



Chapter- 15

Air Around us

SOLUTIONS:

Exercises:

Q1. What is the composition of air?

Ans: Air is composed of Water vapour, Oxygen, Nitrogen, Carbon dioxide, Dust, Smoke and other gases. Oxygen and Nitrogen constitute 99 % and remaining 1% is constituted by Carbon dioxide, Water vapour and other gases.

Q2. Which gas in the atmosphere is essential for respiration?

Ans: Oxygen in the atmosphere is essential for respiration.

Q3. How will you prove that air supports burning?

Ans: Take two candles on a table. Light both the candles. Cover one of the candles with an inverted glass tumbler. After sometime the candle covered by the glass tumbler is extinguished because air supply is cut off and the component inside the glass tumbler which supports burning is limited, and is used up by the burning candle. However, the other candle is getting continuous supply of air, which supports burning. This show that air supports burning.

Q4. How will you show that air is dissolved in water?

Ans: Take a container filled with water and heat it. After sometimes we see tiny bubbles at the inner surface of the container. These bubbles come from the air dissolved in water. When we heat the water, the air dissolved in water escapes. As we continue heating water turns into vapour, and finally begins to boil. This shows that air is dissolved in water.

Q5. Why does a lump of cotton wool shrink in water?

Ans: A lump of cotton wool shrink in water because the space present in the fibres is occupied by air, which when immersed in water, air in the space is replaced by water.

Q6. The layer of air around the earth is known as

Ans: Atmosphere.

Q7. The components of air used by green plants to make their food, is

Ans: Carbon dioxide.

Q8. List five activities that are possible due to the presence of air.

Ans:

- I. Air plays an important role in water cycle.
- II. Air helps in the dispersal of seed and pollination of flower.
- III. Birds and insects can fly due to presence of air.
- IV. Air helps in the movement of aeroplane, gliders and parachutes.
- V. Burning of candles.

Q9. How do plants and animals help each other in the exchange of gases in the atmosphere?

Ans: Plants used carbon dioxide during photosynthesis and oxygen is released in the atmosphere. Again animal used this oxygen released by the plant for respiration and carbon dioxide is given out which is used by the plant again to make their food. In this way Oxygen and Carbon dioxide are balanced in atmosphere. This shows the interdependence of plants and animals in exchange of gases.



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Extra Questions and Answers:

Q1. When a bottle is inverted inside the water, water doesn't enter the bottle but when the bottle is slightly tilted, water enters the bottle. Why?

Ans: Bottle is not empty, it is filled with air. When it is pushed in an inverted position, water doesn't enter as there was no space for air to escape. When the bottle was tilted, the air was able to come out in the form of bubbles, and water filled up the empty space that the air has occupied.

Q2. Define atmosphere.

Ans: Atmosphere is the thin layer of air that surrounds the Earth.

Q3. Why mountaineers carry oxygen cylinder with them, while climbing high mountain?

Ans: As we move high in the atmosphere, the air gets rarer and the oxygen level in the atmosphere decreases.

Q4. Name the component of air that supports burning.

Ans: Oxygen

Q5. Name the component of air that does not support burning.

Ans: Nitrogen.

Q6. Why do we suffocate in a closed room where material is burning?

Ans: Burning release carbon dioxide and, as the burning continues there is accumulation of Carbon dioxide and depletion of Oxygen. Therefore, we suffocate in a closed room where material is burning

Q7. Why nostrils have fine hair and mucus?

Ans: Fine hair and mucus are present inside the nose to prevent dust particles from getting into the respiratory system when we inhale air.

Q8. How will you show that air also contain dust particles?

Ans: During winter, we see a beam of sunlight filter through the tree in which we noticed tiny particles floating in air. These are the dust particles. This show air also contains dust particles.

Q9. Why do Earthworms come out of the soil after heavy rain?

Ans: Animals like Earthworm use the air present in the soil pores and in the burrows and holes for respiration. When it rains heavily, water fills up all the space occupied by the air in the soil. So, they come out from the soil for respiration.

Q10. Why do factories have long chimney?

Ans: Burning of fuel produce smoke that contains gases and dust particles that are harmful to us. In order to take away the harmful smoke and gases away from our nose, so that we don't breath in, factories have long chimney.

Q11. What is weather cock?

Ans: Weather cock is an instrument that shows the direction of wind.

Q12. What is a windmill? Give two uses of windmill.

Ans: Windmill is a device that converts wind energy into mechanical energy. The two uses of windmill are:

- a. To produce electricity.
- b. To draw water from tubewells.



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