

## Chapter 15

### Air Around Us

**AIR** : Air is found everywhere. We cannot see air, but we can feel it. Air always occupies space. Air is a mixture of different components like : **Nitrogen** which is 78% of total air, **Oxygen** It covers 21% of total volume of air. Oxygen is necessary for living beings and burning, **Carbon dioxide**, this gas is less than 1%  $\text{CO}_2$  is excreted by humans while they do breath. Other gases and dust particles are of 1% including  $\text{CO}_2$ . **Water vapor** is also included in the air.

**WIND** : Air in motion is referred as wind.

#### USES OF OXYGE :

- I. Oxygen is necessary for all living beings as they breath they take oxygen for their body parts.
- II. For burning fuels oxygen is needed.

**CARBON DIOXIDE** : Carbon dioxide considered as a really harmful gas. This is because it increases global warming. Carbon dioxide makes up a small part of the air but increasing day by day as we burn and use transportation. Plants and animals consume oxygen for respiration and produce carbon dioxide. Plant and animal matter on burning, also consumes oxygen and produces mainly carbon dioxide and a few other gases.

#### Why mountaineers carry oxygen cylinders with them?

Mountaineers carry oxygen cylinders with them, while climbing high mountains because at high mountains the amount of oxygen is decreases, to fulfill this, mountaineers take oxygen cylinders.

**ATMOSPHERE** : A layer or a set of layers of gases which is surrounding our earth is known as Atmosphere. Atmosphere is essential for life.

**RESPIRATION IN WATER** : As oxygen is dissolved in water, the aquatic animals use this dissolved oxygen while doing respiration. They have a different structure known as gills which help them to do so.

**EXCHANGE OF OXYGEN AND  $\text{CO}_2$**  : It is obvious that animals cannot live without plants. Similarly, plants can't survive for long without animals. Animals take oxygen and excrete carbon dioxide, this carbon dioxide is then taken by plants for photosynthesis in return they produce oxygen for animals. If there will be no plants this will increase amount of  $\text{CO}_2$  which can increase global warming.

**WINDMILL** : Windmill has some hands, the wind makes the windmill's hand rotate. The windmill is used to draw water from tube wells and to run flour mills. Windmills are also used to generate electricity.

#### NCERT QUESTION-ANSWERS

##### 1. What is the composition of air?

**Answer.**

Air is a mixture of nitrogen, oxygen, carbon dioxide, water vapours and some other gases. It also contains dust particles.

**2. Which gas in the atmosphere is essential for respiration?**

**Answer.**

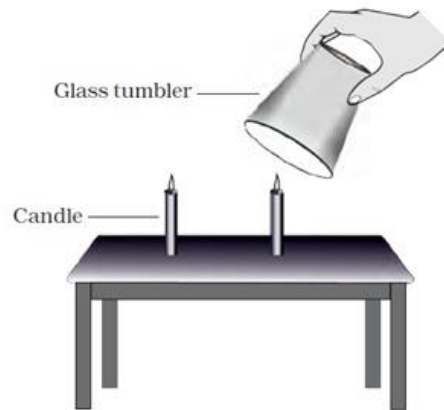
Oxygen gas in the atmosphere is essential for respiration.

**3. How will you prove that air supports burning?**

**Answer.**

We can prove that air supports burning with the help of following activity:

Take two burning candles and place them on a table. Now cover one candle with an inverted glass tumbler as shown below:



You will notice that the candle covered with inverted glass tumbler blows out after some time whereas the other candle continues to burn. This happens because there is no air inside the glass tumbler. However, the air initially present in the glass tumbler is used up in burning. This shows that air supports burning.

**4. How will you show that air is dissolved in water?**

**Answer.**

We can show that air is dissolved in water with the help of following activity:

Take some water in a glass or metal container like pan and heat it. Just before water begins to boil, you will notice some bubbles at the inner surface of the pan. These bubbles come from the air dissolved in water. This shows that air is dissolved in water.

**5. Why does a lump of cotton wool shrink in water?**

**Answer.**

A lump of cotton wool has a lot of air trapped inside the space present in its fibres. When this lump of cotton is immersed in water, all the air is replaced by water. Due to this the cotton lump shrinks down.

**6. The layer of air around the Earth is known as \_\_\_\_\_.**

**Answer.**

The layer of air around the Earth is known as atmosphere.

**7. The component of air used by green plants to make their food is \_\_\_\_\_.**

**Answer.**

The component of air used by green plants to make their food is carbon dioxide gas.

**8. List five activities that are possible due to the presence of air.**

**Answer.**

Some activities that are possible due to the presence of air are: (any five)

- (i) Photosynthesis in plants
- (ii) Respiration in all living organisms
- (iii) Burning of substances
- (iv) Movement of sailing yachts, gliders, parachutes and aeroplanes
- (v) Flying of birds, bats and insects
- (vi) Generation of electricity by windmills

**9. How do plants and animals help each other in exchange of gases in the atmosphere?**

**Answer.**

Animals, during respiration, take in oxygen and release carbon dioxide gas. Plants on the other hand, utilise this carbon dioxide gas in the process of photosynthesis to produce food and release oxygen in the atmosphere. Thus, we can say that plants and animals help each other in exchange of gases in the atmosphere.