

Introduction

- We cannot see Air but it can be felt.
- Air is necessary for all living being.
- We notice how pages of our book flutter when someone switch on the fan. Swaying of clothes hanging on a clothes-line, rustling of leaves of trees these all happens because of the air present around us.
- The moving air is called wind. The strong wind may even blow off heavy things like rooftops, trees etc.

Is air present everywhere around us?

➤ Activity1

1. Take an open bottle remember that bottle should be empty.
 2. Now look at bottle is it really empty.
 3. Take a tub or a bucket full of water.
 4. Now push the empty bottle into the water in an inverted position.
 5. The water will not enter the bottle in this position.
 6. Now slightly tilt the bottle and then again push the bottle into the water.
 7. You will see bubbles coming out from the water this time.
- The water does not enter the bottle in first condition because the air was filled in the bottle and the air inside the bottle did not get space to escape.
 - In the second condition air comes out in the form of bubble.
 - Air has all the properties of a gas. It has no colour, no shape and occupy all the space.
 - A thin layer of air surrounds our earth an it extended to many kilometers above the earth surface.
 - This is known as atmosphere.
 - The air gets rarer in the hilly area that is why mountaineers carry their own oxygen cylinders.

What is air made up of?

- Many gases mix up to form air.
- Some of the major components of air are

Water vapor

- During the process of evaporation water is converted into vapours and added into the air further the water vapors condenses when it cools down.
- So, water vapors are present in the air and it is plays major role for the water cycle.

Oxygen

- Oxygen is another major component of air.

- It helps us to breathe, it supports burning of any objects.

➤ **Activity2**

1. Place two burning candles on a table beside each other.
2. Take one empty glass.
3. Cover one of the candles with this glass.
4. You will find that the flame of the burning candle which is covered by the glass is extinguished. While the another one keeps burning.
5. This happens because the component of air which supports burning is oxygen and air is limited in the glass.

Nitrogen

- In the activity 2 we noticed that even after the flame is extinguished the air is present inside the glass.
- This component of air does not support burning and is known as nitrogen.
- Nitrogen is a major component of air.

Carbon dioxide

- Carbon dioxide is the small component of air.
- Animals breathe in carbon dioxide and releases oxygen.
- If you are in a closed room something you may feel suffocated this is because of accumulated carbon dioxide.
- Burning something produces carbon dioxide.
- Therefore, we should not burn dry leaves or remaining of crop because it produces carbon dioxide in such a huge amount that pollutes the environment.
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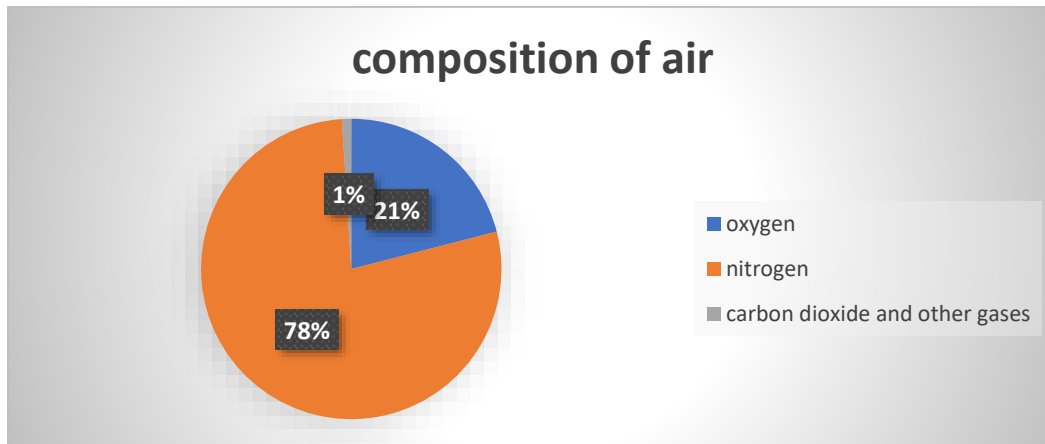
Dust and smoke

- Smoke is produced on burning of fuel.
- Smoke contains many dust particles and some harmful gases which is very harmful for us.
- Chimneys in factories are made to carry away harmful smoke from our noses.

➤ **Activity 3**

1. Make a room full dark by closing all the doors and windows and pull down all the curtains.
2. Now open a window or a door facing the sunlight just a little.

3. You will be able to see tiny shining particles in that beam of light.
 4. These particles are known as dust particles.
- Dust is present in all our surrounding but the amount of dust particles in the air varies from place to place.
 - Dust particles should not enter our body while inhaling air through our nostrils that is why hair and mucus is present in our nose to filter the air, we breathe in.
 - It is advisable that not to breathe through your mouth.



- From the above chart we can say that oxygen and nitrogen are the major components of air that contribute about 98% in the air.

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

➤ Activity 4

1. Take a container filled with water
2. Now heat the water slowly.
3. You will see tiny bubbles in the inner surface of the container.
4. The air present in the water is the reason of these bubble formation.
5. On heating the water continuously, the water converts into water vapours and begin to boil
6. Hence, the oxygen is dissolved in the water also which supports the life of water animals.

➤ Activity 5

1. Take a container and pour a hump of dry soil.
2. Add some water in it and small bubbles will come out.
3. These bubbles indicate the presence of air in soil.
 - Organisms that live inside the soil and in plants roots use this air to respire.

- Holes and burrows are made in the deep soil by the animals this makes the passage for air to come in and out.
- During heavy rains water takes these spaces that is why insects come out during rainy seasons to breathe.

How is the oxygen in the atmosphere replaced?

- Consumer of oxygen is very high in number but oxygen continuously refills in the atmosphere for the fulfillment its requirement.
- Plants consume carbon dioxide and produces oxygen in the process of photosynthesis.
- This production of oxygen is more than its consumption.
- Plants and animals depend on each other for respiration this balances the amount of oxygen in the atmosphere.
- There is another use of air. Windmills are rotated by moving air.
- Windmills that move by winds are used to generate electricity and to draw water from tube wells.

