

## Lesson- 6

# Air and our Surrounding



Air is everywhere. We cannot see air but we can feel the presence of air when the wind blows. Air is a mixture of gases. Plants and animals need air to breathe. We cannot live without air.

Air is everywhere. Though we cannot see air we can feel it. To understand this, let us do the following activities-

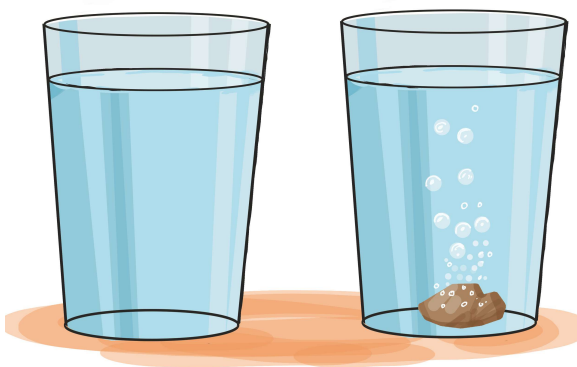
- Blow air on the palm of your hand from your mouth. Did you feel like something touching your hand? You can feel wind striking on your palm due to the air coming out of your mouth.



- Open the mouth of a polythene bag and move it around you once. Now close the mouth of the polythene bag. Has the polythene bag puffed up? Why did it puff up? It puffed up because of the air inside the bag.

- Fill a container with water. Take an empty bottle with open mouth. Hold the open mouth of the bottle straight upwards and then dip the bottle down in the water. Has any bubble come out of the water? If yes 'why'? The air inside the bottle has come out as bubbles.





- Take a glass of water and put a small chunk of dry soil in it. Did you see bubbles coming out? Why these bubbles come out? This is because the air which is inside the chunk of soil comes out and the area is filled with water. This shows that air is also present inside the soil.

- Now do this activity with the help of a piece of chalk or a piece of a dry brick.

From the above discussion we can understand that our body, empty bottles or cans, chunks of soil, pieces of brick, chalk pencil etc. have air in it. When the open polythene bag was revolved around, air was filled inside it. We cannot see air but we can feel it.

### Let's try it out-

- Take a balloon and blow it up. What went inside the balloon? Hold the mouth of the balloon with both hands and open it. Did you hear any sound?



When the balloon's mouth is opened the air inside the balloon comes out with force. This air coming out of the balloon makes the sound.



- Run with a toy pinwheel in your hand. Is it spinning? If, yes, why? The pin wheel spins because of movement of air.

We cannot see air. But we can feel its presence. For example, on a hot summer day when the wind blows gently it calms our mind and body. The moving air is called wind. The state of air can be determined when the wind blows. When the wind blows gently it is called 'breeze' or 'mild wind' and when the wind blows strongly it is called 'storm'.

## Air is a mixture of gases

### Let's try this-



- Light two candles on a table. Now cover one candle completely with a glass as shown in the picture. Observe both the candles for some time. What did you see? Is the candle which was covered still burning? If not, then what can be the reason behind it?

It can be guessed from this observation that there is gas in air that kept the uncovered candle burning. On the other hand, the gas that remained inside the glass, helped the covered candle to burn for some time. There was little gas inside the glass. Air could not enter the glass from outside. As the air inside the glass decreased, the flame of the candle extinguished. It can be understood that the air inside the glass has a type of gas which helps the flame to keep burning. This gas is called **oxygen gas**. Human beings and other animals use this gas for breathing.

**Oxygen gas is very essential for us. Animals and plants all need oxygen to survive.**

### Let us observe-

Have you seen the bellies of animals like cows, goats, dogs etc. move up and down while they are sleeping or sitting? When they inhale, the belly is pulled inside and when air is exhaled the belly comes down. It is for this reason we see the bellies move up and down.

### Activity-

- Keep one of your palms in front of your nose and exhale air. Do you feel something striking your palm? Take a deep breath. Can you say what has entered your nose? **We inhale air when we breathe.**



## Let us know-



- ✦ The scuba divers carry oxygen gas cylinders to the bottom of the sea.
- ✦ The patients having respiratory trouble are provided with oxygen masks.
- ✦ The mountaineers carry oxygen cylinders with them, while climbing mountains.

## Think and say–

- What will happen if the oxygen level in the air decreases?
- Where do the underground animals like earthworms, mole crickets etc. get air to breath?
- Where do the aquatic animals get oxygen from?

## Let us know for what purposes carbon dioxide is used-

- Carbon dioxide is used to extinguish fire.
- Carbon dioxide is very essential for plants.
- With the help of carbon-di-oxide. Plants prepare their food.

## Let us know about nitrogen-

- Nitrogen is another important gas present in the air. Nitrogen is very essential for the growth of the plants. Nitrogen is used in the preparation of chemical fertilizers.





### **Let's discuss and answer–**

- ✦ Why is the carbon-di-oxide present in the air essential for plants? How does it help? What would be the effect of its deficiency in plants?

**Air mainly consists of oxygen, carbon-di-oxide, nitrogen etc. Besides these gases, water vapour, dust particles etc. are also present in the air.**

When an incense stick is burnt, its scent spreads all around. When fish or meat is cooked by your mother in the kitchen, you get the smell from far away, don't you? Air spreads the smell of things. The air neither has its own smell nor has any colour. But different things can get easily mixed in air.

The gas coming out of rotten garbage, dead bodies of animals, rotten fish and meat etc. mixes with air and pollutes the air. Polluted air is injurious to health. Headache, skin disease, eye problem, cold, fever etc. are caused due to air pollution. Smoke from cigarette causes lung disease, cancer etc.

### **Let us know how air becomes polluted-**

Reduction of trees and plants brings down the oxygen level in the air. Along with the smoke coming out of the factories and industries, burning of firewood, garbages, dry leaves etc. also increases the level of carbon-di-oxide in the air. Apart from all these, lighting of crackers, burning plastic or smoking cigarette also pollutes the air in our environment. When there is a forest fire, the smoke and gas coming out of it gets mixed with the air causing air pollution. In addition to it, chemical pesticides used in the agricultural fields and plants pollute the air. When human beings sneeze and cough, the germs coming out of it mixes with the air and also causes air pollution.

### **Problems we may face due to air pollution-**

- ✦ As a result of air pollution, one can suffer from allergy, asthma, cough, cold, fever, breathing difficulties, irritation in the eyes, reddening of eyes, watery eyes, irritation in the nose and throat, lung diseases etc.
- ✦ Air pollution also causes harm to other animals and plants too.
- ✦ The temperature on the earth is gradually rising as a result of air pollution.

### Some measures to prevent air pollution-

- ✦ By planting trees in large numbers air pollution can be prevented.
- ✦ By taking adequate measures to control the pollution coming out of the factories and industries, air pollution can be reduced.
- ✦ Things that do not decay easily such as tin, polythene, plastic objects should not be thrown into drain. Things that decay easily should be thrown into a pit and covered to make compost. If we follow this, we can get rid of the smoke produced by the burning of garbage as well as the foul smell from the garbage.
- ✦ Using bio-pesticide instead of chemical pesticide can prevent air pollution.
- ✦ Air pollution can be prevented by reducing the use of vehicles.
- ✦ Air pollution can also be prevented by burying the dead animals.
- ✦ Chances of the spread of germs into the air can be reduced by using a handkerchief while sneezing or coughing.



### Let us think and take decision-

While travelling to nearby places, is it justified to use cars or motor cycles?



### Activity-

‘Air pollution can be prevented’. To create awareness on this issue, prepare posters by writing slogans.

Materials required: chart paper, pencil, coloured pencils.

## Exercise

1. Write the answer-
  - (a) What is air?
  - (b) What is the name of the gas which helps in burning fire?
  - (c) How should the air that we breathe be?
  - (d) What is wind?
2. Fill in the blanks-
  - (a) We ————see air with our eyes.
  - (b) When wind blows strongly it is called————
  - (c) Plants collect————gas from the air to produce protein.
  - (d) —————air is injurious to health.
3. Choose the correct answer and give '✓' (tick) sign-
  - (a) Gentle breeze have/do not have colour.
  - (b) We can see/feel air.
  - (c) Animals and birds need/do not need air to survive.
  - (d) Polluted air is/is not injurious to health.
4. Write four uses of air.
5.
  - (a) Name three diseases that can be caused due to polluted air.
  - (b) Write four measures to prevent air pollution.
  - (c) Write the difference between Storm and Breeze
6. Why do bubbles arise when a lump of soil is dropped in water?

