Air and Water

Learning Outcomes

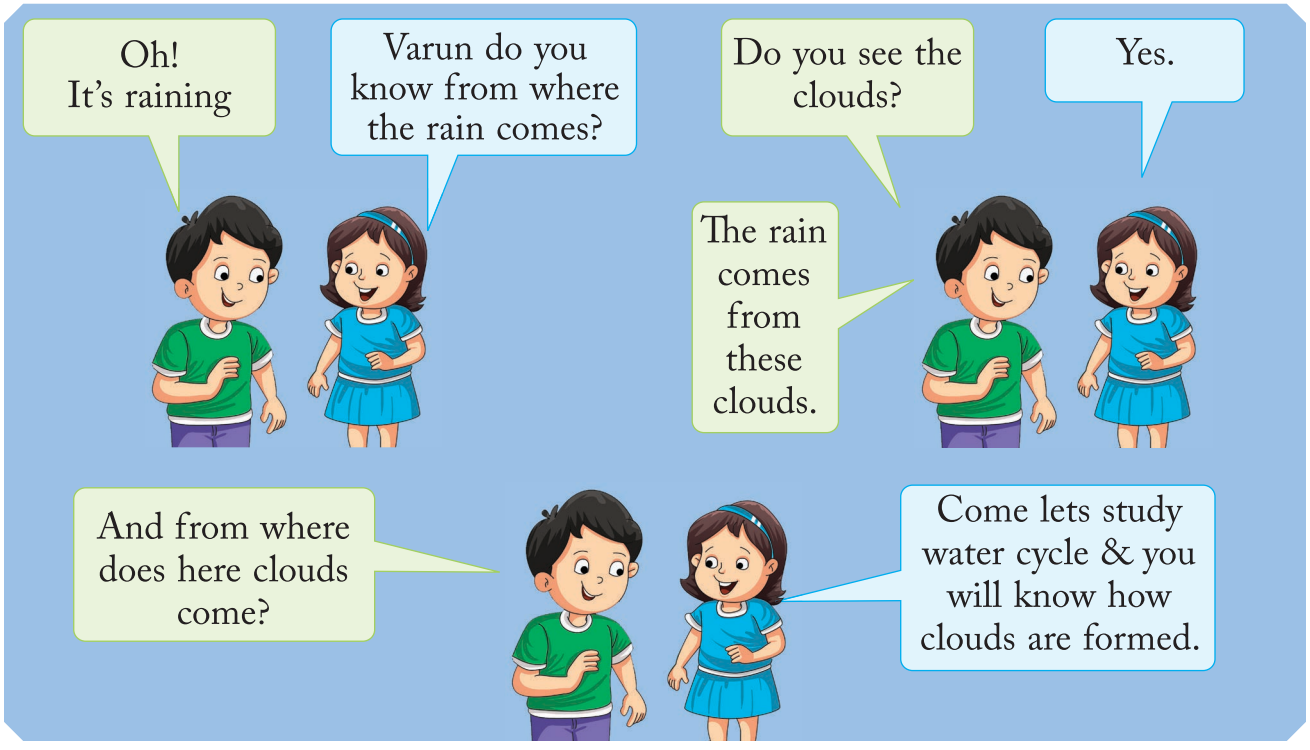
Learners will be able to

- name the different components of air and uses of air
- list the uses of water
- explain the process of water cycle

Tune In

Art activity

Recognise and name 3 different scenarios when you can feel the air blowing towards you.



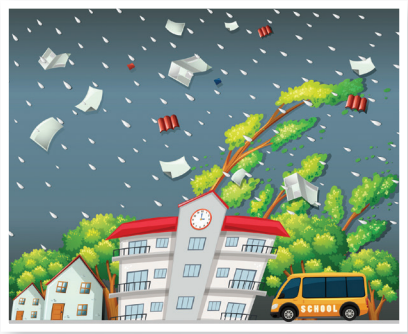
Air

Can you see or touch the air? No!! You can only feel it. air is all around us.

Earth is the only planet where life can exist. It is because of the presence of natural resources like air and water.

While we breathe, we can feel the air entering and leaving our nostrils. The air that blows is called **wind.** The wind that blows gently is called a **breeze.** Winds that are strong are called **gales.** Sometimes a powerful gale can bring lightning and heavy rain. We call such a strong wind a **storm.** A storm can cause significant damage, such as uprooting tall trees and even destroying structures.

Gale



Storm

Composition of Air

Air is a gas mixture made up of 78% nitrogen, 21% oxygen, 0.08% carbon dioxide a very minor amount of water vapour and other gases. Plants and animals both require air to survive. Plants use carbon dioxide from the atmosphere to produce food.

The oxygen in the air is important for all plants and animals including human beings. The carbon dioxide we expel is important for plants to make their food.

Activity (Handson Conceptual Understudy)

Aim: To show air contains water

Material Required: Metal glass, ice cubes.

Procedure:

1. Put ice cubes in a glass and leave it in open area for few minutes
2. You will see water droplets on outer surface of glass. This is because of condensation.

Explanation:

Water vapour present in air comes in close to contact of cold glass and they condense to for m tiny drops of water.

Name three important daily activities that are not possible without air.

1. _____
2. _____
3. _____

Uses of Air

- We need air to breathe. It provides oxygen for our bodies to function.
- Air is used to fill the tyres, football, swimming tubes and balloons.
- Air helps us fly the kites and also helps in moving windmills to generate electricity.
- Oxygen in the air is important for burning things like candles.
- Plants use air to make food.

How air helps in maintaining the temperature on Earth's surface?

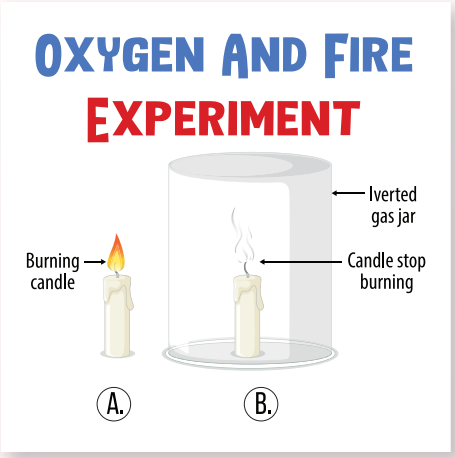
Activity (Handson Conceptual Understudy)

The teacher will conduct this activity in the lab.

Aim: To show that the air is needed for burning.

Materials:

1. Empty glass jar
2. Small candle
3. Matches



Instructions:

1. Light the candle and place it on the table.
2. Invert the jar over the candle.
3. After sometime the flame goes off.

Result:

The flame goes out when all the air inside the glass is used up. This activity shows that the air is needed for burning.

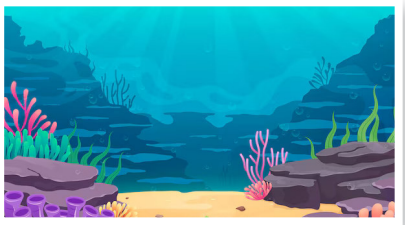
Quick Check

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

1. Air is made up of only one type of gas. ☐
2. We need air to breathe because it contains oxygen. ☐
3. Air can be used to inflate balloons and fly kites. ☐
4. Air is not important for burning. ☐

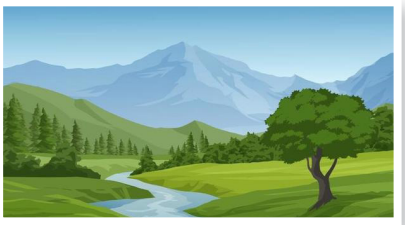
Water

Pure water is clear, has no smell and has no taste. We need water, just like air, to survive. Three-fourths of the Earth is covered in water. Water is found in ponds, lakes, rivers, streams, seas and oceans. Water can also be found in the layers of soil, called groundwater.

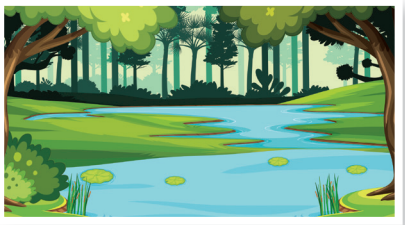


Ocean

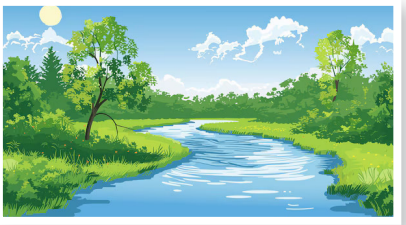
Sea



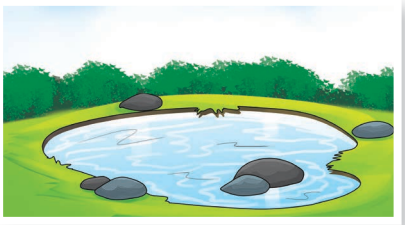
River



Lake



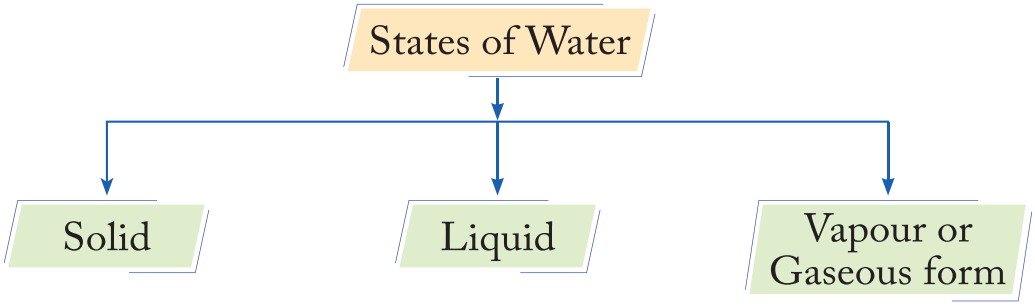
Stream



Pond

States of Water

Water exists in three states: as a solid, a liquid and a gas.



Ice

Solid have fixed shape & volume

Water

Liquids take up the shape of container but they have fixed volume.

Water Vapour

Gas do not have fixed shape & volume. They occupy space available to them.

Water!

Let us read the poem aloud

Water, clear and pure,
A gift we must ensure.
It flows in rivers wide,
And fills the oceans' tide.

Quenching thirst each day,
In lakes where children play.
Raindrops from the sky,
Make plants and flowers sigh.

So, let's cherish this treasure,
For it brings us endless pleasure.
Water, so vital and cool,
Is nature's precious jewel.

Which natural resource is mentioned in the poem above?

Water Cycle

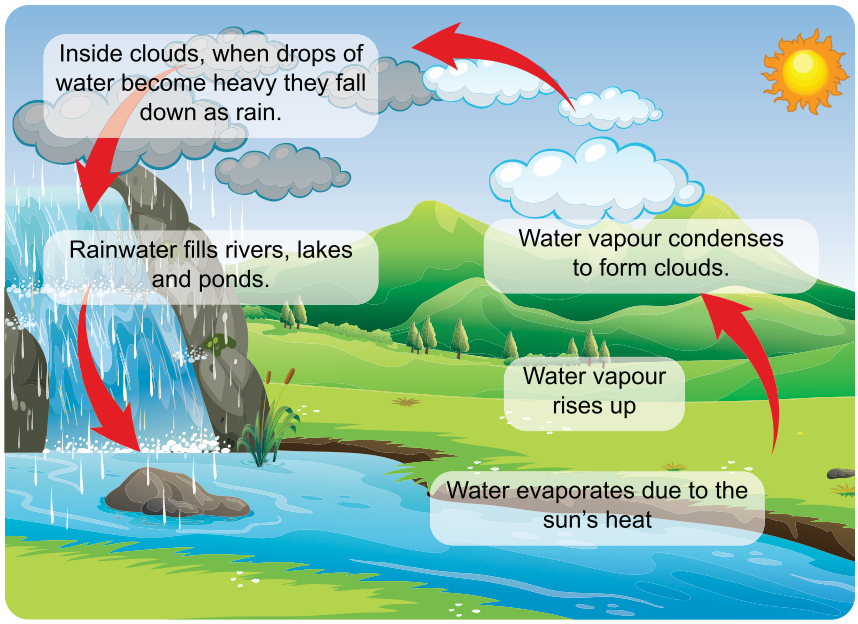
Water cycle shows how water moves continuously between earth and atmosphere. First, heat from the sun makes water from rivers, lakes and oceans change into the water vapour. We call this process as **evaporation.**

The water vapours the mix into the air and then rises up.

Then, this water vapour cools and turns into tiny water droplets, forming clouds. The process of water vapour changing into water vapour is called **condensation.**

Inside the clouds, tiny water droplets join to form big drops. When the water drops get heavy, they fall back to Earth as rain. We call this process as precipitation. In very cold places, the water drops become ice and come down as snow. The rain again reaches the rivers, lakes and oceans and the cycle continues.

The process of water changing into water vapour and then back to water again is called **water cycle.**



Quick Check

Name the followings.

1. Gaseous form of water. _____
2. Process that converts steams into water droplets. _____
3. Nature's recycling system of water. _____
4. The form of water that can flow and change shape. _____

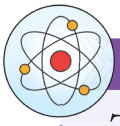
Uses of Water

- Drinking: We need water to quench our thirst and stay healthy.
- Cooking: Water is important for preparing our foods.
- Bathing: We use water to keep ourselves clean and fresh every day.
- Farming: Water helps plants grow, so it is needed for farming and growing our food.
- Cleaning: Water is used for washing dishes and clothes and keeping our surroundings tidy.



Activity (Handson Conceptual Understudy)

Divide the class into three teams. Each team represents a state of water (solid, liquid, gas). Allow each team to share something special about the state they represent.



Amazing !

The air is not as heavy on top of a mountain. This difference in air makes our ears to pop when we go up in an airplane.

Keywords

Earth's resources: things like water, air, soil, minerals and plants we use

Atmosphere: it is the blanket of air around the earth

Oxygen: a gas in the air that we breathe to stay alive

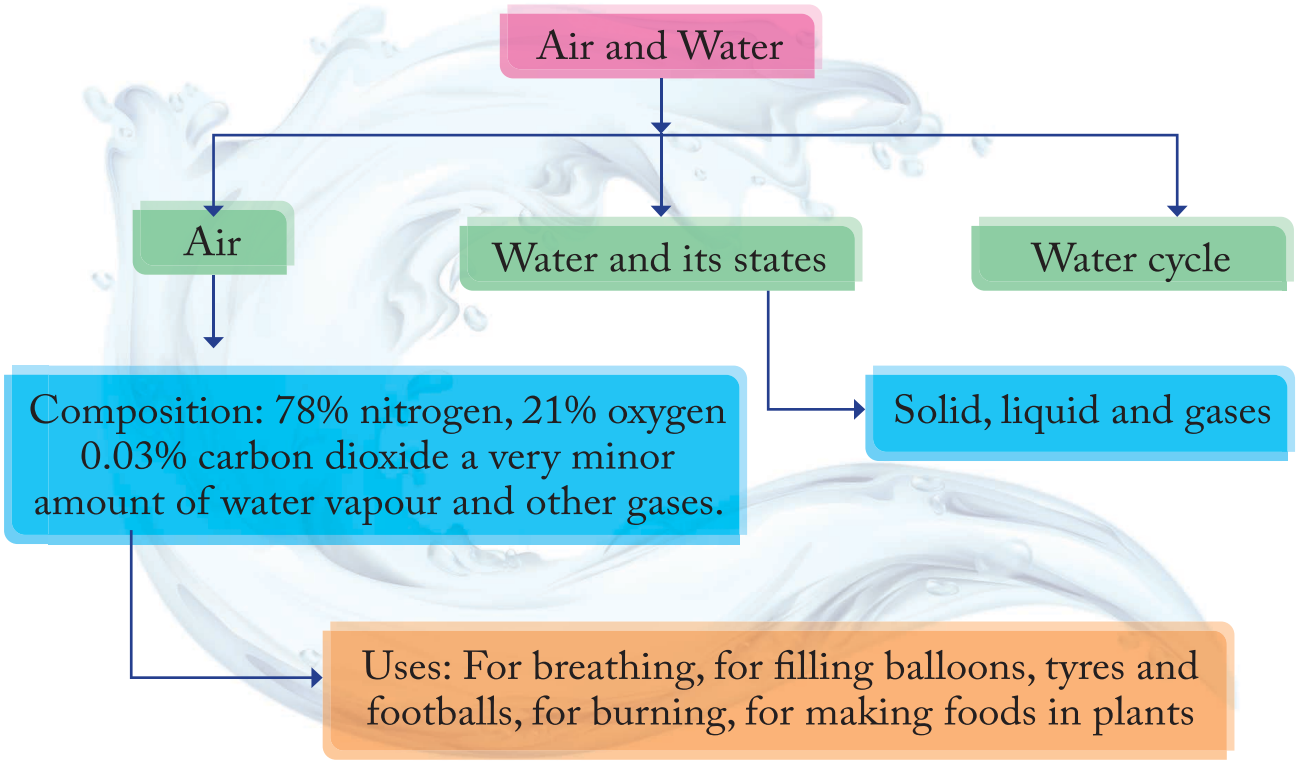
Carbon Dioxide: a gas we breathe out and plants use for making their food

Evaporation: the process by which water turns into water vapour

Condensation: the process by which water vapours turn into water droplets

Precipitation: process in which water droplets in clouds fall as rain, snow, or hail

Quick Recap



Let's Practice

A. Tick (✓) the correct option

▶ 1. What is the main gas in the air we breathe?

(a) Oxygen ☐ (b) Carbon dioxide ☐

(c) Nitrogen ☐ (d) Hydrogen ☐

▶ 2. Which of the following is NOT a use of air?

(a) Breathing ☐ (b) Flying kites ☐

(c) Washing clothes ☐ (d) Inflating balloons ☐

▶ 3. What is the composition of air?

(a) Only oxygen ☐ (c) Water vapour ☐

(b) Only nitrogen ☐ (d) All of these ☐

4. Which of the following is NOT a part of the water cycle?

(a) Evaporation ☐ (b) Condensation ☐

(c) Boiling ☐ (d) Precipitation ☐

5. What do we call the process of water changing into to water vapour during the water cycle?

(a) Evaporation ☐ (b) Condensation ☐

(c) Precipitation ☐ (d) Freezing ☐

B. Match the following columns

Column A	Column B
1. 78% of air	a. Condensation
2. Water changes from steam into water droplets	b. Gale
3. Strong winds	c. Nitrogen
4. Process that balances the availability of water on the Earth	d. Air
5. Natural resource	e. Water cycle

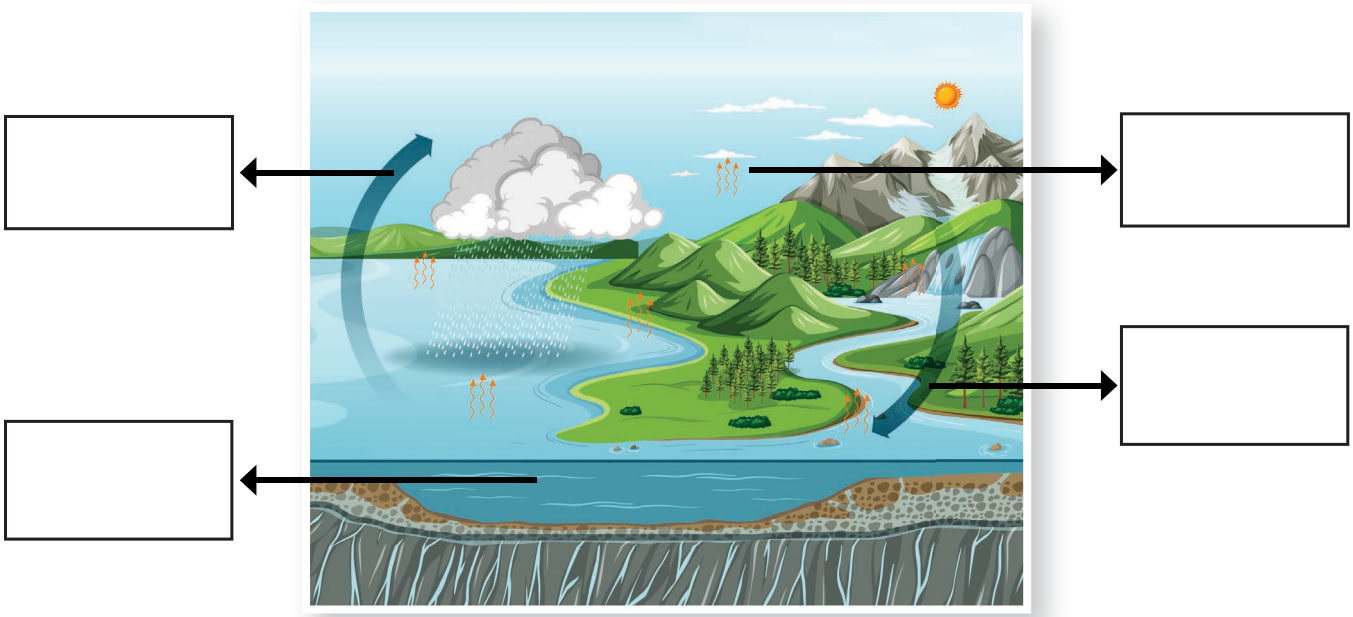
C. Recall your knowledge

Answer in 10–20 words

1. What is the main gas in the air we breathe?
2. What helps us to fly kites in the sky?
3. What do we call the process of water turning into vapour?
4. Which is the most common gas in air?
5. Draw a scene with lightning, rain and strong wind. Use your imagination to create a stormy scene!

D. Build your observation

▶ **Observe the image and answer the questions given below**



1. What does this image depict?
2. Label all the four stages.
3. Write the importance of process shown in the picture.

E. Check your understanding

Answer in 20–30 words

▶ 1. What is air made of?

▶ 2. Why do we need air?

▶ 3. Define condensation. Give an example.

▶ 4. What are the different sources of water?

▶ 5. Mention two uses of air.

F .Learn to reason

Answer in 50–60 words

▶ 1. Why is oxygen in the air important?

▶ 2. What type of wind brings heavy rains?

▶ 3. Explain water cycle.

G. Word search

Problem Solving

- **Search for the following words related to air and water mentioned in the chapter**

A	S	V	F	D	F	T	R	T
B	Y	A	O	A	L	G	F	F
R	U	P	S	M	O	K	E	D
E	M	O	O	X	Y	G	E	N
E	A	U	I	D	R	A	I	N
Z	S	R	F	W	A	T	E	R
E	T	A	U	H	V	T	D	T
R	O	T	E	R	G	A	L	E
D	R	B	L	G	S	M	V	F
X	M	M	E	T	H	A	N	E

Help Box

BREEZE
STORM
WATER
OXYGEN
VAPOUR

H. Lets apply what we have learnt–

1. Make a list of ways to save water at home and in school.
2. Collect water sample from different sources like tap water, rainwater, pond and observe clarity of water. Discuss why it is important to have clean water.

Indian Roots

In ancient India, Ayurveda, a very old science, said that clean air and pure water are important for staying healthy. The Vedas, old books, also talked about how water is important for life.

Curricular Integration — EVS and Mathematics

Collaboration

On a rainy day, collect rainwater in a bucket. You can measure the amount of rain water you saved. Later you can use the saved water for watering the plants. Tell your classmates how much rainwater you saved.

Life Skills

We should choose eco-friendly options like walking, cycling or using public transportation when going to school or nearby places to keep our air clean.

ASSESSMENT

	All the time	Most of the time	Not at all	Peer's Remarks	Teacher's Remarks
I can know the composition and uses of air					
I understand the different uses of water					
I can list the uses of water					
I can explain the process of water cycle					