

L-8 WINDS, STORMS AND CYCLONES

Class-VII

SCIENCE

Module 1/4

The earth is surrounded all around with air.

The moving air is called wind,

The envelope of air surrounding the earth is called **atmosphere**.

Air has weight. The weight of air presses our bodies all the **time**. This weight of air acting on a surface causes **air pressure**.

I. AIR EXERTS PRESSURE

Activity-Air exerts pressure

Materials Required: A tin can with lid, candle, cold water

Method: Take a tin can with a lid. Fill it approximately half with water. Heat the can on a candle flame till the water boils. Let the water boil for a few minutes. Blow out the candle. Immediately put the lid tightly on the can. Be careful in handling the hot can. Put the can carefully in a shallow metallic vessel or a washbasin. Pour fresh water over the can.

- **Observation:** The can gets distorted.
- **Inference:** As water is poured over the can, some steam in the can condenses into water, reducing the amount of air inside. The pressure of air inside the can decreases than the pressure exerted by the air from outside the can. As a result, the can gets compressed



Some daily life experiences that show that air exerts pressure

- You find it easier to row the boat when the wind is blowing behind you.
- The wind coming from the back help in flying kite.
- When we suck from the straw, the liquid rises in it.
- The medicine enters the syringe when a piston is pushed out.

II. HIGH-SPEED WINDS ARE ACCOMPANIED BY REDUCED AIR PRESSURE.

Activity-High speed winds reduce the air pressure

- **Materials Required:** Bottle, crumpled piece of paper
- **Method:** Crumple a small piece of paper into a ball of a size smaller than the mouth of an empty bottle. Hold the empty bottle on its side and place the paper ball just inside its mouth. Now try to blow on the ball to force it into the bottle.
- **Observation:** The paper does not move inside.
- **Inference:.**

When we blow into the mouth of the bottle, the air near the mouth has higher speed. This decreases the pressure there. The air pressure inside the bottle is higher than near the mouth. The air inside the bottle pushes the ball out.



ACTIVITY-BLOW THE BALLOONS

Materials required-two balloons of equal size and a string

Method-Take two balloons of approximately equal size. Put a little water into the balloons. Blow up both the balloons and tie each one to a string. Hang the balloons 8–10 cm apart on a cycle spoke or a stick. Blow in the space between the balloons,

- **Observation:** The balloons will move closer.
- **Inference:** The air pressure between the balloons is reduced due to more speed. Air moves from higher pressure to lower pressure bringing the balloons closer.



