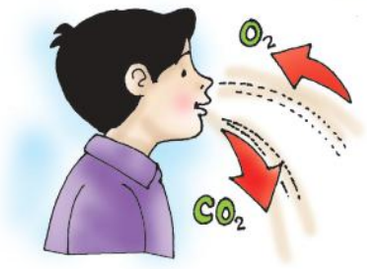
9 Air

We are surrounded by air but we cannot see it. We can feel it when it blows. Air is what we try to push into our cycle tyres with a bicycle pump or blow into the balloon. It is in the syringes used to given an injection and also in a flute.

COMPOSITION

Air is a mixture of several gases. The important ones are oxygen, carbon dioxide and nitrogen. Pure air has no smell, colour or taste. With all the pollution around, we usually have to go near green garden to breathe fresh and pure air. Air is made up of :

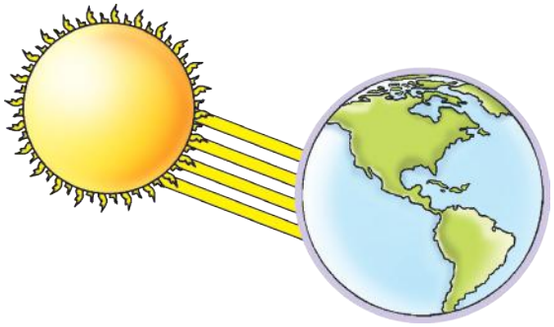


Oxygen	:	21 %
Carbon di-oxide	:	0.3%
Nitrogen	:	78%
Others	:	1%

AIR AND ATMOSPHERE

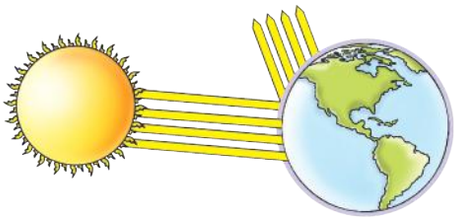
The thick layer of air that surrounds the Earth is called atmosphere. It extends high up into the sky even beyond the highest mountain, Mount Everest.

Atmosphere has many uses :



1. **It is a cosy blanket** : During daytime, the atmosphere prevents the direct heat of the sun from reaching us. This way we only get a tan instead of getting fried. At night, it shuts in the heat of the land, so we do not end upon an icy planet.

2. **It is a strong shield :** Some rays of the Sun are harmful. The atmosphere shields us from these rays.



3. **It is a security guard with a fire gun :** There are huge rocks moving around in space. The atmosphere burns them up whenever they drop down to pay a visit. Most of these rocks are big and by falling from such a height, they could cause a huge damage to everything on the Earth.

WIND

Moving air is called wind. We usually become aware of air when it is in the form of wind. When air moves, things happen. Leaves rustle, windmills whirr, boats sail and kites fly. Why does air move? Well, hot air is lighter than cold air. So, hot air always moves up and cold air remains below. That is why, a hot air balloon rises up slowly.

FEATURES OF THE WIND

Wind has two main features : 1. Speed, and 2. Direction.

1. **Speed :** Speed refers to how fast a thing moves. A bus can move at different speeds. It has a slower speed on potholed roads and a higher speed on smooth highways.

Like this, wind can also move at different speeds. It can be measured in two ways :

Anemometer : An anemometer is a difficult name for a simple instrument that even you can make. It is just four cups hanging at the ends of rotating sticks. Wind fills the cups with air and causes it to rotate. The number of rotations in a given time tells us its speed. You can sit next to it and count the rotations; but this can be a mind-spinning job. So, a recording device does this task.

The Beaufort Scale : It is also used to tell wind speed. As the name suggests, it is not an instrument but a scale. It has numbers from 0 to 12 for the effects of wind speed on the surroundings. For example, wind strong enough to move leaves is 3 on this scale.

2. **Direction :** Direction refers to which way an object is moving. A bus can move in different directions and so can wind. We can find out the wind's direction with the following instruments. A windvane or weather cock is a popular way of telling the direction of wind. A windvane actually shows both direction and speed of the wind.

USES OF WIND

Wind supports life. It helps plants to make their food. All living things need air to breathe.

Do You Know ?

The first ever balloon passengers were a cock, a duck and a sheep. Their eight minutes' flight over Paris was in 1783, more than 200 years ago.

Without the air surrounding us, we would all burst like a balloon that is filled with too much air because the air inside and outside any object should be balanced.

Some common uses of wind are :

- It is used to make music.
- It fills up things and makes them useful.
- It keeps things moving.
- It is used to make electricity.

So, whether it is air, wind or atmosphere, they make the Earth a place to live in.

Know the Keywords :

Potholed : Hole in the surface of a road.
Spinning : Revolve or cause to revolve rapidly.
Shields : Anything that protects.

Point to Remember

- Air is all around us and is made of various gases.
- Atmosphere is a thick layer of air surrounding the Earth.
- Air moves because hot air is lighter than cold air.
- Moving air is called wind.
- Wind has direction and speed.
- Direction and speed can be measured with instruments.

EXERCISE TIME

A. Multiple choice questions (MCQs).

Tick (✓) the correct option :

1. _____ is all around us.
   a. air ◯ b. water ◯ c. fire ◯
2. Moving air is called _____.
   a. storm ◯ b. breeze ◯ c. wind ◯
3. Wind has _____ and speed.
   a. position ◯ b. direction ◯ c. colour ◯
4. A wind vane shows direction and _____.
   a. speed ◯ b. road ◯ c. water ◯
5. The wind has _____ main features.
   a. two ◯ b. three ◯ c. four ◯

B. Fill in the blanks :

1. We are surrounded by _____.
2. Air is a mixture of several _____.
3. Moving air is called _____.

4. We use _____ and _____ to find the speed of wind.
5. A _____ or _____ is a popular way of telling the direction.

C. Write 'T' for true and 'F' for false statements :

1. Air is made of wind. ( )
2. Layers of air make up the atmosphere. ( )
3. During night, the atmosphere allows the heat to escape. ( )
4. Moving air is called wind. ( )
5. A weathercock is used to measure wind speed. ( )

D. Match the following :

1. Moving air	a. Weather cock
2. A shield and blanket	b. Wind
3. Direction of wind	c. Atmosphere
4. Speed of wind	d. Anemometer

E. Look at the pictures of objects given below and write their uses :

_____

_____

_____

_____

_____

_____

_____

_____

_____

F. Answer the following questions :

1. What is air ?
2. What is air made of ?
3. What is atmosphere ?
4. How can we measure the speed of the wind ?
5. List three uses of air.

Creative Work

- We must blow air into some instruments to produce sound. Cross the instruments that are not wind instrument :

- Draw and colour a hot air balloon here.