces the harmful effects of gases.



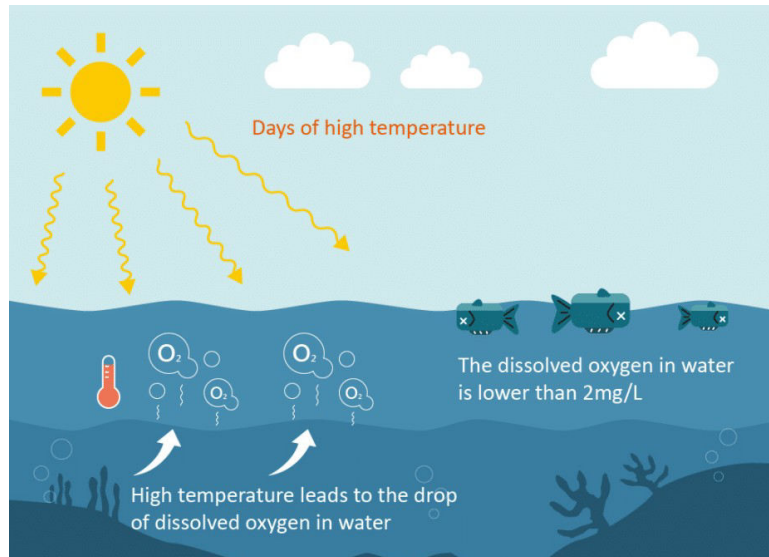
- We inhale air when we breathe through our noses. The fine hairs and mucus present inside the nose prevents the dust particles from entering our respiratory system.
If we breathe through our mouth the harmful dust particles present in the air may enter our respiratory system and causes damage to our health. So, we should not breathe through our mouths.

➤ **How does oxygen become available to animals and plants living in water and soil?**

- The space between the soil particles is filled with air. The animals which live inside the soil get oxygen for breathing from the air present between the soil particles.



- During the rainy season the earthworms come out of the soil because it rains heavily all the space occupied by the air in the soil get filled with water and no air is left in the soil. In this situation, the animals living inside the soil come out to get air for breathing.
- Animals living in water use the oxygen dissolved in water for breathing.



- The plants that live in water also use the oxygen which is dissolved in water.
If there were no oxygen in water, then no living thing could survive in water.

➤ How is oxygen in the atmosphere replaced?

The oxygen present in the air is consumed by animals and human beings for respiration. During this process carbon dioxide is released into the air which is utilized by plants to make their food by the process of photosynthesis. Thus, plants and animals help in maintaining the balance of oxygen and carbon dioxide gases in air. This shows the interdependence of plants and animals.

