



# **SOCIAL SCIENCE**

## **TERM - 1**



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E-Book



Assessment



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### Learning Objectives

Students can:

- ❖ know about the Universe.
- ❖ understand the Solar System.
- ❖ understand Our Earth.



DW11BV

**Imayan** is waiting for his **father** after returning from school in the evening. His **father** is an employee in a reputed bank.

**Imayan** : Come Daddy! (Imayan ran and hugged his father)

**Father** : Imaya.... Had your snacks?

**Imayan** : Yes, I had! My social teacher is going to teach about earth tomorrow. Please tell me about the earth.

**Father** : Ok. I will tell you.



**Imayan** : How did the Earth form?

**Father** : Approximately 4.54 billion years ago, Solar System was a cloud of dust and gas known as **Solar Nebula**. Due to an explosion, these particles collapsed and began to spin having the sun at centre. The bigger particles which revolve around the sun are called **planets**. Thus the planet Earth formed.

**Solar Nebula**



**Imayan** : Will you explain about Universe, Daddy?

**Galaxy**





**Father :** The **Universe** is a vast expansion of space. The Universe consists of billions of **galaxies, stars, planets, dwarf planets, comets, asteroids, meteoroids** and **natural satellites**. The exact size of the universe is still unknown. Scientists believe that the universe is still expanding outward.

**Imayan :** What is a galaxy, daddy?

**Father :** A **Galaxy** is a huge cluster of stars. Our galaxy **Milky way** is one among the countless of galaxies in the Universe.

### Milky way Galaxy



**Imayan :** Ok Daddy. What is **Solar system**?

**Father :** **Solar system** consists of the sun, the eight planets, their moons, dwarf planets, asteroids and comets. These objects are gravitationally bound.

**Imayan :** Very interesting dad. Tell me about our **Solar System**.

**Father :** There are 8 planets in our solar system. They are:

- |           |           |
|-----------|-----------|
| ① Mercury | ⑤ Jupiter |
| ② Venus   | ⑥ Saturn  |
| ③ Earth   | ⑦ Uranus  |
| ④ Mars    | ⑧ Neptune |



## Solar System





The **Rocky-inner planets** are Mercury, Venus, Earth and Mars. They are called **Terrestrial planets**. The outer planets are **Gaseous planets**. They are Jupiter, Saturn, Uranus and Neptune. The **frozen planets** are Uranus and Neptune.

**Imayan** : Dad..... Where is our **Earth** in the **Solar System**?

**Father** : The Earth is the **third planet** from the sun and the **fifth largest** in solar system.

**Imayan** : It is said that the earth is rotating itself and at the same time revolving around the sun. Is it true?

**Father** : Yes, Earth has **two movements**. They are:

- ① **Rotation**
- ② **Revolution**

## Rotation



The movement of the earth on its axis is called **rotation** of the earth. **Day and night** are caused due to the earth's rotation.

### Day and night





## Revolution

The movement of the Earth around the Sun on its axis which is tilted about  $23\frac{1}{2}^{\circ}$  is called **revolution** of the earth. **Seasons** are caused by Earth's revolution.



**Summer**  
(March to May)



**South West Monsoon**  
(June to September)



**North East Monsoon**  
(October and November)



**Winter**  
(December to February)

  
**ACTIVITY**  
Let us do

**Make the model of a Globe.**





**Father** : Life is possible only on the Earth because of the presence of **land**, **air** and **water**.

**Imayan** : Oh! I see. What is the distance between the sun and the earth?

**Father** : The distance between the sun and the earth is nearly 150 million kilometres.

**Imayan** : Say some more interesting facts about Planets Dad....

**Father** : Mercury and Venus lie near to the sun. Next to Earth is Mars, Jupiter, Saturn, Uranus and Neptune. The planets nearer to the sun are very hot. The planets away from the sun are very cold. **Mercury** is the **smallest** planet. **Jupiter** is the **largest** planet.



**Venus** is called **Earth's twin**. **Mars** is described as the **Red planet**. **Earth** is called the **Blue planet**. **Saturn** is the **Ringed planet**.

**Imayan** : Wow! Amazing! Where do we live on the Earth?

**Father** : We live on the surface of the Earth. It is made up of 7 continents and 5 oceans.

**Imayan** : 7 continents! What are they?

**Father** : Listen. They are:

**Asia**, **Africa**, **North America**, **South America**, **Antarctica**, **Europe** and **Australia**.

**Imayan** : Which is the biggest continent?

**Father** : The **Asia continent**, where we live is the **biggest** of all. **Australia** is the **smallest** one. Antarctica is a snow covered landmass.

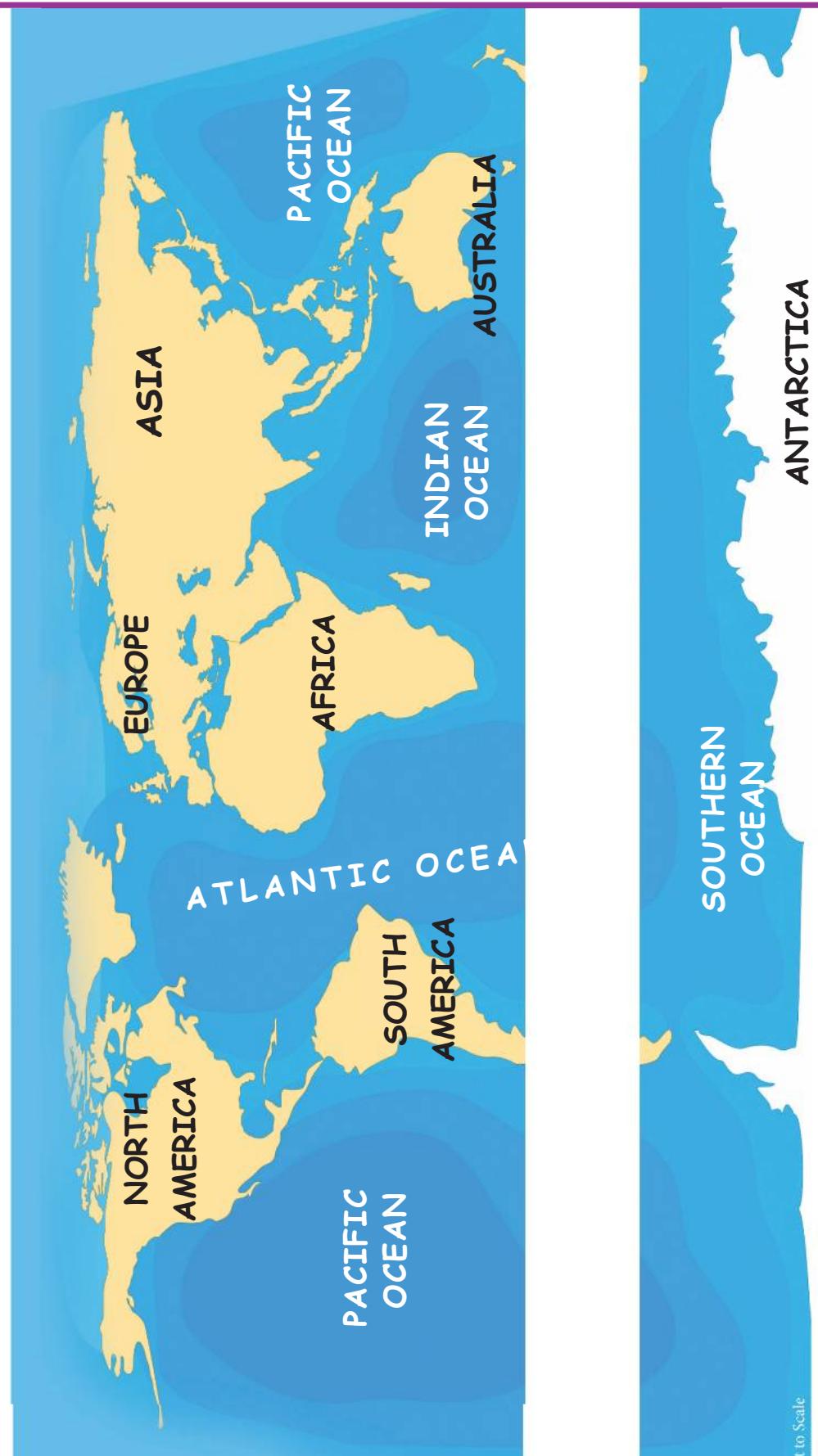


#### A4 NoSE

- (A1) Asia, (A2) Africa, (A3) Antarctica,  
(A4) Australia, (No) North America,  
(S) South America, (E) Europe.



## Continents and Oceans





The surface of the Earth is classified into different landforms such as **mountains**, **plateaus**, **plains**, **coastal plains**, **valleys**, **deserts** and **islands**. The **highest peak** on the earth is **Mount Everest** (8848m) in the **Himalayas**.

**Imayan** : What are the **five oceans** Daddy?

**Father** : **Pacific Ocean**, **Atlantic Ocean**, **Indian Ocean**, **Southern Ocean** and **Arctic Ocean**. 71% of the Earth is covered by water and 29% is covered by landmass. About 96.5% of water is saline, 2.5% of water is fresh and 1% of water is easily accessible.



The average depth of the oceans is 3800m. The deepest point on the Ocean is **Mariana Trench** which is located in the **Pacific Ocean**.

**Imayan** : Thank you, Daddy. Today I have learnt a lot about the earth from you. Now I am going to study and do my home work.

**Father** : Ok, Imaya. Go and study.

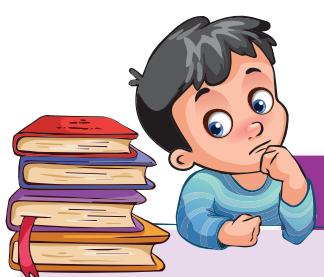


### Glossary

**Particles** : very small pieces

**Saline water** : salty water

**Trench** : a long ditch



### Recap

- The Universe consists of billions of galaxies, stars, planets, dwarf planets, comets, asteroids, meteoroids and natural satellites.
- The Earth is the third planet from the sun and the fifth largest in the solar system.



## EVALUATION



### I. Fill in the blanks.

1. The distance between the earth and the sun is \_\_\_\_\_.
2. \_\_\_\_\_ are caused due to the revolution of the Earth.
3. The continent \_\_\_\_\_ is covered by ice.
4. The biggest continent is \_\_\_\_\_.
5. \_\_\_\_\_ is described as Red Planet.
6. \_\_\_\_\_ percentage of our earth is covered by salt water.

### II. Match the following.

1	Smallest continent	Earth's revolution
2	Blue planet	Australia
3	Neptune	Earth
4	Seasons	earth's rotation
5	Day and night	Farthest planet

### III. Answer the following.

1. What do you know about Universe?
2. Define solar system.
3. How did the Earth form?

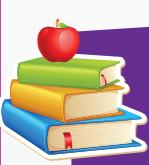


4. Distinguish between Rotation and Revolution.
5. How many oceans are there on the Earth?

**V. Answer in detail.**

1. Write about the Solar System.
2. Write about the Planet Earth in detail.
3. Explain about the continents.





**Fun With**  
**ACTIVITY**



## Project

**Collect and stick the images of the planets.**



UNIT  
**2**



# Towards History



## Learning Objectives

Students can:

- ❖ know about the Stone Age.
- ❖ understand the Nature of Human Evolution.
- ❖ understand the Human Nomadic life.



## Stone Age

In the beginning humans were not aware of metals. They took several years to discover metals. Our lives today are their gifts. During this period humans were not aware of scripts. The **Stone Age** is the period in which **Stones** were used as **weapons**.

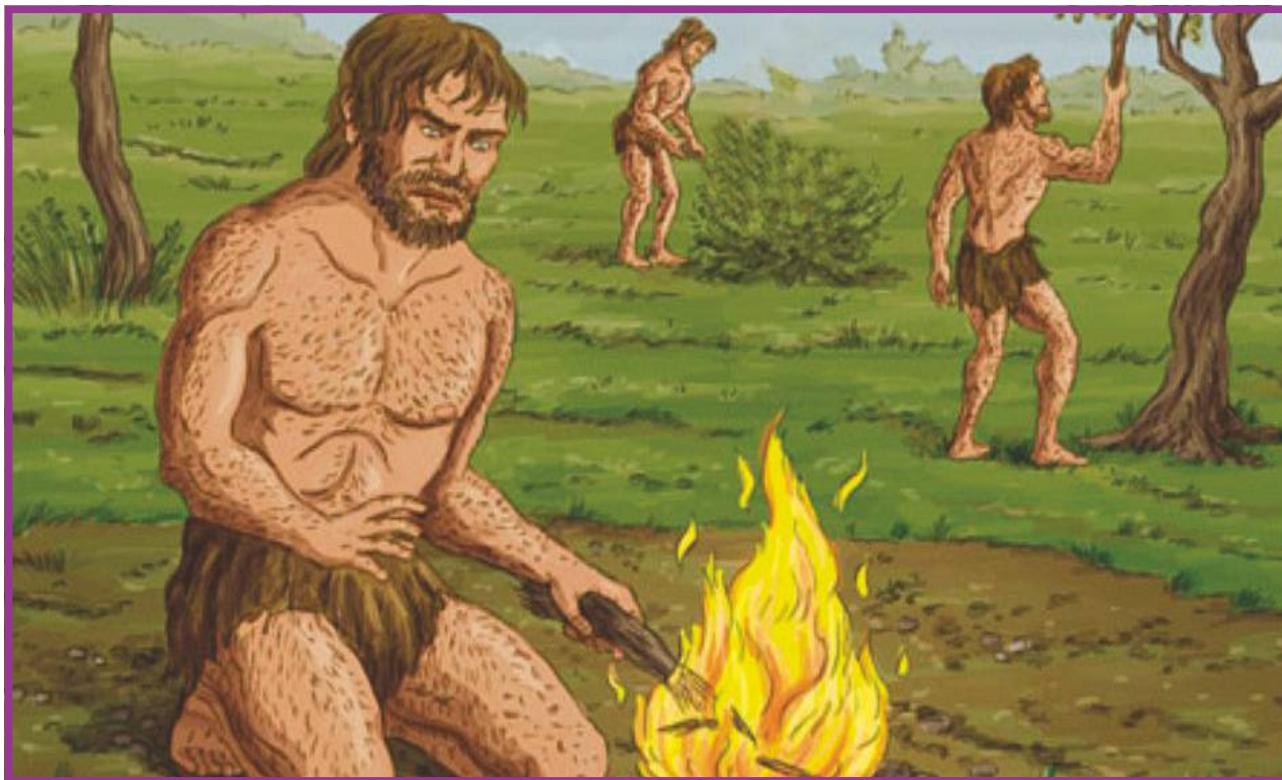


Stone weapons



## Nature of Human Evolution

Early humans lived in jungles along with animals. They used stone tools to protect themselves, drive away animals, dig out roots, shoots etc. The most important thing is that they ate everything raw including flesh. They did not know the use of fire in the beginning. At first, dog was their good companion. Wild animals ran away when dogs barked. **Dog** was the first pet animal. They took it wherever they went.



Later they started rearing cattle and were very useful to them. They observed some **grains** growing along the river side. They ate and found them very tasty. They observed that the scattered grains were eaten up by birds. They were keen observers. They found that the grains grow with the help of **sunshine** and **rainfall**. Thus, they learnt the art of **cultivation**.

Humans noticed **forest fire**. At first they were afraid of fire. They found some animals died due to fire. They ate the flesh of the burnt animals. It tasted good. They also observed that the **spark** came out by scratching two stones together. Since then, they ate cooked food.



- Early man used **Quartzite**, a type of stone for making **tools** and **weapons**.
- A type of stone called **Flint stone** was used to produce **fire**.

## Nomadic Life

Early humans did not know to grow crops. They wandered in all the landscapes in search of food. They ate whatever they got and drank water from natural sources. This kind of life was called **nomadic life**. They wore **skins of animals, leaves and barks of trees** to cover their body. They lived in **caves** and **holes of big trees**.



Stones were sharpened as tools by them. They made it with the help of other stones too. These sharp tools were used to hunt animals and tear their flesh.

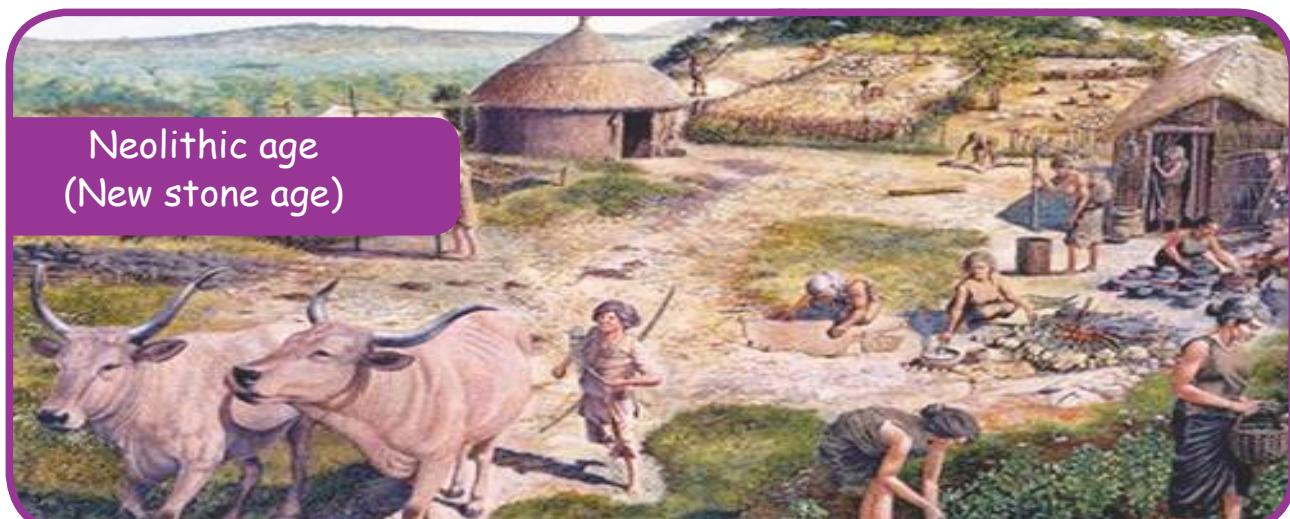
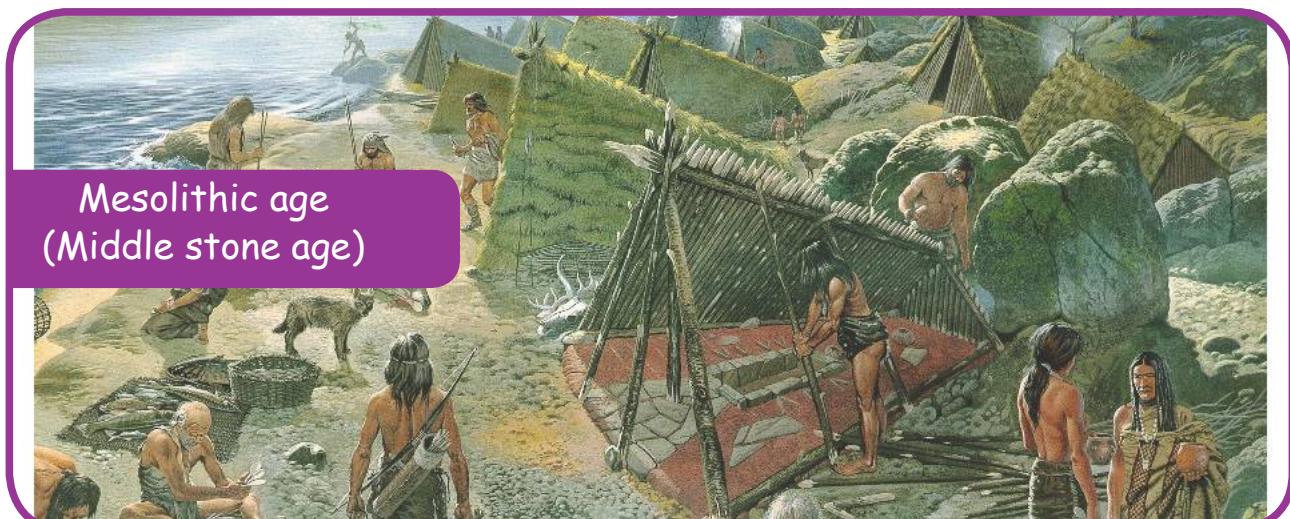


They used **bones, horns, stones, skin, branches of trees and sticks** as their tools and weapons. This stage of development in history was called **New stone age** or **Neolithic age**.





## Stone age





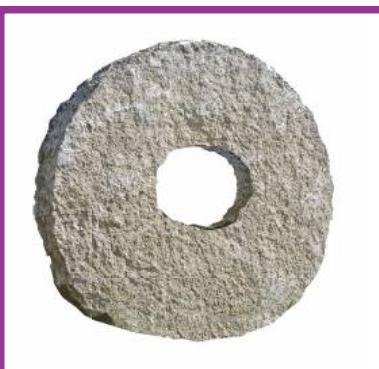
செயல்பாடு  
நாம் செய்வோம்

1. What were the food eaten by early humans?  
\_\_\_\_\_
2. Why did early humans live in caves?  
\_\_\_\_\_
3. Why did they eat raw flesh?  
\_\_\_\_\_

- Early humans used **weapons** to protect themselves from animals.
- They used **torches** to find the path at night.
- They **drew paintings** of what they saw around them on the walls of the caves where they lived.

## Stone wheels

When the stones rolled from the mountains they acquired a round shape. Humans observed them and thus wheel was invented. In the beginning it was made of stone and later by wood. **Wheel** is the first scientific invention of man.



The period which has written documents are called **Historical Period**. These documents help us to know about the life styles of the people, events, food habits, culture, art, architecture, literature and so on.



## Pottery

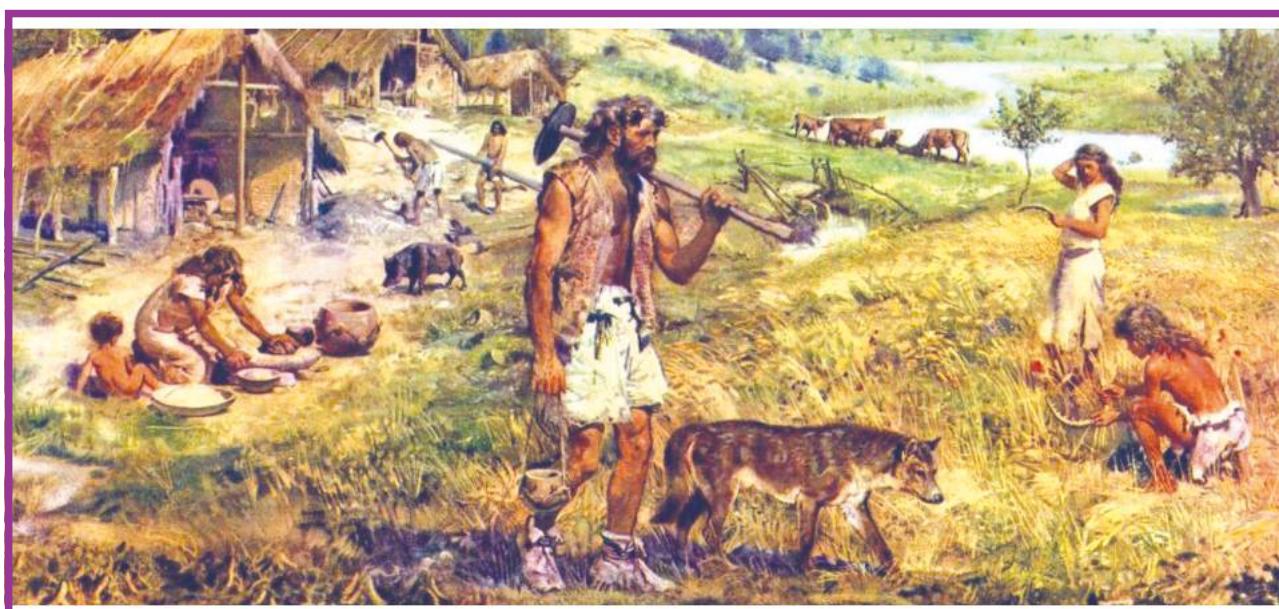
**Pottery** was also one of the greatest inventions by humans. The baked pot was strong and looked beautiful. Stone Age people made all the household artefacts by themselves.

Stone houses were built. The roofs of these houses were thatched with sticks and husks. After several inventions, humans started to live in a settled life.



## Agriculture

**Agriculture** was an important activity in the history of humans. They started cultivating crops. They sowed seeds and harvested crops. They found it convenient to live along the river as the crops grew well.



**Museum** is a place where archaeological objects are preserved, which were used by our ancestors. These give information about the lives of ancient people. Therefore it is important to preserve the remains of the past.





## Progress in man's life

Man → family → society → Community → administration



There were burial pots called urns in which the dead bodies were placed and buried under the ground.

### Chalcolithic Age

At the end of New Stone Age **copper** was invented. In this age both stone and copper were used. This period was called **Chalcolithic Age**. Bronze was produced when copper, zinc and tin were mixed together. The period when people made tools from bronze was called **Bronze Age**.

### Iron Age

After this, humans discovered iron and started using iron tools and weapons. This age was called **Iron Age**. In this age household articles and agricultural tools were made up of iron.



**ACTIVITY**  
Let us write

Write the names of some iron tools in your home.  
Sickle, Spade, \_\_\_\_\_  
\_\_\_\_\_



## Archaeological excavations

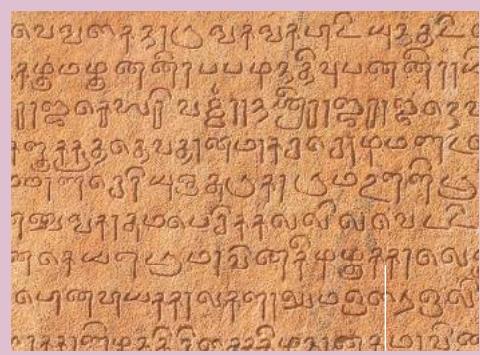
Coin, potsherds, metal objects and so on are dug out from **Archaeological sites**. Such objects are preserved in the **museum**. In Tamilnadu, **Athichanallur**, **Arikkamedu** and **Keeladi** are such sites where the objects used by the people of the past are excavated. Still research is going on in these sites.



If you come across any old, traditional objects of historical value try to **collect and preserve** them.

### LET US KNOW

**Scripts** inscribed about a king's rule, people or society on rocks and walls are called inscriptions usually they are found on temple walls.



### Think



What is  
Numismatics?

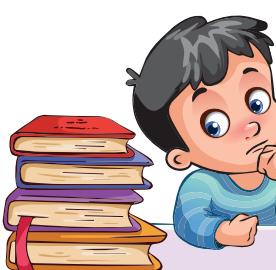


### Glossary

**Artefacts** : articles made by humans

**Excavate** : dig out

**Potsherds** : broken pottery fragments



### Recap

- The Stone Age is the period in which Stones were used as weapons.
- Stone Age is classified as Palaeolithic age, Mesolithic age and Neolithic age



## EVALUATION

### I. Choose the best answer.

1. Palaeolithic humans,
  - a) wore cotton clothes
  - b) wore woolen clothes.
  - C) wore leaves and skin of animals

2. \_\_\_\_\_ was the first pet animal of man.
  - a) Cow
  - b) Horse
  - c) Dog

3. What was the first metal discovered by early human?
  - a) Iron
  - b) Copper
  - c) Gold

### II. Fill in the blanks.

1. Early man lived in \_\_\_\_\_.
2. The Stone Age is the period in which Stones were used as \_\_\_\_\_.
3. \_\_\_\_\_ was used to produce fire.
4. \_\_\_\_\_ is the first scientific invention of man.
5. At the end of New Stone Age, \_\_\_\_\_ was invented.



3P8PQM

### III. Answer the following.

1. What is Stone Age?
2. Write a short note on Nomadic Life.
3. Define Neolithic age.
4. Write a short note on Pottery.
5. Name some Archaeological sites in Tamil Nadu.

### IV. Answer in detail.

1. How can we classify the Stone Age?
2. Write about Chalcolithic Age and Iron Age.



### Learning Objectives

Students can:

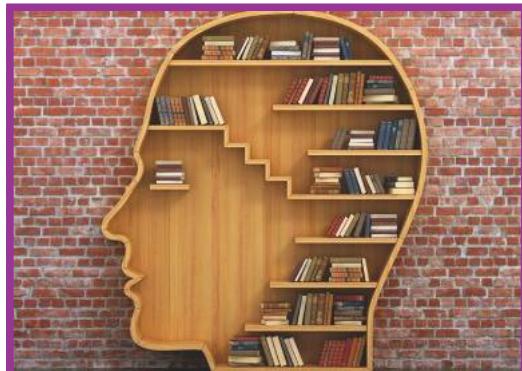
- ❖ know the differences between animals and human beings.
- ❖ understand the Good Values.
- ❖ know about the factors that enrich Good Values.



S2XJ43

### Man is a social animal.

Human beings are bestowed with senses. Human beings think and act using their senses. They are born free but bound in the social web. They cannot live alone. They need social and emotional support. To live in the society they need to develop some good values.





We are born with few values and rights. These values are further polished in educational institutions. The **aim of education** is to change a person into a **valuable human being**.



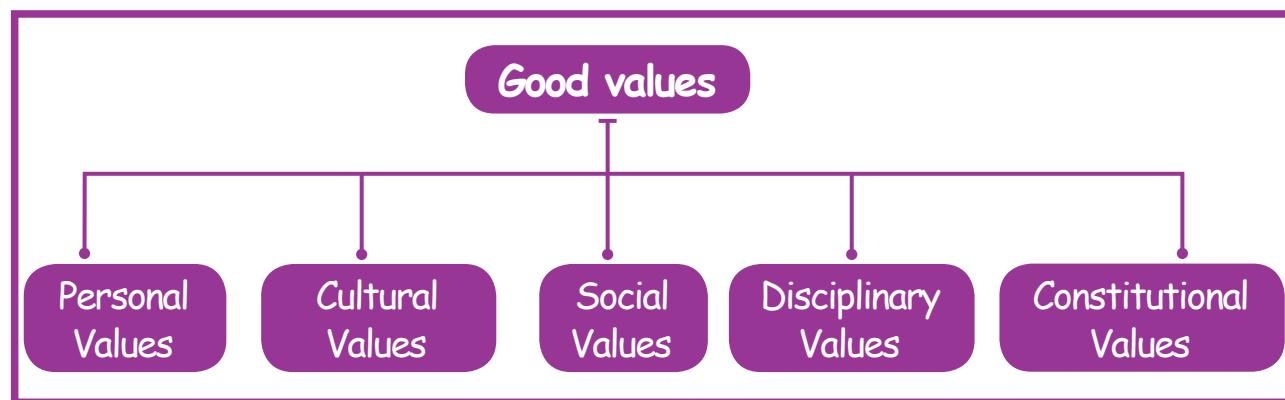
What do the above pictures say?

## Good values

**Good values** are the qualities of a person that keep the society running. These qualities can be developed by all. The term **civic** relates to **people** or **civilian** or **citizen of a country**. People should live together in **unity**. Despite all the disparities, living together in harmony is a significant value. Helping others is also an important value.



There should be no disparity among people and all are one. Today's children are tomorrow's citizens of the nation. **Moral and good values** have to be inculcated in children. So that they may become valuable citizens.



*World survives on morality.  
Selfishness is immoral and  
Selflessness is moral.*

*-Swami Vivekananda*



**ACTIVITY**  
**Let us write**

1. What is your mother tongue? \_\_\_\_\_
2. \_\_\_\_\_ is the best policy.
3. Main food of North India is \_\_\_\_\_.
4. \_\_\_\_\_ is the main food of South India.
5. How many languages do you know? \_\_\_\_\_



## Personal values

Personal value is the basic value for an individual. Some personal values are love, mercy, generosity, honesty, truth, friendship, hospitality, peace, tolerance, faith and so on.

The worksheet features a purple border with various icons: a group of five children at the top left, two pencils writing at the top center and right, and a large pencil on the right side. A purple box on the left contains an illustration of books and an apple, labeled 'ACTIVITY Let us write'. Below the box are six small decorative icons: a pencil, a book, a star, a flower, a heart, and a leaf. The main activity section is titled 'Fill in the blanks' and contains eight numbered statements for students to complete.

**Fill in the blanks**

1. We show \_\_\_\_\_ to all living beings.
2. Help the poor with \_\_\_\_\_.
3. \_\_\_\_\_ is the best policy.
4. The best relationship is \_\_\_\_\_.
5. We show \_\_\_\_\_ to our guests.
6. We show \_\_\_\_\_ to those who suffer.
7. Always speak the \_\_\_\_\_.
8. We must maintain \_\_\_\_\_ in public.

A boy with brown hair and blue eyes, wearing a green and white striped shirt, is shown with his hand to his chin in a thoughtful pose. To his right is a large, light-purple speech bubble with a dark purple outline. Inside the bubble, there are two numbered statements for the 'Think' activity.

**Think**

1. Grow trees to get  
-----
2. Millions benefit if they live  
-----



## Cultural values

Becoming well mannered and cultured is an essence of the society. Irrespective of language and religion people live together in **harmony**. This help to maintain **cultural values**. We are all humans. We must live together as brothers and sisters.



## Social values

How should you behave in public places?

We should maintain the following good values in public places.

- Maintain good relation with people
- Respect elders
- Protect nature
- Be tolerant
- Maintain friendship





### LET US KNOW

- King Sibi offered the flesh of his thigh to a starved hawk to save the wounded dove.
- To give justice to a cow, Manuneethi Cholan killed his son under the wheels of his chariot.
- King Pari offered his golden chariot to mullai, a creeper.
- King Pehan offered his shawl to a peacock which was shivering in the cold.

## Disciplinary values

Disciplinary values are punctuality, involvement, treating every one as equal, doing work on time, holding morals, discharging duties without fail and so on.

**ACTIVITY**  
Let us write

Circle the good values given above:

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



A **Citizen** is a person who is a member of a particular country and enjoys various rights and executes his duties. A sovereign state provides Right to live, Right to education, Right to vote, Right to work and reside anywhere in the country for its **Citizen**.

## Constitutional values:

- Safeguard public properties.
- Maintain unity and integrity of the nation.
- Develop scientific attitude.
- Protect natural resources.
- Care for the environment.
- Honour national symbols.
- Respect martyrs and their sacrifices.
- Preserve our cultural values and heritage.
- Develop patriotism.



**LET US  
KNOW**

- Do not violate the rules.
- Do not spit and dump garbage anywhere.
- Do not pollute land and water.
- Do not burn the old objects in streets.
- Do not break the white pumpkin (poosanikai) on the roads.





ACTIVITY  
Let us write

3 4 5 6 7 8

## Match the following



Dr. A.P.J.  
Abdul Kalam

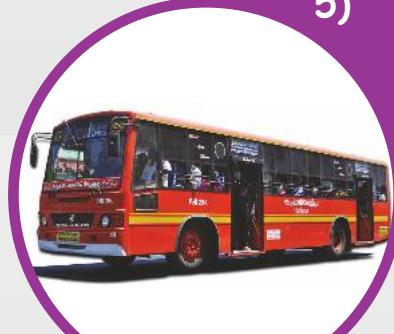


National  
Flag

- 1) Peace
- 2) Environment
- 3) Public property
- 4) National symbol
- 5) Scientific attitude



Mother  
Teresa



Bus



Tree



**Citizenship** is the right to live in a best way as a **civilian**. This includes a person's participation in Government activities too.



## Factors that enrich good values are:

- Literacy
- Awareness and interests
- Try hard till success
- Evaluate oneself
- Acceptance
- Self confidence

Each student should be taught to be hygienic which is the most significant part of **Good Values**. One must follow the routine below:

- Wakeup early in the morning
- Brush your teeth
- Have a bath
- Wear clean clothes
- Wear slippers or shoes
- Trim hair and cut the nails
- Wash hands before and after meals.



### Recap



### Glossary

- Offer** : give  
**Preserve** : protect  
**Self confidence** : belief in oneself

- Good values are developed by practicing them.
- Honesty is the best policy.
- Good values are classified into four types.
  1. Personal values    2. Cultural values
  3. Social values    4. Disciplinary values.



## EVALUATION



### I. Fill in the blanks.

1. Man is a \_\_\_\_\_.
2. The word civic means \_\_\_\_\_ of a nation.
3. The aim of education is to change a person into a \_\_\_\_\_.
4. \_\_\_\_\_ is the basic value for every individual.
5. Always be \_\_\_\_\_ in discharging duty.

### II. Match the following.

1	Personal value	Harmony
2	Cultural value	Affecting factor
3	Disciplinary value	Tolerance
4	Social value	Punctuality
5	Unemployment	Honesty

### III. Answer the following.

1. Define the term Citizen.
2. List out any five personal values.
3. Write a short note on cultural values.
4. What are the social values?
5. What are disciplinary values?

### IV. Answer in detail.

1. Write about the constitutional values.
2. Write any five factors that enrich good values.



### Learning Objectives

Students can:

- ❖ know about the Biosphere.
- ❖ understand the Atmosphere.
- ❖ understand the different types of wind and clouds.



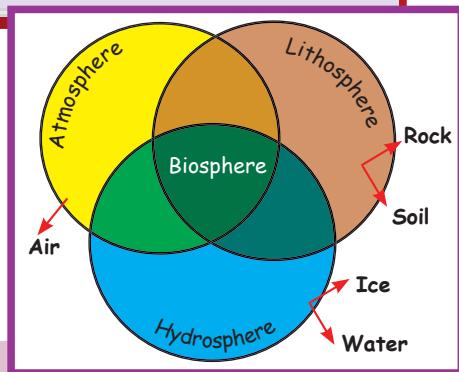
4YJDSY

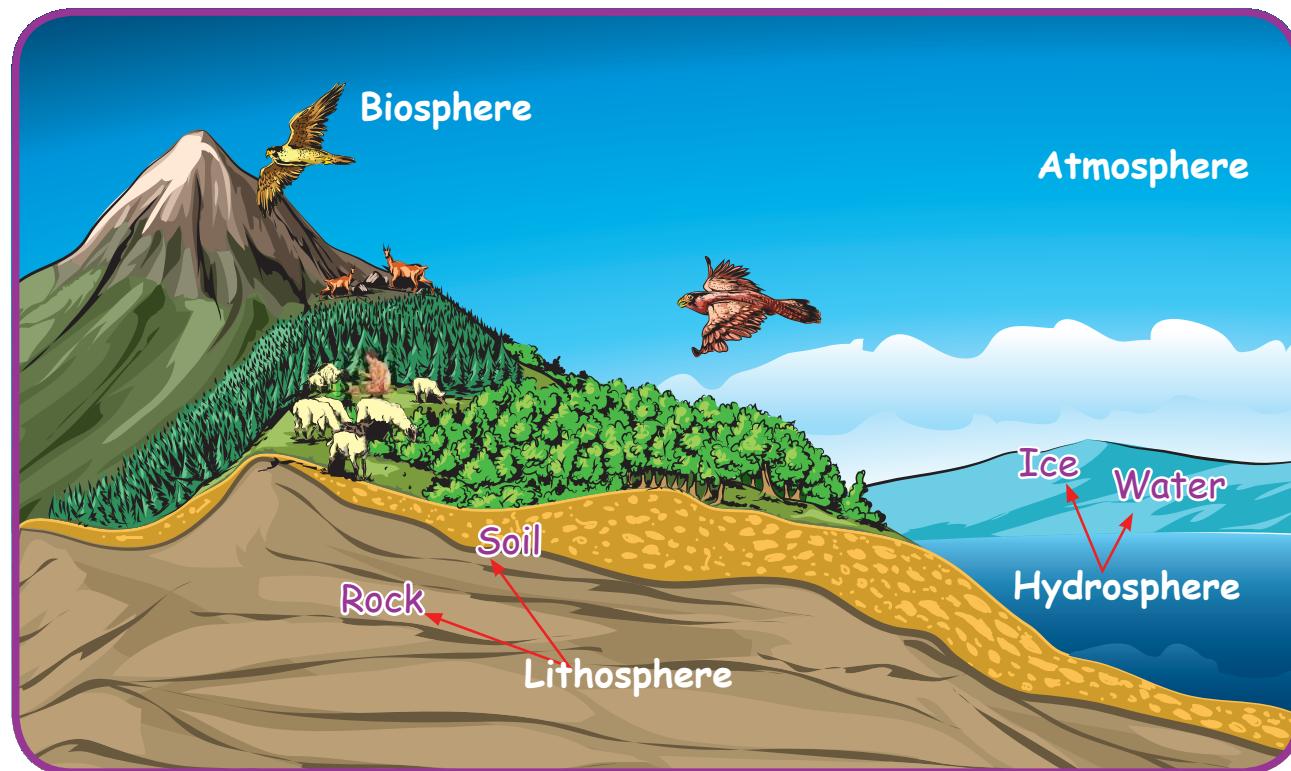
## Biosphere

Biosphere is the combination of **Lithosphere**, **Hydrosphere** and **Atmosphere** that can support life.



- **Lithosphere** - Land on Earth
- **Hydrosphere** - Water on Earth
- **Atmosphere** - Air on Earth
- **Biosphere** - Life on Earth





## Atmosphere

**Atmosphere** is the envelope of air around the Earth.

## Weather

Weather is a day to day conditions of atmosphere at any place in regard to temperature, pressure, wind, humidity and rainfall.

## Climate

Climate is the average weather condition of a vast area over more than 30 years.

**ACTIVITY**  
Let us do

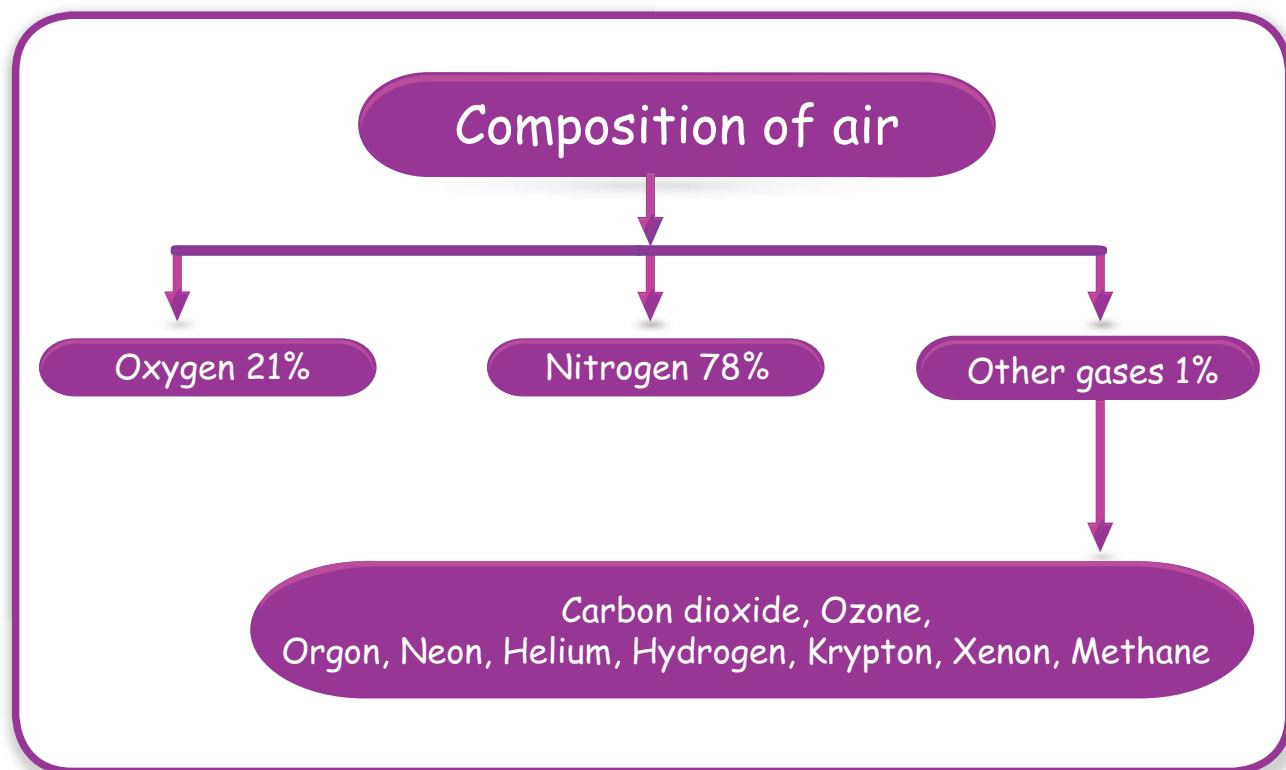
Take a ball and throw it up in the air observe the increasing speed of the ball when it comes down.



Think



When is **World Environment Day** Celebrated?

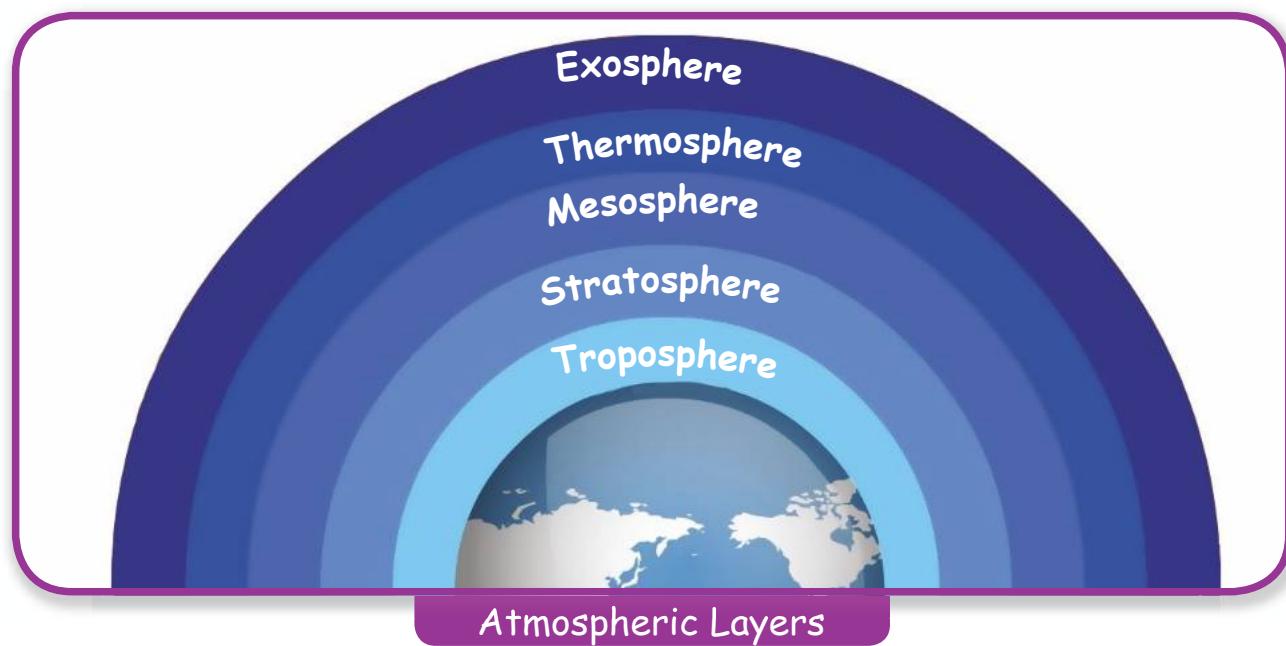


## Atmospheric Layers

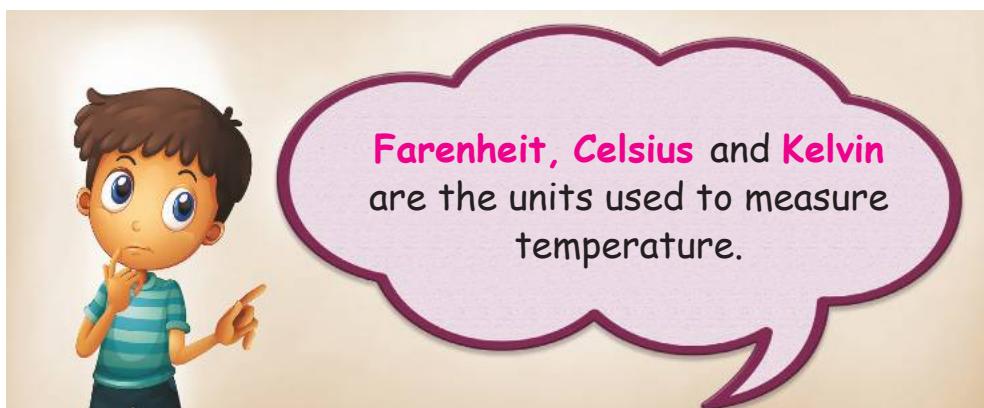
We know that the gravitational force increases near the Earth and decreases as we go higher. As a result the density of air also differs and can be found in five layers called **Troposphere**, **Stratosphere**, **Mesosphere**, **Thermosphere** and **Exosphere**. All weather changes occur in the **Troposphere**. The study of weather is called **Meteorology**.



The word **climate** is derived from the Greek word called **clima**.



World Meteorological Day - March-23  
World Ozone Day - September-16



**ACTIVITY**  
Let us do

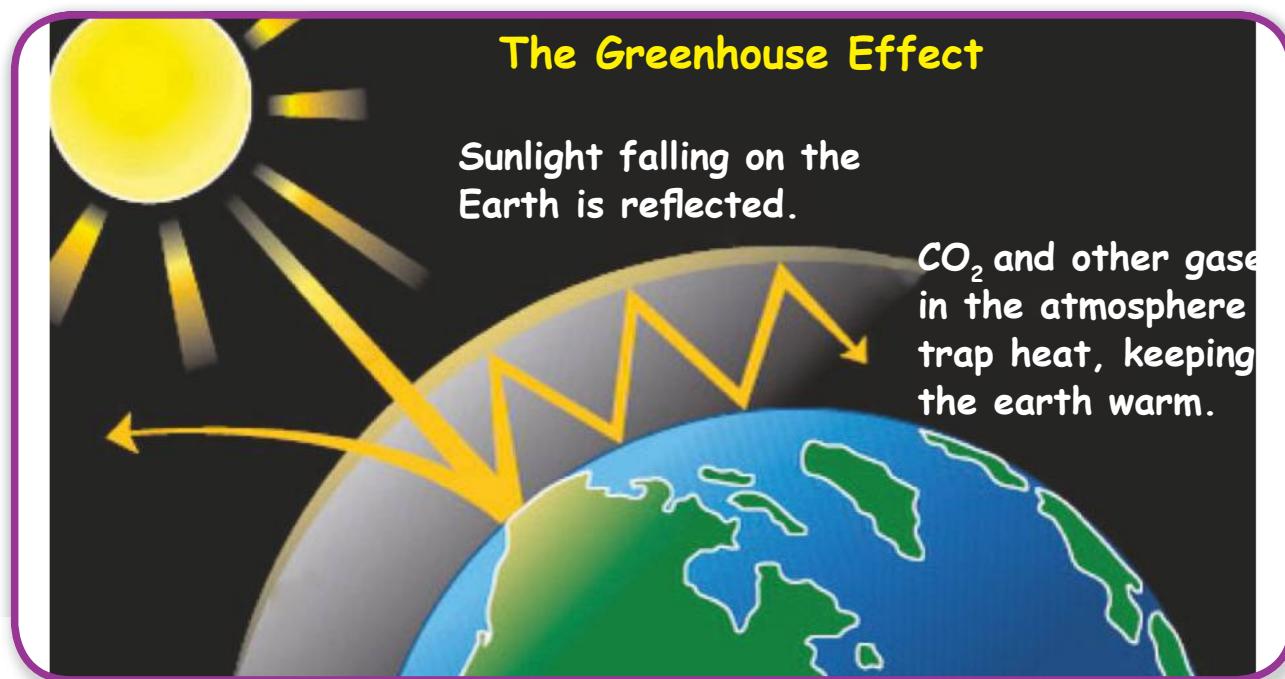
Oxygen \_\_\_\_\_  
Carbon dioxide \_\_\_\_\_  
Ozone \_\_\_\_\_

**Write the significance of the following gases.**



## Solar Radiation

The sun is the only source of light to all the planets in the solar system. The land, water and air in our planets receives heat from the sun. The Earth receives heat energy from the Sun in the form of radiation. It is called **solar radiation**.



## Elements of climate

- 1) Temperature
- 2) Pressure
- 3) Wind
- 4) Clouds
- 5) Rainfall

### 1) Temperature

- Land - Conduction
- Water - Convection
- Atmosphere - Terrestrial radiation

The earth has the capacity to reflect the sun's rays. The temperature is not same every where. **Latitude, altitude, distance from the sea, position of the mountains** are some of the factors that determine the temperature of a place.



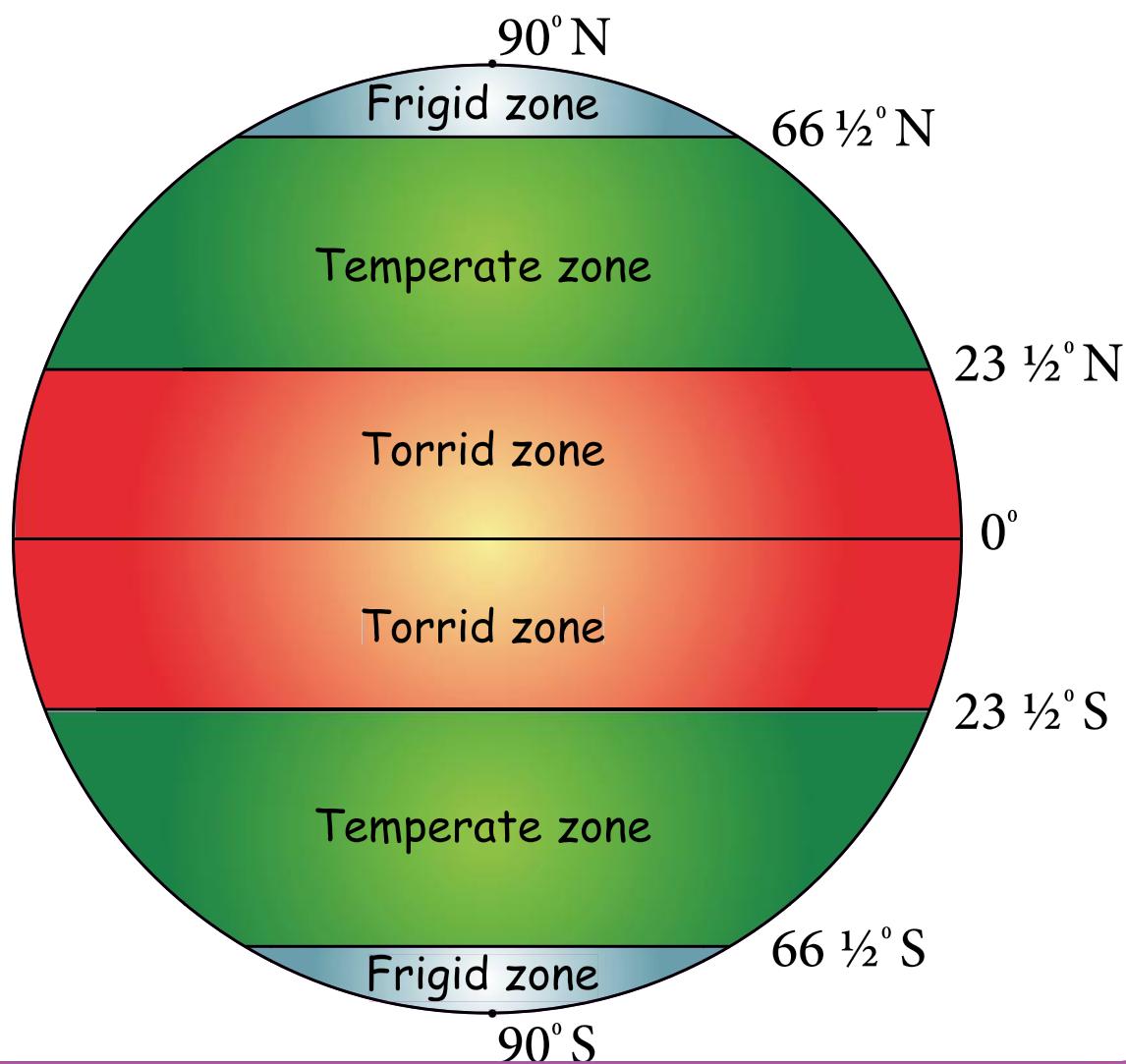
The imaginary lines drawn horizontally on the Earth surface from West to East are called **latitudes**.

The imaginary lines drawn Vertically on the Earth surface from North to South are called **Longitudes**.

**Latitudes and Longitudes** help us to locate a place correctly.



## Heat Zones of the Earth



Why does heat vary from morning to evening?

It is because of the sun's rays.

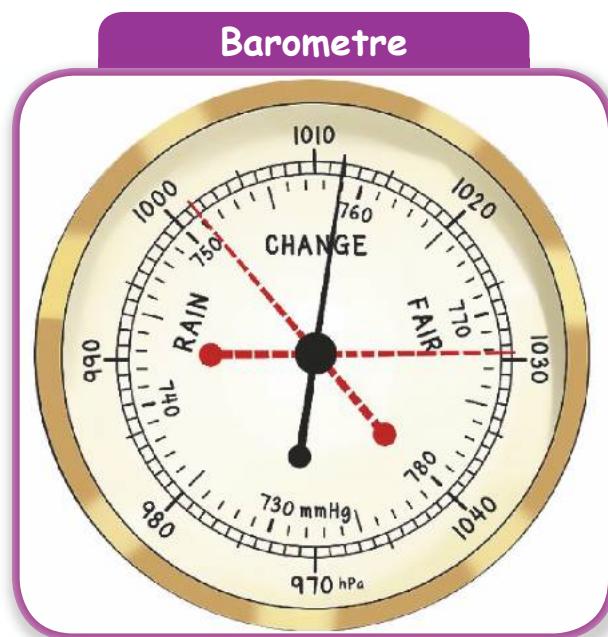
The land is divided into various heat zones according to the fall of sun's rays on the surface of the Earth.

- The zone between Tropic of Cancer and Tropic of Capricorn is called **Tropical or Torrid zone**, where the sun's rays fall vertically.
- The zone between  $23\frac{1}{2}^{\circ}$ N to  $66\frac{1}{2}^{\circ}$ N latitude and  $23\frac{1}{2}^{\circ}$ S to  $66\frac{1}{2}^{\circ}$ S latitude which receives slanting rays of the sun is called **Temperate zone**.
- The zone which receives the extreme slanting rays of the sun and experiences extremely low temperature is called **Frigid zone**.



## 2) Pressure

When the temperature increases, pressure decreases and when the temperature decreases, pressure increases.



The average pressure of wind at sea level is **1013 mb.** (milli bar)

The instrument which is used to measure the pressure of the wind - **Barometre**



The instrument which is used to measure the speed of the wind - **Anemometre**



The instrument which is used to measure the direction of the wind is **Wind Vane**



### 3) Wind

The air which moves horizontally from high pressure area to low pressure area is called **wind**. Air never moves in one direction. It differs from place to place and time to time. This is due to the rotation of the earth.

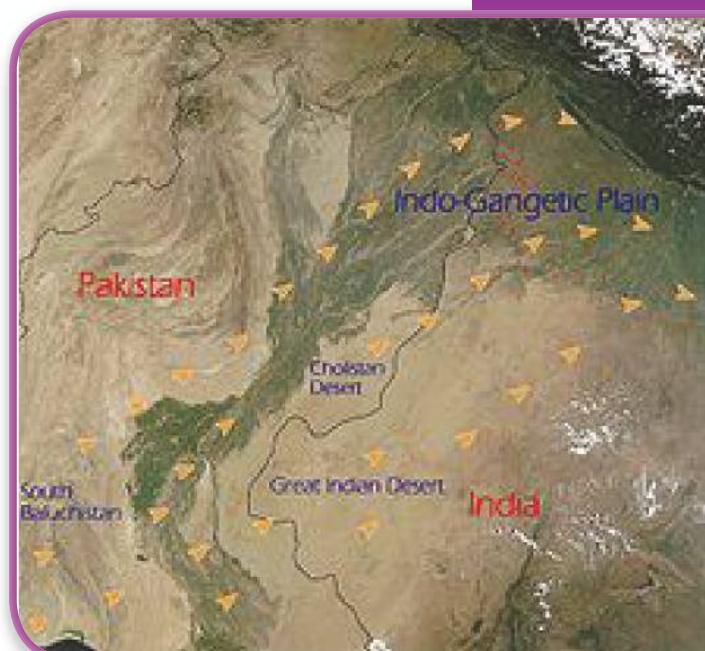


**Wind energy** is a form of renewable energy. Wind turbines converts the kinetic energy into **mechanical energy**. A generator can convert mechanical energy into **electrical energy**.

Wind Mill



Loo Wind



**Loo Wind**

**Loo** is a strong, dusty, hot and dry summer wind which blows over the **North Western India** during the months of May and June.



## Different types of wind

### Planetary wind

This wind blows in the same direction throughout the year.

### Monsoon wind

The word monsoon is derived from the Arabic term 'mausim' which means season. Monsoon wind is the seasonal wind.

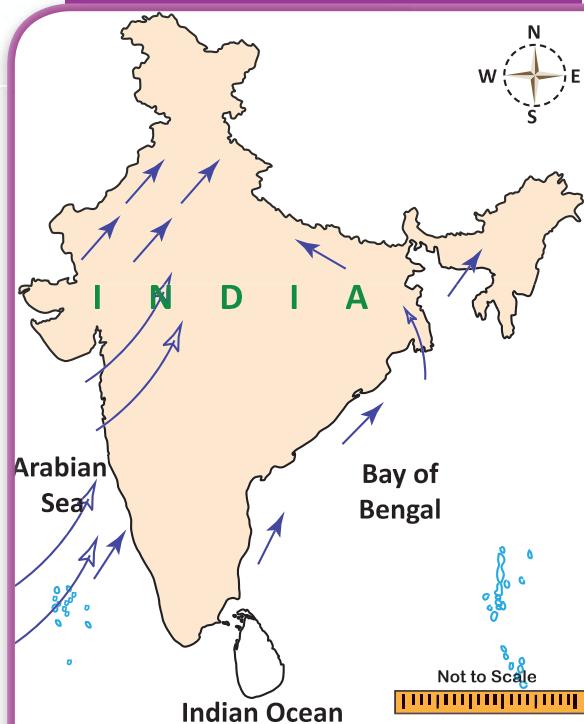
#### Types of Monsoon winds in India

● South West monsoon wind

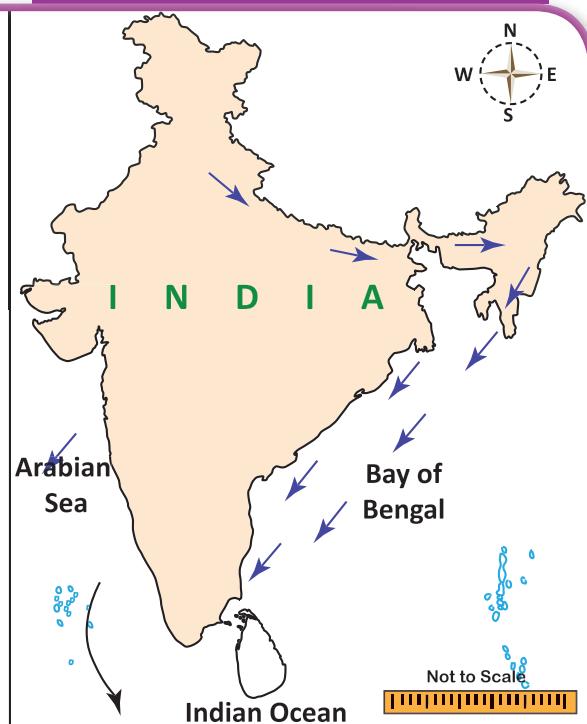
● North East monsoon wind



Direction of  
South West Monsoon Wind



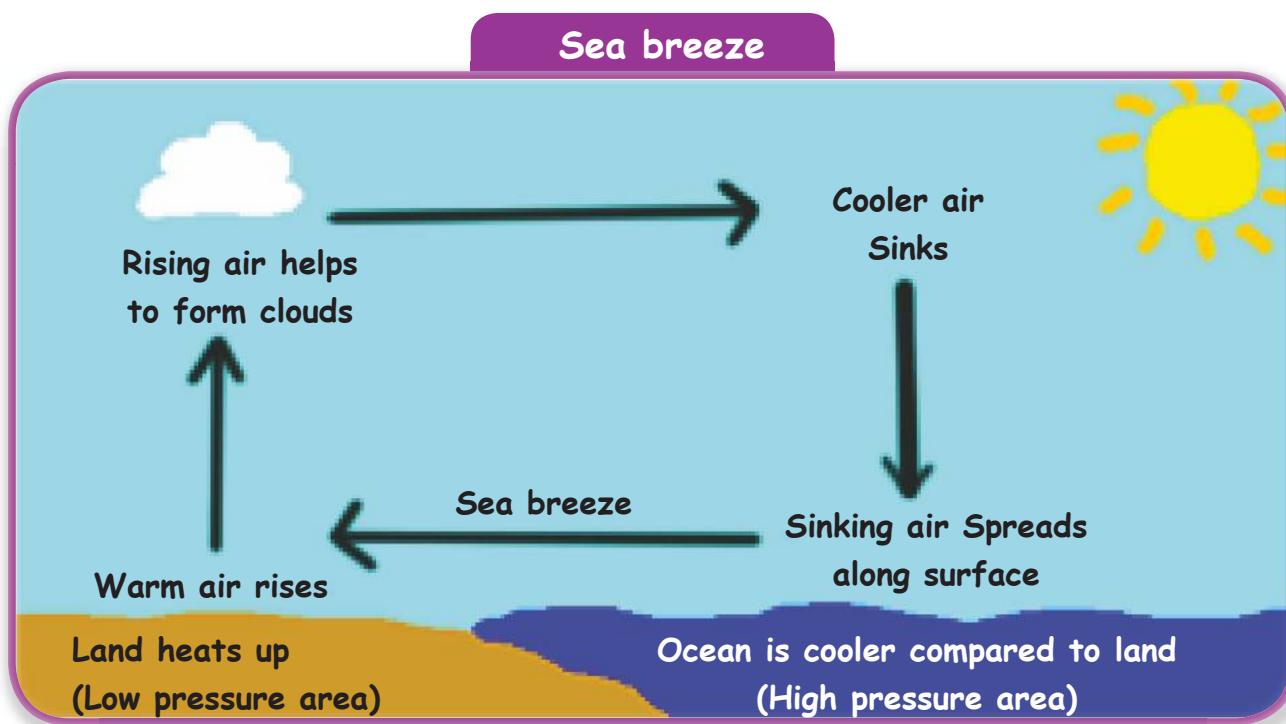
Direction of  
North East Monsoon Wind





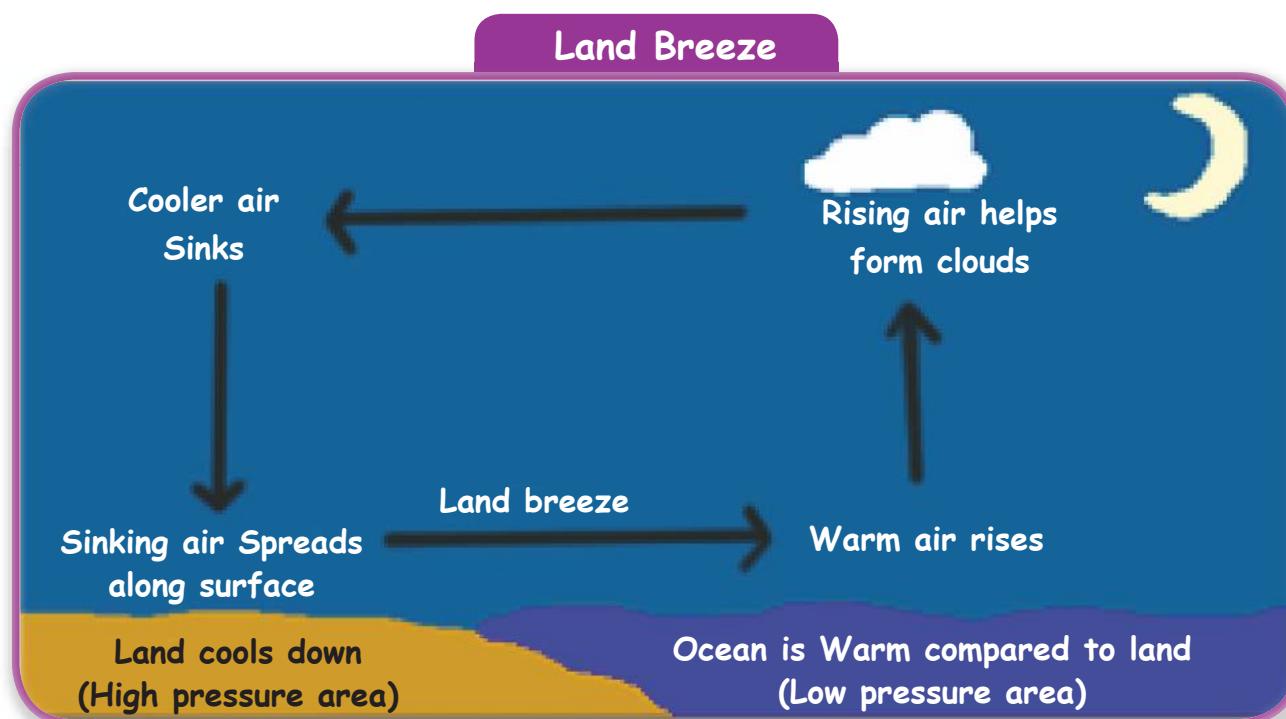
## Sea breeze

Sea breeze blows from **sea to land** in the evening.



## Land Breeze

Land Breeze blows from **land to sea** in the morning.





## Local wind

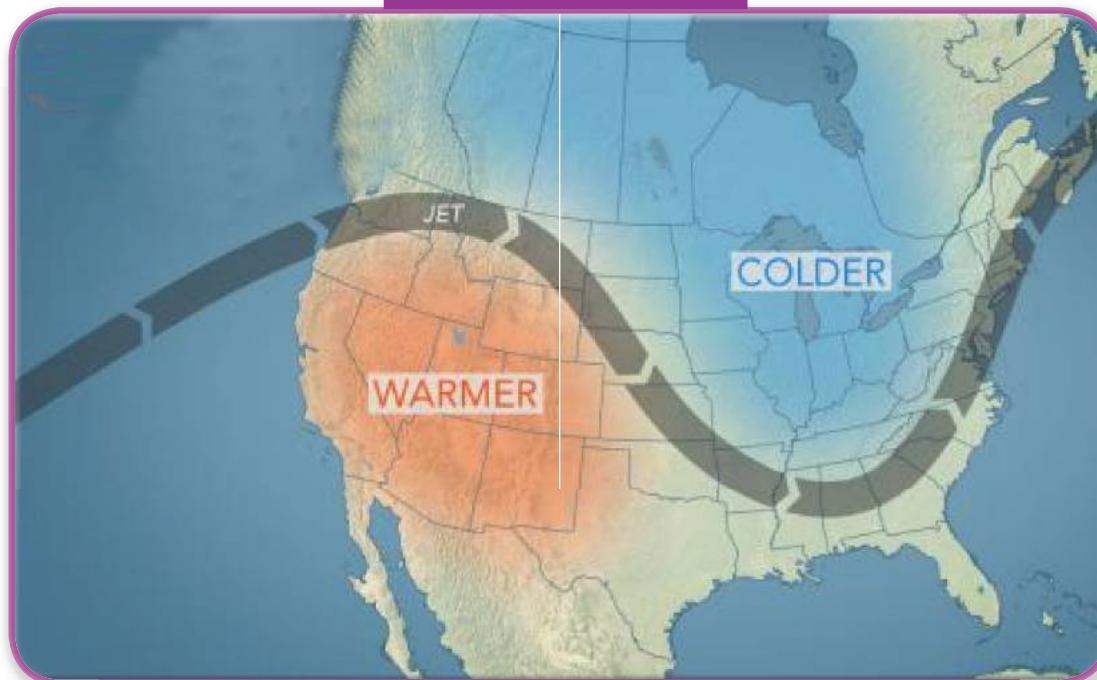
Local wind affects the weather.

- Warm local wind - North West India. E.g. Loo
- Cool local wind - North East India E.g. Norwesters.

## Jet streams

Air currents in the upper layers of atmosphere is known as **Jet streams**. It could determine the arrival and departure of monsoon winds in India.

Jet streams



## Cyclone (Hurricane)

Cyclone changes its position and direction with time to time. The speed of wind also changes with time. It gives heavy rainfall.

Cyclone (Hurricane)





## 4) Clouds

Clouds are large collection of very tiny droplets of water. These are divided into four types on the basis of appearance and height. They are:

- Cirrus clouds      ● Stratus clouds
- Cumulus clouds      ● Nimbus clouds

### Cirrus cloud

**Cirrus cloud** appears like a silver grey fish at a very high altitude in the sky. These may not give rain.

**Cirrus cloud**



**Stratus cloud**



**Stratus cloud**

**Stratus cloud** is grey in colour and are spreadout. They may give small shower.

**Cumulus cloud**



### Cumulus cloud

**Cumulus cloud** looks like a Puffy White cotton and gives convectional rainfall. These clouds are associated with rainfall, lightning and thunder.

**Nimbus cloud**



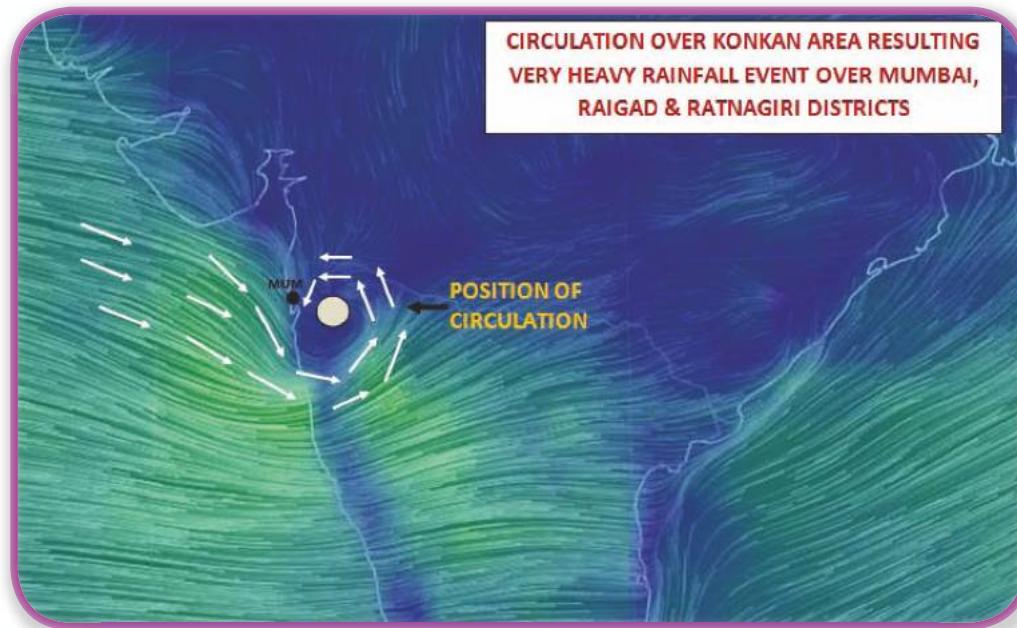
**Nimbus cloud**

**Nimbus cloud** appears as dark or grey in colour. It gives heavy rainfall. It is called vertical or rain clouds.



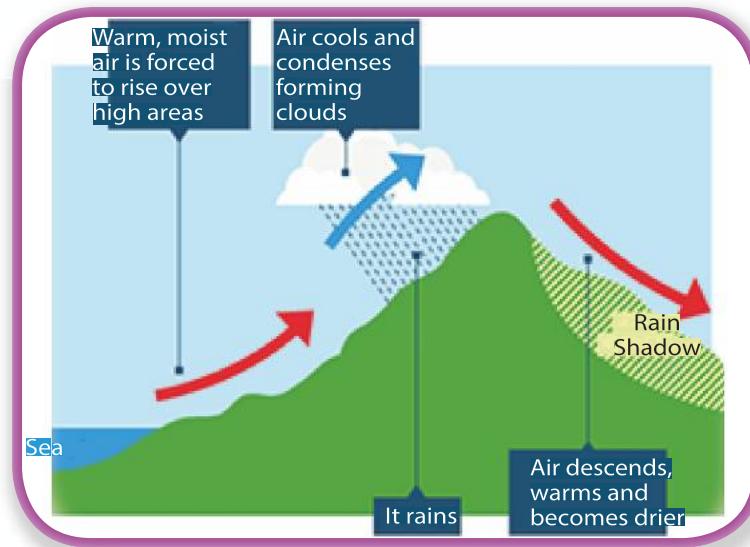
## 5) Rainfall

Condensation of the Water vapour causes **rainfall**. Rain water must be saved and not be wasted.



### Convectional Rainfall

During summer solar insolation takes place in land and water evaporates from **lakes, ponds, seas, oceans** and **vegetations**. Due to this, a heavy rainfall with lightning and thunder occurs in the evening for a short period.

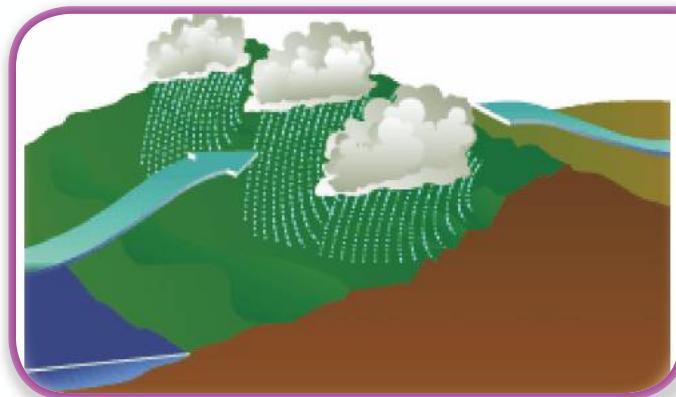


The natural materials and living things, including sunlight are called **natural environment**.



## Orographic Rainfall

When the moisture laden winds from the sea rises as it moves over a mountain range, it becomes cool and causes heavy rainfall. The opposite side of the mountain is called Leeward side. It receives very little rainfall.



## Cyclonic rainfall

The warm air from the hot area is heated and moves upwards. Hence a low pressure area is developed and it attracts air from high pressure area. Owing to Earth's rotation a circular motion of winds develop. It gets cooled and brings heavy rainfall.

## Rain water harvesting

Rain water harvesting is a technique of collection and storage of rainwater into natural reservoirs or tanks, or the infiltration of surface water into subsurface aquifers (before it is lost as surface runoff). One method of rainwater harvesting is **Rooftop Harvesting**.



### Recap



## Glossary

<b>Condensation</b>	: process of gas changing to liquid
<b>Reservoir</b>	: large lake
<b>Vegetation</b>	: plant

- Biosphere is the combination of lithosphere, hydrosphere and atmosphere that can support life.
- Climate is the average weather condition of a vast area over more than 30 years.



## EVALUATION

### I. Fill in the blanks.

1. The atmosphere is divided into \_\_\_\_\_ layers.  
a) four      b) five  
c) six      d) seven
2. The Earth receives heat energy from the \_\_\_\_\_  
a) Moon      b) Mars  
c) Sun      d) Venus
3. World Meteorological Day  
a) March-20    b) March -21  
c) March-22    d) March-23
4. The study of weather is called \_\_\_\_\_.  
a) Meteorology    b) Ecology  
c) Archaeology    d) Sociology
5. Zone located in between Tropic of cancer and Tropic of Capricorn is \_\_\_\_\_ zone  
a) Temperate    b) Subtropical  
c) Cold    d) Torrid
6. \_\_\_\_\_ is used to measure pressure in the air.  
a) Barometer    b) Thermometer  
c) Anemometer    d) Wind vane





7. Monsoon is derived from the \_\_\_\_\_ word.
- a) Greek      b) Arabian  
c) English      d) Latin
8. Vertical cloud is called \_\_\_\_\_.
- a) Cirrus cloud b) Stratus clouds  
c) Cumulus clouds d) Nimbus clouds.
9. \_\_\_\_\_ clouds give convectional rainfall.
- a) Cirrus      b) Stratus  
c) Cumulus      d) Nimbus
10. Statement I - The instrument used to measure wind direction in wind vane.  
Statement II - Light travels faster than sound.
- a) Statement I is True, II is False  
b) Statement I,II are True  
c) Statement I,II are False  
d) Statement I is False, II is True

### II. Fill in the blanks.

1. The instrument used to measure heat \_\_\_\_\_.
2. The imaginary lines drawn parallel to the surface of the earth is \_\_\_\_\_.
3. Sea breeze blows from \_\_\_\_\_ in the evening.
4. \_\_\_\_\_ are rain clouds.

### III. Match the following.

1	Cirrus clouds	Grey sheet
2	Stratus clouds	Storm cloud
3	Cumulus clouds	do not give rain
4	Nimbus clouds	Looks like Puffy White cotton



#### IV. State True/ False.

1. All weather changes occur in the Troposphere. ( )
2. Latitudes and Longitudes help us to locate a country. ( )
3. Atmosphere gets heated by conduction than solar radiation. ( )
4. The main reason for the change of wind direction is to Earth rotation. ( )
5. Cyclone moves in anti-clock-wise direction. ( )

#### V. Answer the following.

1. What is climate?
2. Name the atmospheric layers.
3. Write a short note on the Nimbus clouds.
4. Write a short note on the orographic rainfall.

#### VI. Answer in detail.

1. Write about Jet Streams.
2. Explain the types of winds.

**Project**

**Draw Heat Zones.**



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