Edu Junior

Where Passion Meets Educations

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Where passion meets with educations

Class 6th

Chapter 11

Air around us

Air is present everywhere. Air is colourless and the most transparent material on earth. We only feel the presence of air, especially when it moves and causes other things to move as well. Moving air is called wind. Air is something which is taken for granted though it is the most essential material around us and necessary for life.

ATMOSPHERE

Our earth is surrounded all around with a blanket of air. This blanket of air surrounding the earth is called atmosphere. It is the air in the atmosphere which provides all the living things with the oxygen (gas) for breathing

WHAT IS AIR MADE UP OF?

Air is a mixture of many gases. Various Components are

1. Water vapour

Air contains water vapour. We also saw that, when air comes in contact with a cool surface, it condenses and drops of water appear on the cooled surfaces. The presence of water vapour in air is important for the water cycle in nature.

2. Oxygen

This component of air, which supports life, is known as oxygen.

3. Nitrogen

The major part of air is nitrogen. Nitrogen is nearly 78% (4/5) part of the normal air. Nitrogen is a colourless, odourless and tasteless gas.
Nitrogen combines with certain other elements only under special conditions/processes to form nitrogen compounds. A natural compound formed in nature by nitrogen is potassium nitrate-KNO, which is used as a natural fertilizer.

Plants use nitrogen to make proteins. Proteins are essential for the growth in living organisms (both plants and animals).

4. Carbon dioxide

Carbon dioxide makes up a small component of the air around us. Oxygen is nearly 21% (1/5) part of the normal air. Oxygen also is a colourless, odourless and tasteless gas. Oxygen is little heavier than nitrogen with the result that there is more of oxygen near the earth and it gets thinner as we go up and up. On high hills mountaineers have to carry oxygen in gas cylinders to help proper breathing

Oxygen gas is highly reactive. Oxygen gas does not burn by itself but it helps other materials (fuels) in burning.

5. Dust and smoke

The burning of fuel also produces smoke. Smoke contains a few gases and fine dust particles and is often harmful. Dust particles are always present in air. The presence of dust particles in air varies from time to time, and from place to place.

We inhale air when we breathe through our nostrils. Fine hair and mucus are present inside the nose to prevent dust particles from getting into the respiratory system.

We may conclude, then, that air contains some gases, water vapour and dust particles. The gases in air are mainly nitrogen, oxygen, small amount of carbon dioxide, and many other gases. However, there may be some variations in the composition of air from place to place. We see that air contains mostly nitrogen and oxygen. In fact, these two gases together make up 99% of the air. The remaining 1% is constituted by carbon dioxide and a few other gases and water vapour.

OXYGEN IS NECESSARY FOR LIVING THINGS

All animals breathe fresh air. Fresh air is rich in oxygen. In the process of breathing air is inhaled. Oxygen from the air on reaching lungs is absorbed by the red blood cells in the blood and oxygen replaces carbon dioxide from blood cells. This carbon dioxide is exhaled. Oxygen is distributed to different parts of the body through blood. The process of oxygen replacing carbon dioxide in the cells of a living body is called respiration. Even plants respire. All living things respire. In the process of respiration oxygen is taken in and carbon dioxide is given out. Thus, oxygen supports life and combustion.

Availability of Oxygen to Living Organisms in Soil and Under Water

All organisms respire. They need oxygen for complete the process of respiration. Organisms or the parts of organisms living in air consume oxygen directly from the air. Even the organisms (animals, plants and plant roots) living under the soil or under water respire and for thus they need oxygen. Air (oxygen) is present in the soil and in water. The animals living in water use the dissolved oxygen in water.
The organisms that live inside the soil and Water contains air the plant roots respire in this air. A lot of burrows and holes are formed in deep soil by the animals living in the soil. These burrows also make spaces available for air to move in and out of the soil. However, when it rains heavily, water fills up all the spaces occupied by the air in the soil. In this situation, animals living in the soil have to come out for respiration. Could this be the reason why earthworms come out of the soil, only during heavy rains?

HOW IS THE OXYGEN IN THE ATMOSPHERE REPLACED?

In the process of photosynthesis, plants make their own food and oxygen is produced along with it. Plants also consume oxygen for respiration, but they produce more of it than they consume. That is why we say plants produce oxygen.
It is obvious that animals cannot live without plants. The balance of oxygen and carbon dioxide in the atmosphere is maintained through respiration in plants and animals and by the photosynthesis in plants. This shows the interdependence of plants and animals.

The wind makes the windmill rotate. The windmill is used to draw water from tube wells and to run flour mills. Windmills are also used to generate electricity. Air helps in the movements of sailing yachts, gliders, parachutes and aeroplanes. Birds, bats and insects can fly due to the presence of air. Air also helps in the dispersal of seeds and pollen of flowers of several plants. Air plays an important role in water cycle.