Environmental Studies

5

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Preface

Sapphire Publication book has been specially designed keeping on mind requirement of the students.

Our purpose in developing this series is to provide path-breaking, interactive, joyful experience for both teachers and students. The topic here have been specially structured keeping in mind the primary objectives of incorporating that covers all the aspects of a student's development.

Each chapter has focused and highlighted a variety of topics based on the world around us; bringing out interest of child. Along with these knowledge based evaluation is carried out with the skill sheet for practice.

Special Features :

1. Course book is supported with for practice sessions based on the chapters provided Activity Bag and Project Bag .
2. Activity Bag and Project Bag are designed to reinforce for entire learning experience with child-friendly illustrations.
3. It links learning of the child through activity approach.

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Environmental Studies

Published By

Designed by : Blue Leaf

Content

Skeletal and Muscular System

Chap. 1

Learning Points

After completing this chapter we will be able to know about:

- The various parts of skeletal system and muscular system
- The structure and functions of this parts
- The muscles and movement
- The circulation of blood
- The significance of joints in the body
- The circulatery system

The human body is a wonderful machine. It performs different kinds of work at a time. It is made up of several organ system that all works together as a unit to make sure body keeps functioning and performs different kinds of functions at the same time. In this chapter we will study about skeletal and muscular systems.

Identify the given pictures of some organs of our body. In which organs are situated inside our body? Put a (T) on it.







The Skeletal System

It is a rigid framework of the bones. It provides the shape and strength to the body. It protects all the internal organs of the body. It also helps in the movement of body parts. An adult human has 206 bones of different sizes and shapes in his body.

The skeletal system consists of the skull, the backbone, the ribcage and the limbs. These limbs are attached to two pairs of girdles : shoulder girdle and hip girdle.


Skeletal System

The Skull : It is a bony framework of the head. It protects the brain. It is made up of 22 bones.

The skull consists of 14 facial bones and 8 cramial bones.

The cramial bones make up a frame around the brain.

The facial bones make up the upper and lower jaws and other facial structure.

Skull

Facial Bone

Except the lower jaw all other bones in the skull is fixed. It enables us to eat and talk.

The Backbone : The skull is attached to the backbone which forms the balance of skeleton. The backbone is also known as spine or the vertebral column.

Backbone

Knowledge Corner

- Teeth are the hardest substances in our body.

It consists of 33 irregular shaped bones called the vertebrae.

These bones make a strong framework which protects the spinal cord.

The backbone enables us to stand upright and maintain our balance.

The Rib Cage : Ribs are thin, flat and curved bones. They form a protective bony cage around the heart and the lungs.

There are 12 pair of bow-shaped bones.

The ribs are joined to the backbone and the breast bone.

The lowest two pairs called the floating ribs are joined only to the backbone.

Rib Cage

Apart from protecting the heart and the lungs the ribs also protect parts of the stomach, kidneys and spine.

The Limbs : The human body has two pairs of limbs : the forelimbs or the arms and the hindlimbs or the legs.

The powerful thigh bone is called femur is the longest bone in the body bears the weight of the whole body. The long bones of the skeleton are hollow and are filled with a soft fatty substance called bone marrow.

Limbs

Functions of Skeleton

- The skeleton gives shape, strength and support to our body.
- The skeleton protect internal delicate organs from shock.
- Muscles are attached to bones and make movement possible.
- Bone marrow produces white blood cells and red blood cells.

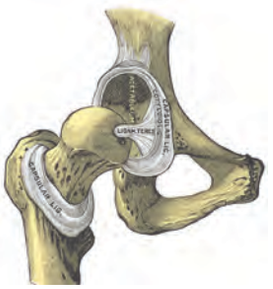
Joints

The places where two or more bones meet or join together are called joints. The bones are held together at the joints by the tissues called ligaments. All the joints except those in the skull are movable. The bones in the skull are interlocked, making the joints immovable.

There are four types of movable joints : the hinge joints, the ball and socket joint, the pivot joint and the gliding joint.

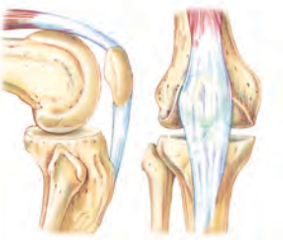
1. The Hinge Joint : This type of joint allows movement in one direction similar to the hinges of door. The elbows, knees, fingers and toes have hinge joints.

Hinge Joint



Ball and Socket Joint

2. The Ball and Socket Joint : In this joint the ball-like end of one bone fits into a cup like cavity (socket) of the other bone. It allows movement in all directions. Hip and shoulder joints are of this type.



Pivot Joint

3. The Pivot Joint : This joint allows rotation only. In this joint the round surface of one bone fits into a ring formed by the other bone. This joint is found between the skull and the first two vertebrae of the spine. We can move our head sideways, upward and downward with the help of pivot joint.

4. The Gliding Joint : The joint allow the movement at the wrist and ankle. It allows our back to bend, twist and turn at each joint.

Gliding Joint

Muscular System

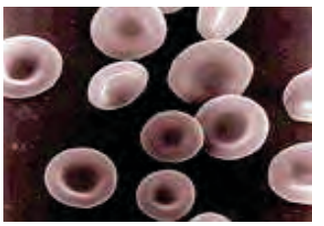
Muscular System

The muscular system consists of the muscles which are attach to the bones by storing fibers called tendons. A muscle is an organ made up of muscle tissue. Muscle tissues are made up of long thin muscle cells, which are arranged in bundles called muscle fibres.

There are three different type of muscles in our body. Muscles that are under our control are called voluntary muscles. We can do what we want with them. The muscles of our hands and legs are voluntary muscles.

The muscles which are controlled automatically by our body are called involuntary muscles. They work on their own. For example : the muscles that move the food through the food pipe.

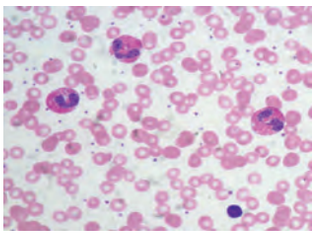
The third type of muscles are cardiac muscles which are found in our heart. They help the heart to pump the blood all over body. They work continuously without stopping and without getting tired.


Red Blood Cells

To keep the muscles in good, shape we must maintain a good posture while we sit or stand or walk.

The Circulatory System

The heart and blood vessels form the circulatory system. It is responsible for circulation of blood to all parts of the body. Circulation of blood takes place with the help of arteries, veins, capillaries and heart.

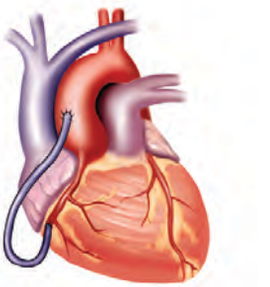

White Blood Cells

Blood : It is a red coloured liquid which flows inside the blood vessels. It consists of a liquid part and a number of different kinds cells which are present in the liquid. Blood cells are of two types :

1. Red Blood Cells (RBCs) : They carry oxygen from the lungs to different parts of the body. They also help to remove carbon dioxide from the body.
2. White Blood Cells (WBCs) : They help to fight from infection. There are another type of blood cells that help in clothing of blood. These cells are called platelets. Blood cells also carries away the waste material from different parts of the body.

Blood Vessels : Blood flows throughout the body through a network of fine tubes called the blood vessels. There are three types of blood vessels :

1. Arteries : Arteries are situated a little deeper in the skin. They carry blood from the heart to the capillaries.
2. Capillaries : These are the thinnest blood vessels like thread. They carry blood to every cell of the body. When the blood leaves on organ, capillaries join together to form larger and larger vessels and ultimately form the veins.
3. Veins : These are the thick tubes. They carry blood from all the organs of the body back to the heart.


Heart

Circulation of Blood

The movement of blood through the heart and around the body is called circulation. The circulation of blood in the body takes place in the following manner:

The heart pumps blood to various parts of the body through blood vessels.

The left side of the heart pumps out oxygen rich blood throughout the body via the arteries. The body takes oxygen from the blood and uses it. In turn it release carbon dioxide

and waste into the blood. The right side receives blood containing carbon dioxide from all parts of the body and sends it to lungs.

Blood is pumped to the lungs by the right ventricle for removal of carbon dioxide and enrichment with oxygen. The oxygen-rich blood now enters the heart again through the left auricle and the process continues.

POINTS OF VIEW

- The skeletal system is a rigid framework of bones that gives the shape and strength of body.
- The skeletal system consists of the skull, the backbone, the ribcage and the limbs.
- The place where two or more bones join together are called joints.
- The voluntary muscles are worked under our control whereas involuntary muscles are not.

Exercise

A. Tick (✓) the correct option :

1. The brain needs a continuous supply of blood and _____ .
   (a) oxygen ☐ (b) nitrogen ☐ (c) carbon dioxide ☐
2. Which of these has immovable joints ?
   (a) Skull ☐ (b) Shoulder ☐ (c) Hinge joint ☐
3. This joint allows the maximum movement _____ .
   (a) pivot joint ☐ (b) gliding joint ☐ (c) hinge joint ☐
4. How many bones does the skull consist of ?
   (a) 32 ☐ (b) 33 ☐ (c) 24 ☐
5. The bones are held together at the joint by the tissue called _____ .
   (a) ligament ☐ (b) tendon ☐ (c) ribs ☐
6. The blood vessels that carry blood away from the heart are called :
   (a) arteries ☐ (b) veins ☐ (c) capillaries ☐

B. Fill in the blanks :

1. The _____ controls the working of all organs.
2. The skeletal system is a rigid _____ of the bones.
3. The rib cage consists of _____ bones arranged in _____ pairs of ribs.
4. The vertebral column protects the delicate _____ cord.
5. The _____ are the strong tissues which hold the bones together.
6. The _____ bone bears the weight of the whole body.

C. Write True or False statement :

1. The digestive system helps in the digestion of food. _____
2. The skeletal system provides the shape and strength to the body. _____
3. The skull is made up of 32 bones. _____
4. Ribs are thin, flat and curved bones. _____

5. The human body has four pairs of limbs. _____
6. The heartbeat of an adult human being at rest is between 65-75 per minute. _____

D. Give examples of these joints :

1. Pivot joint _____
2. Fixed joint _____
3. Hinge joint _____
4. Gliding joint _____
5. Ball and socket joint _____

E. Where will you find the following :

1. Tendon
2. Ligament
3. Cardiac muscle
4. Pivot joint
5. Hinge joint
6. Gliding joint

F. Answer the following questions :

1. How is skeleton useful to us ?
2. Explain ball and socket joint with diagram.
3. How can we keep our muscles in good shape ?
4. What are the functions of blood ?
5. Explain the process of blood circulation in detail.
6. Differentiate between :
   (a) Tendon and ligament (b) Skeletal muscles and smooth muscles

Form a group of six students. Sit down quietly in a circle for a few minutes. Take a few deep breathes and relax. Now measure the pulse rate of each member of the group. Do all of them have the same pulse rate?

Each member of the group should now jump 30 times on the spot. Check the pulse of each member as soon as they finish. Check it again after they have rasted for five minutes.

Record your results in a table like this one:

Name of Person	Pulse Rate at Start	Pulse Rate After Exercise	Pulse Rate at End

Can you say why your pulse rate changed after exercise.

Health and Hygiene

Chap. 2

Learning Points

After completing this chapter we will be able to know about :

- The importance of healthy food.
- The importance of keeping fit.
- The communicable and non-communicable diseases.
- The preventive measures that can be taken to prevent diseases.
- The importance of vaccination.

A good living is possible only when we live a healthy life. A healthy life is possible when we remain physically fit and free from any disease. To remain healthy, we must eat nutritious food, stay active and follow the rules of cleanliness.

Look at the following pictures. Tick (✓) the food items that are healthier to our body.









Food

Food is our basic need. Food contains nutrients. The materials in the food which help us to remain healthy are known as nutrients. The food we eat contain five main components. They are : carbohydrate, fat, protein, vitamins and minerals. Our body needs all these components to remain healthy.

1. Carbohydrate : Carbohydrate provides energy for our body. The rich sources of carbohydrate are bread, rice, wheat, sugar, fruit juices, sugar, potato, honey and corn.


Potato


Wheat


Rice


Honey

2. Fat : It also provides energy to the body. The extra carbohydrate consumed by the body gets converted into fat which is then stored in the body. Fat also give structure to the cells. Meat, vegetable oil, milk, butter, ghee, cheese, cream and dry fruits are some sources of fat. Intake too much fat results in a person becoming obese. This condition is harmful. Obesity can also cause heart diseases and diabetes.


Butter


Ghee


Oil


Chicken

3. Protein : It helps the body to grow and to repair our cells. Most of the protein are found in animal's product like chicken, fish, eggs, milk, cheese. Some plant products such as pulses, soyabeans, peas, beans are also rich in sources of proteins.


Egg


Fish


Chicken


Cheese

4. Vitamins : There are required by the body in very small amounts. Vitamins protect our body from diseases and keep us healthy and strong. There are 13 vitamins needed by our body. Fruits, green leafy vegetables, eggs and flesh are some sources of vitamins. Less or more of any particular vitamin may lead to diseases.


Fruits


Vegetables


Eggs


Mutton

5. Minerals : Just like vitamins minerals help in keeping our body healthy. They strengthen bones and maintain a normal heart beat and help in the growth, replacement and repair processes. Iron, calcium, Iodine and phosphorus are some important minerals required by our body. Lack of vitamins and minerals in our body can cause disease. Lack of calcium in diet makes the bones weaker and fragile. Egg yolk, meat, milk, butter, green vegetables, fruits and pulses are rich in minerals.


Fish


Iodised Salt


Minerals


Green Vegetables

6. Water and Roughage : These are important component of food. About two-third of our body is water. We cannot imagine life without water. Water regulates the body temperature. Water is good solvent for many universals and vitamins.


Water


Roughage

Roughage helps our body to get rid of waste easily and keeps the muscles of intestine in good working order. So, we should drink plenty of water and include food stuff containing roughage in our diet.

Balanced Diet

Our body needs all the components of food in adequate amount for the proper growth and functioning of the body.

A diet that contains adequate amount of different components of food for proper functioning of the body is called a balanced diet.


Balanced Diet

Different age groups need different types of food. Small children and growing adults need more of proteins and all vitamins and minerals. Old people need not to eat heavy food : People who do a lot of physical work like labourers, sports person, need a lot of energy-giving food. But we should remember to eat food from all food groups. Be physically active everyday walking, running, climbing stairs and playing will help you to stay fit.

Rest

Everyone need rest for the proper functioning of the body. New born baby sleep most of the day. Adults need 6-8 hours of continuous sleep in a day to remain healthy. If we do

not take sufficient sleep we could not do our work properly. Watching television late at night is not a good habit. So proper hours of rest are important to stay healthy and energized.

Rest

Exercise

Exercise is very important for our health. The benefits of exercising regularly are :

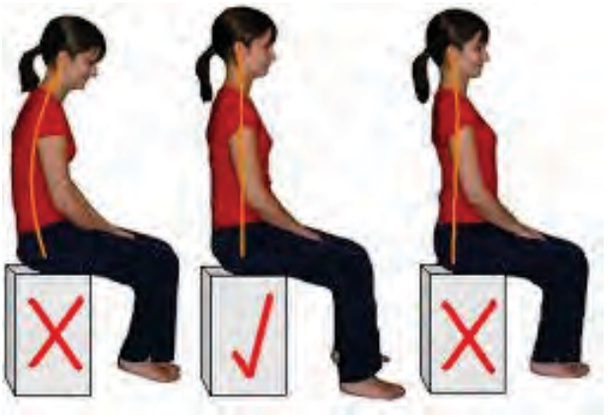
- Improvement in the blood circulation in the body.
- Development of stronger muscles and bones.
- Maintenance of the body in a good shape.

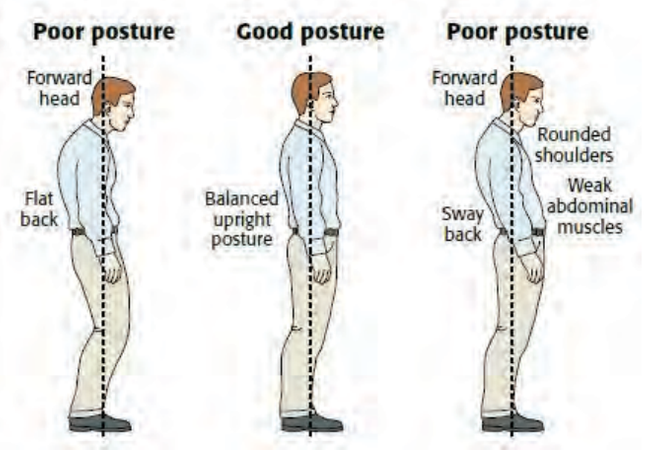
Apart from these playing game like cricket and football and swimming and dancing are good exercises. More over yoga, an ancient system of exercise practised in India is also a good exercise.

Exercises

Posture

The term posture refers to the position in which we hold our body upright while standing, sitting, moving or lying down. We must stand, sit and walk in such a way that our back remains always straight. Incorrect posture over a long period of time can lead to backache, muscular pain, strain and stress on body parts.





Disease

A disease is a state in which a function or a part of the body is no longer in a healthy condition. However disease can also occur due to other reasons. Disease are broadly classified into two types — non communicable and communicable.

Non-communicable Disease : Diseases that do not spread from one person to another are called non-communicable diseases. Some of the non-communicable diseases are caused due to the deficiency of particular vitamin or mineral. These are called Deficiency Diseases.

Disease due to lack of certain component in the diet can be easily cured by including a particular food item rich in that component :

Deficiency Disease

Name of the Disease	Cause by to Deficiency	Food Containing vitamin/minerals
Night blindness	Vitamin A	All yellow fruits & vegetables, papaya, carrot, mango, milk, butter, and egg yolk
Beri-Beri	Vitamin B	Milk, peas, cereals, eggs, meat & green vegetables
Rickets	Vitamin D	Milk and milk products
Scurvy	Vitamin C	All citrus fruits amla, orange, lemon and tomato
Goitre	Iodine	Iodized salt
Anaemia	Iron	Spinach, apple, guava, brinjal and meat

Some non-communicable disease are present at birth. But most of them depends upon one's life style. For example, a deficiency of iodine in the diet may cause disease called goitre. On the other hand excess intake of food stuff and lack of exercise may cause obesity.

2. Communicable Disease : Diseases that can spread from one person to another through a living or non-living agent are called communicable disease.

Communicable disease can be caused by living agent like :

(i) Virus (ii) Bacteria (iii) Protozoa (iv) Fungi (v) Insect

Disease like measeles, typhoid, cholera, malaria, aids, rabies, mumps, chicken pox, hepatitis, diptheria and leprosy are some communicable disease.

Disease like measels are spread by very small organism called germs when an infected person cough or sneezes these germs are released into the air and can infect a healthy person. Sharing an infected person's handkerchief, clothes etc., also spread these germs to a healthy person.

Insects like flies transfer disease causing germs when they set on food stuff. These food and water containing germs can cause disease like typhoid and cholera.

The living organism which can transfer the disease are called carriers. Example mosquito is a carrier for malaria, dengue, elephantiasis.

We should remember that all the communicable diseases can be avoided by keeping our surrounding clean. This prevents the breeding of flies and mosquito.

Communicable Disease	Non-communicabel Disease
1. These disease can spread from one person to another.	1. These disease do not spread from person to person.
2. They are spread by germs.	2. They are not spread by germs.

Prevention of Disease

It is possible to prevent many disease through vaccination. Vaccination is the use of special substance called vaccines to prevent specific disease. Most vaccines are given to children when they are very young.

Hygiene

Hygiene can be defined as practices that help to ensure cleanliness and good health. Germs breed in dirty surrounding. So if we want to prevent disease from surrounding we must keep our surrounding clean. Good hygiene helps in preventing diseases. Following are some steps for maintaining proper hygiene :

1. We must take proper care of our teeth.
2. We should have bath daily.
3. It is also remember to wash hands with soap and water before and after every meal and after going to the toilet.
4. We should take proper care of our eyes and ears.
5. We must take proper care of hair and keep our finger nails short.
6. We must keep our surrounding clean. Surrounding include our school and our neighbourhood, not just our home. Garbage should not be thrown in the open. Uncovered garbage attracts flies and other disease causing organisms. So water should not be allowed to collect inside old tyres, buckets, drums etc. This can become the breeding ground for mosquitoes which spread diseases.

POINTS OF VIEW

- We should eat healthy food to remain fit and fine.
- Food is our basic need. The food we eat contains five main components; carbohydrate, fat, protein, vitamins and minerals.
- Carbohydrate and fat provide energy to our body.
- Protein helps us to grow and to repair our cells.
- Vitamins are required by the body in very small amounts.
- Regular exercise is an important part of staying healthy.
- Lack of any component of food in our diet can cause disease.
- Non-communicable diseases do not spread from one person to another.
- Communicable diseases spread from one inspected person to another.

A. Tick (✓) the correct option :

1. Which of these is a source of protein ?
   (a) Rice ☐ (b) Bread ☐ (c) Milk ☐
2. Which of these is a good source of vitamins ?
   (a) Oil ☐ (b) Sugar ☐ (c) Bread ☐
3. Food item that provide energy is _____.
   (a) bread ☐ (b) rice ☐ (c) Both (a) and (b) ☐
4. A diet is known as balanced diet if it has _____.
   (a) protein ☐ (b) carbohydrate ☐ (c) Both (a) and (b) ☐
5. Which of these is a non-communicable disease ?
   (a) Measles ☐ (b) Malaria ☐ (c) Typhoid ☐
6. Which of these is a communicable disease ?
   (a) Malaria ☐ (b) Allergy ☐ (c) Anaemia ☐

B. Fill in the blanks :

1. If you eat more of junk food. You will remain _____ and _____.
2. Nutrients are _____ for us.
3. We get our food from _____ and animals.
4. Malaria is caused by _____.
5. Anaemia is due to deficiency of _____.
6. Regular _____ improves blood circulation.
7. _____ can be defined as practices that help to ensure.

C. Match the following :

Column 'A'	Column 'B'
1. Potatoes	(a) anaemia
2. Exercise	(b) scurvy
3. Chocolates	(c) rickets
4. Vitamin C	(d) starch
5. Iron	(e) improve blood circulation
6. Calcium	(f) cavities in teeth

D. Write True or False statements :

1. We should eat healthy food to remain fit and fine. _____
2. The material in the food which help us to remain healthy are known as nutrients._____
3. Carbohydrate does not provide energy for the body. _____
4. Intake too much fat results in a person becoming unhealthy. _____
5. Just like vitamins minerals help in keeping our body healthy. _____
6. Exercise is very important for our health. _____

E. Name the diseases caused due to the deficiency of the following :

1. Vitamin A 2. Vitamin B 3. Vitamin C 4. Vitamin D

F. Complete the table :

Nutrients	Found in		
1. Carbohydrate	_____	_____	_____
2. Protein	_____	_____	_____
3. Vitamin A	_____	_____	_____
4. Vitamin C	_____	_____	_____

G. Give the reason :

1. We should not go to school when we have cold and cough, why ?
2. A boy has bleeding germs and swollen joints. Name the diseases he is suffering from.
3. Why prevention is better than cure ?

H. Answer the following questions :

1. Why are vitamins and minerals necessary for the body ?
2. How do houseflies spread diseases ?
3. Explain the ways of controlling communicable diseases.
4. Explain the ways of controlling non-communicable diseases.
5. What is vaccination ?
6. How can we prevent diseases from spreading ?
7. What is roughage ? Why is it important ?

Bring empty pickets of fruit juices, chips, processed food such as baked beans, etc., to the class. Read out the nutritional details given on the packets. Write them down in a tabular form in your science note-book. Compare and analyse their nutritional benefits and disadvantages. Is it good to consume them? Why or why not?

Safety and First Aid

Chap. 3

Learning Points

After completing this chapter we will be able to know about:

- Ways in which accidents at home can be prevented.
- Safe ways of carrying out various jobs at home and outside.
- Safe ways of handling electrical gadgets.
- Explain to the people how they can be safe.

Accidents happen suddenly and cause physical injury. They usually happen when we are careless. We must be careful at home, at school, in the playground and on the road. Most accidents can be avoided if we are careful.

First Aid

The term first aid implies to the first help given to an injured person before he is taken to a hospital.

The first aid to be given for different burns or other accident is different. Let us learn about some more first aid.

Safety on The Road

Safety on the road is more important than ever before because of the rapid increase in the number of vehicles.

Being careless on the road can lead to serious accidents. That is why safety on the road is very important.

There are many signs that we see on the road, that help in reducing the risk of accidents. They also help to regulate traffic. These signs are called traffic signs or road sign. Road signs make use of pictures and symbols. We must read and follow the road sign for our safety.

Different Road Signs

1. Watch carefully the signals on the traffic light or the traffic policeman and always follow them.
2. Always walk on the footpath or the left side on the road.
3. Keep a safe distance from other vehicles while driving.
4. Always tie your seat belts in the car.
5. Always wear helmets while riding on a scooter or motor cycle.

Safety for Wounds and Cuts

In case of cuts and wounds germs can enter through them. So it is very important to treat wounds immediately.

- Wash our hands before giving any kind of first aid to the injured person.
- If wound or cut is small, wash it with water and soap and dry it with cotton cloth. Then apply any antiseptic cream on that.
- For deep wounds or cuts, first try to stop the bleeding by pressing down over the wound or cut with a pad of clean cloth or cotton, press it till the bleeding stops. Then cover the injured part with bandage.
- A tourning can be used. This is a bandage tightly tied over the wound to stop bleeding.
- If bleeding does not stop, use a wide strip of clothes to wrap the wound and leave wound till doctor arrives.
- When bleeding stops, apply antiseptic cream and bandage over it.

Safety for Nose Bleeding

In hot summer days, nose bleeding occurs quite frequently in children. To stop nose bleeding, we should follow some safety rules :

- Keep the patient lay down upright in a comfortable position.
- Press the nose with full pressure.
- Keep an ice-pack or wet cloth on the nose and the head of the patient.
- Ask the patient to breathe through his mouth and not to blow his nose.
- If it is bleeding heavily doctor immediately.

Safety for Sprains

When the tissues around a joint get torn we call it a sprain. Sprain cause swelling and sometimes discolation of the skin. They are very painful.

Applying an ice-pack or ice-cube on the injured joint till the swelling subsides.

Fractures

When a bone in the body breaks it is called a fracture.

The fractured bone cause a lot of pain. The affected area swells up.

First Aid for Fracture

You cannot treat a fracture on your own. The only first aid you can give is to ensure that the fractured part is not moved.

Take a magazine, a piece of cardboard or wood or a pillow.

Tie it around injured part. This will act as a splint. It will prevent movement of the bone.

Take the patient to a doctor.

Safety for Burns

Sometimes we may get burnt. It may be due to hot objects, boiling water, steam, fire-crackers, chemicals and electric shocks.

Minor Burning : It can be treated at home by applying ice-cubes or washing with very cold water so that the patient will get some relief from burning sensation. A paste of baking soda with water can also be applied on the burnt surface to make the surface cool. An antiseptic cream should be applied on the burn.

Severe Burns : In severe burn, blisters are also formed. Blisters actually help the wound to heal faster. So, do not prick or burst the blisters. So cover the burnt area with very soft, clean cloth or sterile gauze, if available, to protect that area from exposing it to germs and dust. Rush to the doctor at the earliest.

Chemical Burns : In case the burn is cause due to any chemical.

- Remove any clothing from the affected area. Use plenty of water to wash off the chemical.
- Cover the affected area with a sterile cloth or gauze.
- If the case is serious, rush to a doctor.

For Fire Fighting : A fire can cause many damages. Sometime fire destroy everything.

- Electrical fires must never be put out using water. Electricity travels quickly through water. If a person comes in contact with this water, he will get an electric shock which can be fatal.
- A fire caused by electricity is put off by using sand or mud or a

fire extinguisher.

- Fire caused from a kerosene stove is always put off by using sand or a fire extinguisher. Water is not used to put off fires.
- In case of fire caused by petrol, do not throw water on it. Water will flame up the fire.
- Whenever clothes catch fire (whether yours or someone else's) roll him / her on the ground to control the flames quickly and pour water on him / her. If fire blanket is handy, it may be used, but water is better.
- In case of a major fire (e.g. in a building), the nearest station should be informed. Fire fighters normally put out fires with the help of a fire engine. Smaller fires can be put out using a special instrument called fire extinguisher.

Precaution To Be Taken To Avoid Fire Accidents :

1. Do not play with fire, electrical appliances, kerosene, petrol or matchsticks.
2. Electrical appliances and wiring should be checked regularly for faults or breaks in the plastic covering of the wires.
3. Kerosene or gas stove should not be put on the floor.
4. Nylon and synthetic clothes should not be worn while burning fire crackers or while cooking. This is because synthetic clothes catch fire easily.
5. In case of a gas leak, all doors and windows should be opened. One should not strike a match stick or operate any electrical switches in case of a gas leak. This is because electrical switches generate sparks while switching on or off.

Safety for Animal Bites

Animals like monkeys, dogs, cats, rats, wolves and snakes are the common animals which hate humans. Animals bites can cause a deadly disease called rabies. The risk of rabies is high if bitten by stray animals. In case of an animal bite, wash the wound with soap and water, apply an antiseptic cream on the wound and cover it with a clean bandage. Take the patient to the doctor immediately.

Safety for Snake Bite

In case of a venomous snake bite, which is very painful, first aid is different.

Tie a tight band just above the bite to stop the flow of poison through blood circulation. Take the victim to the doctor immediately.

For bee and wasp stings, apply a paste of baking soda and antiseptic cream.

Safety for Poisoning

Do you know that certain things in your house may be poisonous? Things like medicines, insecticides, perfumes, paints, detergents, phenyl, nephthalene balls can be poisonous if swallowed.

Poisoning can cause a person to feel dizzy, get bluish lips, chest pain, fever, or even headache. In case of poisoning, we should place the victim in a comfortable place and avoid crowding around him/her. We should check if he / she is breathing properly. A doctor should be informed immediately.

POINTS OF VIEW

- Accidents can takes place anywhere and at anytime.
- The first aid to be given for different burns or other accidents is different.
- Being careless on the road can lead to serious accident.
- We should always walk on the footpath on the left side on the road.
- We should wash our hands before giving any kind of first aid to the injured person.
- When the tissues around a joint get torn, we call it a sprain.
- A break or crack in a bone is called a fracture.
- Minor burns can be treated at home by applying ice-cubes or washing with very cold water.
- Animal bites can cause a deadly disease called rabies.

A. Tick (✓) the correct option :

1. The immediate help given to an injured person before doctor arrives is called _____ .
   (a) first lead ☐ (b) first paid ☐ (c) first aid ☐
2. In cause of cut and wound, we should clean the area with cotton soaked in _____ .
   (a) water ☐ (b) oil ☐ (c) cream ☐
3. A break in bone is called _____ .
   (a) fracture ☐ (b) feature ☐ (c) figure ☐
4. To give support to a broken bone we should apply _____ .
   (a) splint ☐ (b) ice-pack ☐ (c) tournique ☐
5. Dogs carry virus of _____ .
   (a) plague ☐ (b) rabies ☐ (c) chicken pox ☐

B. Fill in the blanks :

1. Road signs make use of pictures and _____ .
2. _____ is thrown over electrical fire to put out the fire.
3. If the clothes of a person catch fire, cover him with a _____ .
4. Injured people must be given _____ immediately.
5. A device used to put the fire out is _____ .
6. Blisters are common in _____ .
7. Any crack or break in bone is called a _____ .

C. Write True or False statements :

1. Road signs are meant only for bus drivers. _____
2. We should throw water in case kerosene or petrol catches fire. _____
3. Electrical faults can cause fire. _____
4. Burns and fractures should be washed first by warm water. _____
5. Fire fighters usually put out fires using a fire extinguisher. _____
6. Animal bites can cause a deadly disease called rabies. _____

D. Give the reason :

1. We should not throw water on petrol fire.
2. We use fire extinguisher to control the fire.

E. Answer the following questions :

1. What are road signs ? How are they helpful ?
2. What is first aid ? What is its importance ?
3. Mention three causes of fire.
4. How would you help someone with burns ?
5. How would you help a person whose clothes have caught fire ?
6. Why are fire due to electrical faults never put out using water ?
7. How can you treat an animals bite ?
8. Why should we use sling or splints in case of fractures ?

ACTIVITY BAG

▸ Tick (✓) the things that we should keep in first aid box:









Inventions for Being Healthier

Chap. 4

Learning Points

After completing this chapter we will be able to know about:

- Scientific instruments such as stethoscope, thermometer, microscopo, scanners, etc.
- the medicines.
- The surgery an art of caring of disease by repairing or removing an organ of the body which is being practiced in Indian since ancient times.
- The anesthesia.

For decades, man took his various diseases as an act to punishment of God are took to prayers or religious ceremonies for their cure. But gradually he observed and expired the environment around him. His knowledge increased which led to a development in the field of medical science and thus the inventions of a numbers of devices took place that helped man to understand the nature of diseases and thus cured them.

Now let's learn about some of such medical devices and their inventors:

Stethoscope

This device enables to listen the sounds of heart and lungs of living beings. Doctors use it to listen to the heartbeat and breathing of a particular person. Dr. Rene Lenece has invented it in France in 1816.

Stethoscope

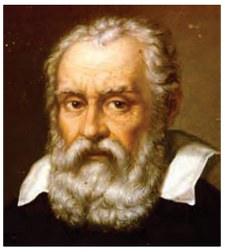
Thermometer

Thermometer

It is used to measure the temperature of living beings. It measures the temperature in degree Celsius (0°C) or degree Fahrenheit (0°F). The normal body temperature is 37°C or 94.4°F. It consists of a mercury filled bulb at one end of a glass tube over which 0°F and 0°C are mentioned. The mercury in the bulb of thermometer expands due to the heat of the body which gives the particular body temperature. To measure the temperature the tip of it, is to be hold in the mouth of a person under the tongue or placed under the armpit for a minute of time. Thermometer was invented by Dr. Daniel Gabriel Fahrenheit.

Microscope

It was invited accidentally by an optician in Holland about 400 years ago. Zacnarias Janssen and his father happened to look through two lenses placed one behind the other and see that a fly looked as big as a lamb.



Galileo

They were surprised and by using this concept they made a toy called flea glass. Galileo was a famous scientist of those times. He learnt about this invention and improved upon it and made an early version of the microscope.

Today, we use very powerfull microscopes like the electron microscope, hich produces highly magnified pictures of microscopic objects.

Microscope

X-ray Machine

MRI Machine

Advanced Machines and Scanners

C.T. Scanner

Ultrasound Machine

While the microscope helps to examine samples of blood, urine, etc for finding the cause of a disease, these advanced machines like X-ray machine, MRI (Magnetic Resonance Lmaging) machine, CT (Computerized Tomography) Scanners and Ultrasound machine help the doctors in the proper diagnosis of diseases related to internal body parts. The X-ray machine was discovered by K. Roentgen in 1896. An X-ray machine can take pictures of all the body parts and is especially important for detecting fracture of the bones.

ECG Machine

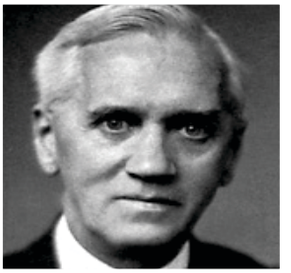
The ECG (Electrocardiogram) and is highly sophisticated tests that measure electrical activity of the organ specified like ECG is used to observe the functioning of the heart and the ECG is used to monitor the working of a brain. Likely, Ultrasound machines are to enable the doctors to get exact pictures of internal organs of human bodies. Thus, these inventions proved to be a boon since all of these helped the scientists to find the cause of various diseases and also helped in removing the misconceptions people had regarding diseases in their past time. Thus there was a drastic change in their way of thinking. Gradually, scientists developed medicines to fight the diseases.

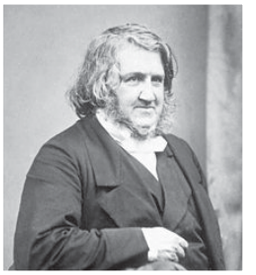
Medicines

The discovery of quinine became helpful in the treatment of malaria. A deadly disease-Flu can now be controlled by medicines made from a tree-eucalyptus. In 1928, Alexander Fleming discovered penicillin the first antibiotic. An antibiotic is a substance that inhibits the growth of bacteria in the body. Diseases like malaria, cholera, tuberculosis, etc, can be cured by antibiotics.

Penicillin

Surgery


Alexander Fleming


Jams Simpson

Surgery is an art of curing the disease by repairing or removing an organ of the body which is being practiced in India since ancient times. Today doctors use electronic machines, laser technology and microscopic treatments to operate delicate organs. Even cosmetic surgery is being done in case of skin injuries or to improve the looks of a person. Surgery has also made possible, transplantation of vital organs like kidney or the heart.

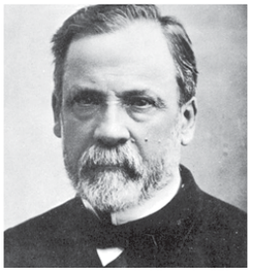
A Wonder Drug-Anesthesia

It is the drug which brings total unconsciousness and the discovery of their drug helped the doctors to operate the patients, as they did not feel pain while operated. Chloroform a colorless liquid, was used as an anesthesia for the first time by Jams Simpson. Later more such better drugs were discovered which were harmless.

Preventive Steps

Two preventive steps were discovered by scientists as to prevent from diseases: Vaccination and pasteurization


Edward Jenner


Louis Pasteur

Vaccination : It is a method of protecting people against a serious disease by giving them a biological preparation called vaccine in advance. Once vaccinated person against a particular disease the person does not suffer from it in his/her lifetime. Dr. Edward Jenner of England gave birth to this thought of prevention of disease like smallpox which later led to the discovery of vaccines for many for many other diseases like tuberculosis, polio, plague, tetanus, yellow fever, whooping cough, etc.

Pasteurization : It is a process that slows microbial growth food. A French chemist Louis Pasteur discovered the process which is followed by his name. He found that germs are killed at high temperature. Best examples of pasteurization are seen in milk and butter that are pasteurized before being packed.

Awareness about health and nutrition can help us to control diseases and live longer.

POINTS OF VIEW

- Stethoscope is a device which is used to listen the sound of internal organs such as heart beat, lungs of human body.
- Thermometer is a device which is used to measured the temperature of human body and invented by Dr. Daniel Gabriel Fahrenheit.
- Galileo was invented microscope which is used to highly magnified pictures.
- X-ray machine, ultrasound machine, CT scan, ECG machine, MRI machine, etc, are the latest machines in medical science.
- Vaccination is a method of protecting people against a serious disease by giving them.

Louis Pasteur discovered the process of pasteurization.

A. Tick (✓) the correct option :

1. Daniel Gabriel Fahrenheit invented the_____ .
   (a) Thermometer ☐ (b) X-ray Machine ☐ (c) Stethoscope ☐
2. A stethoscope is used by a _____ .
   (a) Engineer ☐ (b) Doctor ☐ (c) Astrologer ☐
3. Which is the first antibiotic discovered by Alexander Flaming in 1928 ?
   (a) Quinine ☐ (b) Anesthatic drugs ☐ (c) Penicillin ☐
4. Which diseases can be cured by using antibiotics ?
   (a) Malaria ☐ (b) Cholera ☐ (c) Both of them ☐
5. Chloroform a colourless liquid was used as an anesthesia for first time by _____ .
   (a) James Simpson ☐ (b) Alexander Flaming ☐ (c) Edward Jenner ☐

B. Fill in the blanks :

1. _____ the first antibiotic was discovered Alexandra Fleming in 1928.
2. _____ discovered that carbolic acid could be used in operation theatres to will the germs.
3. The _____ machines can take pictures of all the body parts and are especially important for detecting fractures of the bone.
4. _____ is a colourless liquid used as an anesthe sia.
5. _____ is a method of protecting people against serious disease by giving them.

C. Write True or False statements :

1. A clinical thermometer is used to measure the temperature of human body. _____
2. The lenses in the microscope help to enlarge the objects that cannot be seen by the naked eyes. _____
3. Awareness about health and nutrition increase diseases among the people. _____
4. Daniel Gabriel Fahrenheit invented the X-ray machines. _____
5. Ultrasound machines and CT Scanners are highly sophisticated machines. _____

D. Answer the following questions :

1. What is meant by antibiotic?
2. Who invented the thermometer? How is it useful?
3. What do short term ECG and EEG mean. How are they useful to us?
4. What is an anesthesia? How it is useful in surgery.
5. How has the invention of microscope helpful to us?

➤ Write a short note on sterilization, pasteurization and vaccination has helped us in a very big way. Take help of your class teacher to do so.

The Earth : As a Globe

Chap. 5

Learning Points

After completing this chapter we will be able to know about :

- The globe man-made model of the Earth.
- The latitudes and longitudes.
- Indian standard time.
- International Dateline.

The Earth is very big in size. We cannot see the whole Earth at a time, so, we use a globe. A globe is a miniature scale model of the Earth. It is round in shape and slightly flat at two poles. In this chapter we will discuss about the globe and the Earth.

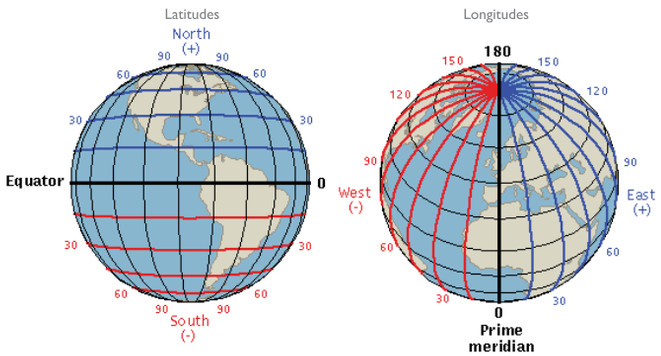
The Globe

A globe is a man-made model of the Earth. It is the simplest and the most accurate way to represent the Earth. The map drawn on the surface of the globe shows the relative sizes and shapes of the continents and oceans. It also shows the correct location of different places and features in relation to one another. We know there are seven continents in the world such as Asia, Africa, South America, North America, Europe, Australia, Antarctica and four oceans such as Pacific Ocean, Atlantic Ocean, Indian Ocean and Arctic Ocean. These are shown in different colours. The globe has two points – northernmost point and southernmost point. Northernmost point is called the North Pole and southernmost point is called the South Pole. Both poles are flat in shape.

The Globe

Latitudes and Longitudes

To see the correct location of a country, our scientists have drawn a network (grid) of circular and semi-circular lines horizontally as well as vertically. On a globe these lines help us to knowing the correct location of various places on the Earth. These lines are called Latitudes and Longitudes.



Latitudes and Longitudes

These lines are called imaginary lines because there are no such lines to be seen on the Earth. The latitudes are imagined to be drawn from west to east, and longitudes are imagined to be drawn from north to south.

Latitudes : These are the imaginary lines or circles drawn on a globe from west to east. The lines or circles drawn in the middle of a globe from west to east is called the Equator (0° Latitude). It is the biggest circle of the Earth. The equator divides to the Earth into two equal halves. These halves are called hemispheres. They are called Northern Hemisphere and Southern Hemisphere.

Lines of Latitude

Except the equator, some other important latitudes are : The Tropic of Cancer 23½°N, Tropic of Capricorn 23½°S, Arctic Circle 66½°N, Antarctic Circle 66½°S.

The term low latitude refers to places near the equator and high latitude refers to places near the poles.

The distance between two latitudes is equal everywhere on the Earth's surface.

All latitudes are parallel to each other and therefore, also called Parallels of Latitude. The distance between two latitudes is about 111 km on the Earth.

The latitudes become shorter and shorter as we move from the equator to north or south. While the equator is the biggest circle on the globe, the North Pole and the South Pole are just only points. The North Pole is at 90°N and the South Pole is marked at 90°S. Parallels are drawn at an interval of 1°. Therefore, there are 181 parallels in number.

Longitudes : These are the imaginary semi-circular lines drawn from the North Pole to the South Pole. Longitudes are also called Meridians.

The longitude drawn in the middle of a globe from north to the south is called the Prime Meridian (0° Longitude). It divides the Earth into two parts : The Western Hemisphere and the Eastern Hemisphere.

Prime Meridian is the central longitude and all other longitudes are measured in degrees, west or east of the Prime Meridian from 0° to 180°. However the meridian 180° W coincides with the meridian 180° E and therefore, we don't use W or E with the 180° meridian. Therefore, there are 360 meridians in number.

Longitudes are not parallel to one another. The distance between two longitudes become shorter and shorter as we move away from the equator towards the poles. It is widest at the equator but it is zero at the poles.

Lines of Longitudes

The Prime Meridian is also called Greenwich Meridian, as it passes through

'Greenwich' near London. The longitude of a place helps us to know about the local time of that place.

Features of Latitudes and Longitudes

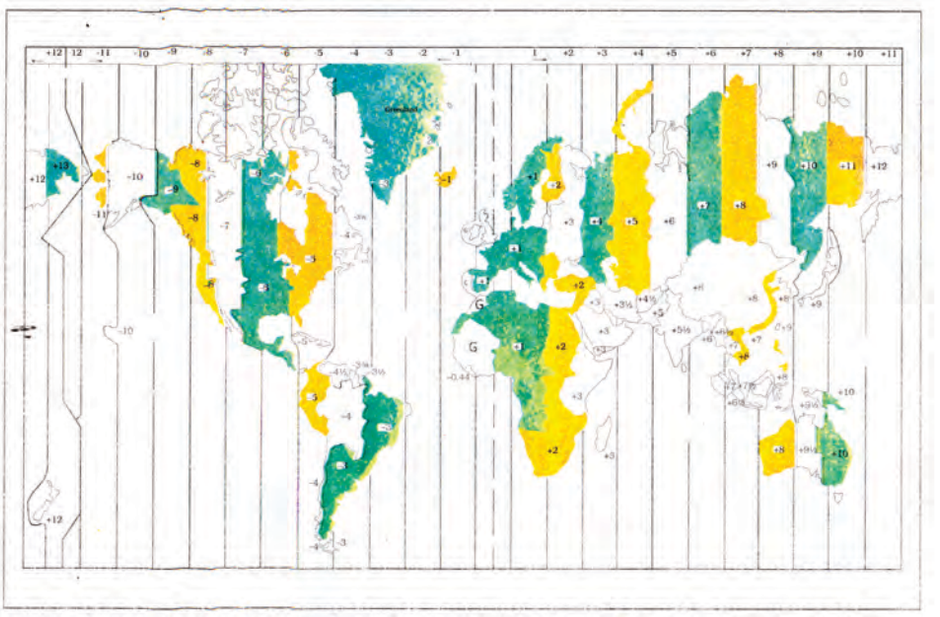
1. There are 181 parallels of latitudes and 360 meridians of longitudes.
2. The horizontal set from west to east of lines on the globe are called latitudes.
3. The vertical set from north to south of lines are called longitudes.
4. Any place of the Earth can be located with the help of these lines.
5. Both latitudes and longitudes are imaginary lines drawn on the globe or world map.

Knowledge Corner

- Longitudes are the angular distance of a place west or east of the Prime Meridian.

Time Zones

Time zone is a division on the Earth, more or less bounded by 15° of longitude that has a uniform, legally mandated standard time usually referred to as the local time. By convention , there are 24 main time zones on the Earth. The time at 0° longitudes is Greenwich Mean Time (GMT).



Time Zones and International Dateline

The Earth takes 24 hours to complete its one rotation around the Earth from west to east. During this rotation, each meridian passes under the direct rays of the Sun. It takes the Earth four minutes to rotate through one degree of longitude. Obviously, different longitudes receive the direct rays of the sunlight at different times. Even in our country, the eastern and western most ends have a time difference of about two hours. Most countries have a local time of their own. This is called their Standard Time.

The local time in the neighbouring zones would differ by one hour. However, political boundaries, geographical practicalities, and convenience of inhabitants can result in irregularly shaped zones. Moreover, in a few regions, half-hour or quarter-hour differences are in effect. Before the adoption of times zones, people used local solar time. The 180th meridian is known as International Date Line.

Indian Standard Time

Standard Time is the result of synchronizing clocks within a time zone to the same time rather than using the local meridian as in local mean time or solar time.

Where daylight saving time is used, the term Standard Time typically refers to the time without daylight saving time.

Indian Standard Time (IST) is the time observed throughout India and Sri Lanka, with a time offset of GMT + 05 : 30.

Indian Standard Time is calculated on the basis of 82.5° E longitude, which is just to the west of the town of Mirzapur, near Allahabad in the state of Uttar Pradesh.

International Dateline

The 180th meridian is known as International Dateline. When we measure time along the 180° meridian, we face a peculiar situation.

Suppose, it is 10 a.m. on 16th July, Wednesday at Greenwich Mean Time, then at 180°E, the time will be 10 p.m. Wednesday because it is 12 ($15° \times 12 = 180°$) Time zones ahead of GMT. So at 180°W, the time will be 10 p.m. 15th July, Tuesday as it is 12 time zones behind GMT. Since 180°E and the 180°W coincides, if you cross the dateline from the east to the west, you will be repeating the whole day again.

On the other hand, if you cross it from the west to the east you will lose a whole day.

To avoid such confusions, all the countries of the world fixed an International Dateline. If it is crossed from west to the east, a day is added to your watch. Similarly, if we cross it from the east to the west, we subtract one day. So while cross it from the east to the west, we subtract one day. So while crossing this line, people change the day and date accordingly.

Knowledge Corner

- A.M. stands for Ante-Meridian i.e. before noon and P.M. stands for Post-Meridian i.e. afternoon. These were derived from the Roman Language.

POINTS OF VIEW

- The globe is the model of the Earth.
- There are 181 latitudes in number.
- The location of a place on the Earth's surface is shown with the help of the latitude and the longitude.
- Parallels of latitude are imaginary lines running parallel to the Equator and they form circles.
- Latitude is the angular distance of a pole north or south of the Equator.
- On the basis of time the world is divided into 24 time zones.

A. Tick (✓) the correct option :

1. Latitudes are _____ .

   (a) semi-circular ☐ (b) triangular ☐ (c) parallel ☐

2. Longitudes are _____ .

   (a) circular lines ☐ (b) semi-circular ☐ (c) Both of these ☐

3. The equator divides the Earth into _____ halves.

   (a) four ☐ (b) three ☐ (c) two ☐

4. Longitudes are in number _____ .

   (a) 90 ☐ (b) 360 ☐ (c) 181 ☐

B. Fill in the blanks :

1. To see the _____, we use a _____.
2. Northernmost point is called _____ and Southernmost point is called _____ .
3. Longitudes are also called _____ .
4. There are _____ parallels of latitude and _____ meridians of longitude.
5. The Earth is divided into _____ time zones.

C. Write True or False statement :

1. Length of all the Parallels is equal. _____
2. All meridians are semi-circles. _____
3. Arctic circle is marked at 6½°N. _____
4. Tropic of Cancer is marked at 23½°N. _____
5. The Equator divides the Earth into two equal parts. _____

D. Match the following :

Column 'A'	Column 'B'
1. Arctic circle	(i) North Pole
2. Antarctic circle	(ii) 23½°S
3. Northernmost Point	(iii) GMT
4. Greenwich Mean Time	(iv) 66½°N
5. Tropic of Capricorn	(v) 66½° S

E. Answer the following questions :

1. Describe the latitudes and longitudes.
2. What are the main features of latitudes and longitudes?
2. What is meant by Local time ?
3. Describe the standard time.
5. What do you mean by International dateline?

▸ Find out the distance :

1. Take a globe with circumference 96cm. Note that each centimetre is equal to 418 kilometre.
2. Take a string and a ruler.
3. Stretch the string from one location to the other location.
4. Now measure the length of the string on the ruler. Multiply the distance in centimetres with 418 to get the distance in kilometres.

The Maps

Chap. 6

Learning Points

After completing this chapter we will be able to know about :

- The importance of map
- Limitations of a globe
- Types of map
- Languages of the map

In previous chapter we have studied about the globe which is a model of the Earth. Except the globe, map is also an essential component to study of the Earth and its structure. Now, we will study in this chapter about the map, directions and the kinds of the map.

The Globe

Map

The map is a drawing of the Earth on a flat surface like paper, cardboard or wood, etc. It can be folded, rolled and even put in a book or bag. Maps can be drawn to show the whole world or even a very small part of it.

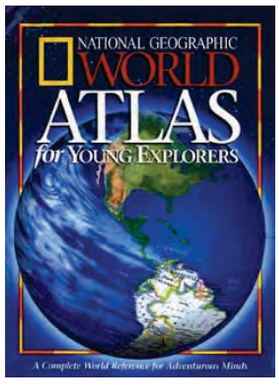
Maps may be of continents, countries, cities or even of a neighbourhood. We can also make a map of our house and show all the details on it.

Though a globe is very useful for studying about the Earth, as it is a true model of the Earth, it has certain limitations.

Limitations of a Globe

1. A globe occupies a lot of space.
2. It is not easy to carry a globe from one place to another.
3. It cannot show detailed information.

   Because of these limitations a map is drawn on a flat surface. A map can overcome all these shortcomings.



Atlas

In comparison to a globe, maps give more specific and detailed information. Maps show locations and features like types of land, natural resources, agricultural and industrial resources, climate,

population distribution, places of tourist interest, roadways and railways routes, etc. We can even enlarge the features of a small area and show them clearly on a map. A book which contains maps is called an atlas. Maps can be hung on the walls. They can be carried folding them and kept in a bag easily.

Types of Maps

There are many types of maps, some of them are as follows–

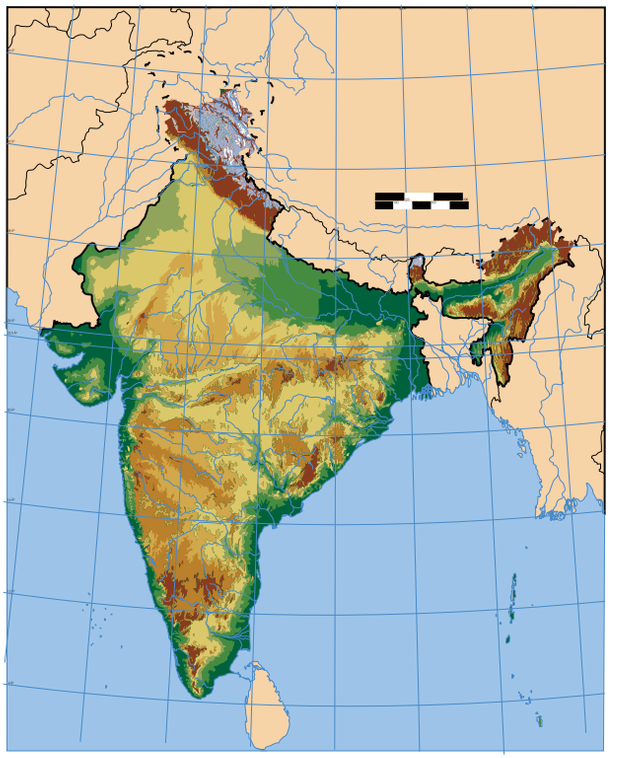
1. Political map, 2. Physical map, 3. Thematic map,
4. Topographical map, 5. Cadastral map

Knowledge Corner

- A map is a flat drawing of the whole or a part of the earth's surface.

1. Political Map : These maps show boundaries between different countries, or different states in a country.

Political Map



Physical Map

2. Physical Map : A physical map shows the physical features of an area.

   The physical map of India shows us its land and water.

3. Thematic Map : The maps which focus on specific information of the regions are called thematic maps.

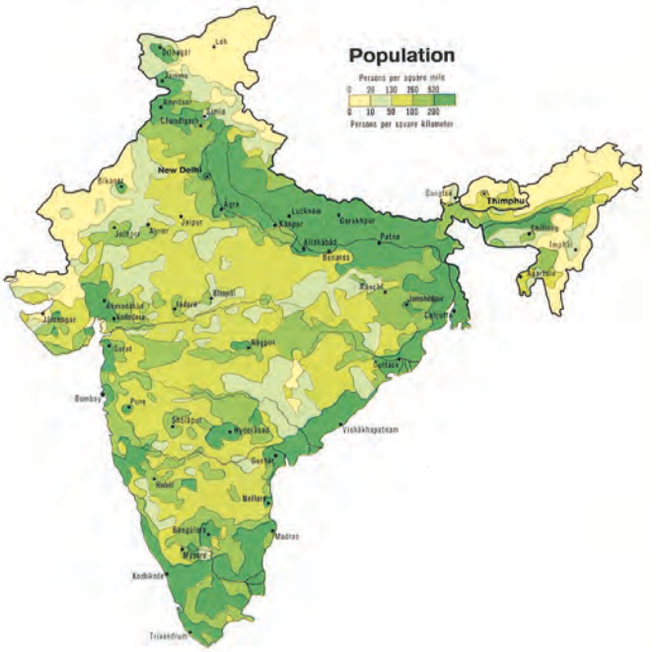
   (i) Some maps show rainfall in different areas. They are called rainfall maps.

(ii) Some maps show population in different areas. They are called population maps.

(iii) Some maps show crops grown in different parts of the given area. They are called crops grown maps.

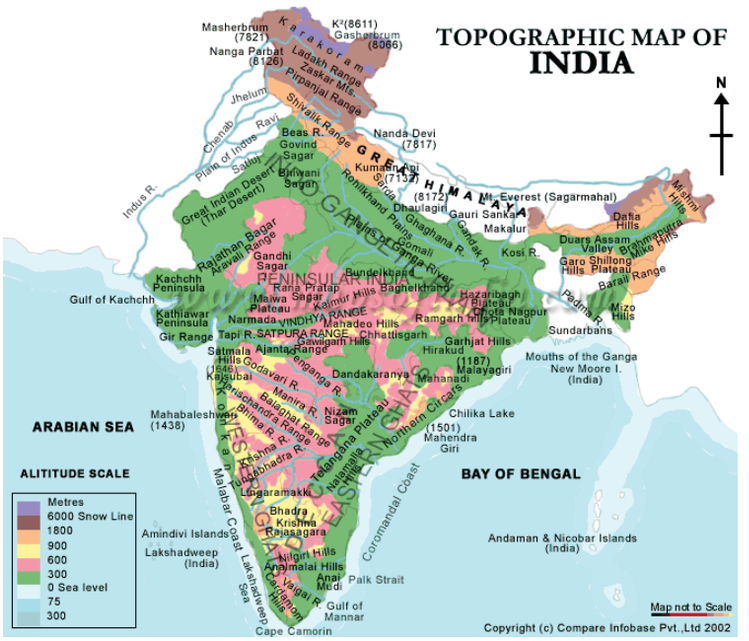
4. Topographical Map : These maps show the natural phenomena and human activities such as roads, railway lines, landforms, etc.

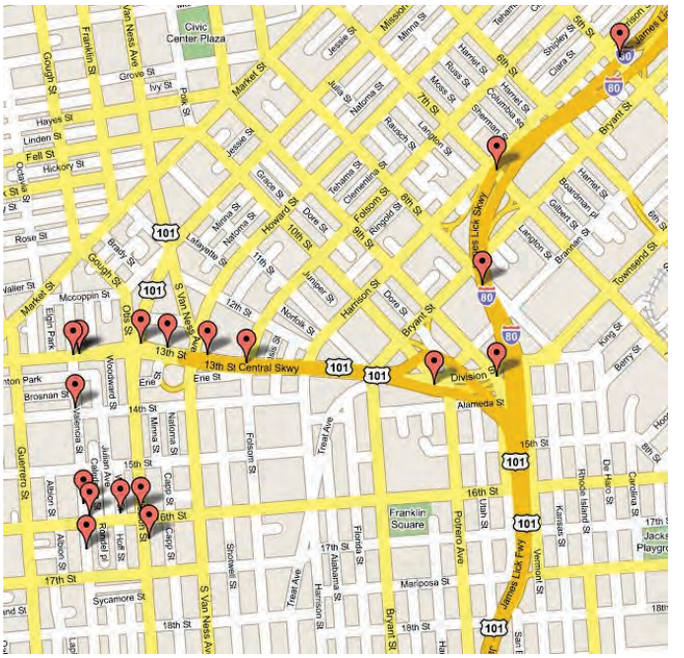
5. Cadastral Map : The maps show the villages and towns with the details of streets, plots, fields, etc. are called cadastral maps.



Thematic Map

Language of Maps



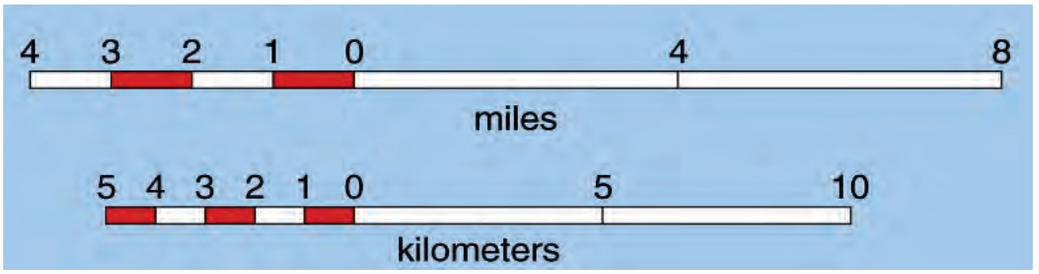


Key, scale, directions, title and grid system are some of the important elements of a map. The best way to learn about the other countries, would be to visit every place on the Earth. Is that possible ? No, so we have to find an easier way. To do so, we can study a map. To understood the information given on a map we must know its language.

Keys or Symbols

Keys or symbols tell the matter of a map. There are many keys or symbols used on a map. These are given below :

1. Scale : It is the most important language of map. The scale enables us to measure distances from one place to another on the particular map.



Scale

Maps are classified into large scale maps and small scale maps. This classification depends upon the area of the Earth to be shown and the size of the map.

The map of the world, continents and countries are small scale maps as large areas represented on small size map.

Knowledge Corner

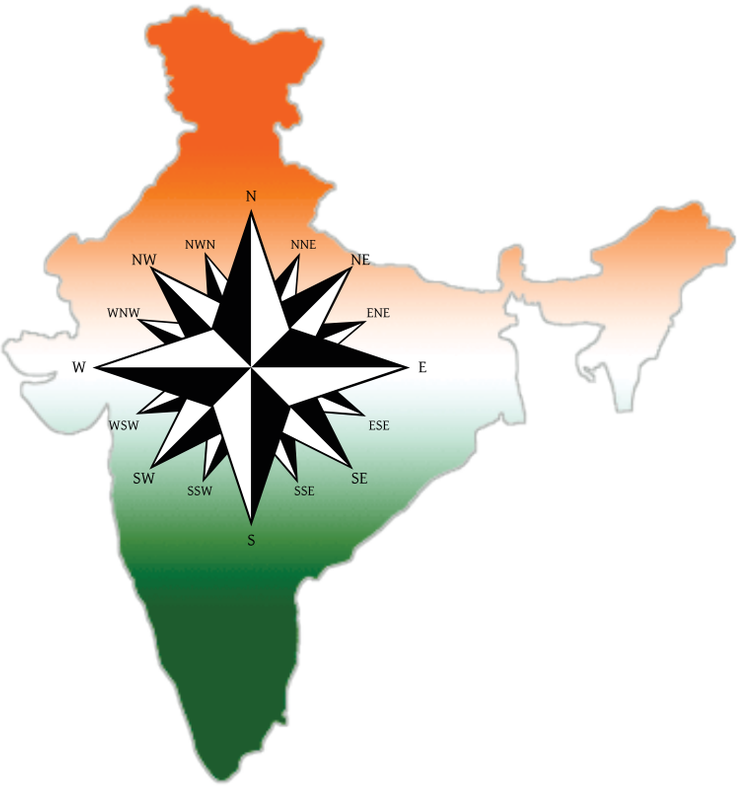
- A map without scale is called a sketch shoulders.

The maps of towns, villages, etc ; are large scale maps as the smaler areas are represented on a large size map.

If on a map the scale states that 1cm is equal to 100km then it means that from one place to another on that particular map, 1 is equal to 100km on the Earth.

The Scale Statement, giving the scale used in map, is shown either on top or bottom of the map.

2. Directions : There are four main directions used to find your way on the map : North, South, East and West. Maps are generally shown with north at the top and south to the bottom. Some maps, however, indicate north and south with an arrow when we are facing north our left side indicates west and our right side shows east. All the maps also follow the same system of directions.



Direction on a Map

If you are clear about the four main directions the sub-directions become easy to remember. See the figure given on previous page to understand the directions on a map.

3. Sub-directions : In addition to the four major directions, there are four sub-directions also.

between North and East lies the North-East (NE)

between North and West lies the North-West (NW)

between South and East lies the South-East (SE)

between South and West lies the South-West (SW)

Title : All maps have a title which tells the reader what the map is about.

4. Colours : In the maps, the colors play an important role. They tell a recognition to every part or thing separately. Colour descriptions are given below :

Colour	Parts
Light Brown	Highlands
Dark Brown	Mountains
Dark Blue	Deep waters, Oceans
Light Blue	Lesser depth of water
Green	Plains
Yellow	Hills and Plateaus

5. Signs and Symbols : There are many different features on land, such as temples, mosques, churches, roads, capitals, cities, rivers, railway lines, etc. It is not possible to draw them on a map. Thus, standard signs and symbols are used to show them. Some of commonly used signs and symbols are given in the given ahead table.

The symbols and colours used in the maps are universal, i.e., the same set of symbols and colours are used all over the world. So they are called conventional symbols or International Symbols. In every map, a key or legend is given which helps us to understand the meaning of signs and symbols used in that particular map.

Knowledge Corner

- Google Maps is a web mapping service technology provided by Google. They provide many map based services : Google map website, Google route planner, Google ride finder, Google transit, Google urban business locator, etc.

International Boundary		Sea Route	
State Boundary		Mosque	
District Boundary		Church	
Metalled Road		Temple	
Dam		Grass and Shrub	
Bridge		Forest	
River or Stream		Town or Village	
Well and Tank		Capital of the Country	
Railway Broad Gauge		Railway Narrow Gauge	

Some Signs and Symbols of the Map

A Sketch and Plan

A Sketch : Some maps are drawn hurriedly. They are not drawn according to scale. Such map is called a sketch.

Knowledge Corner

- The Weather Maps are prepared by the Meteorological Department of India by collecting data from various meterological stations.

A Plan : Some maps are drawn at a very large scale on a planned way. These are called plans.

These maps are drawn when many details of a small area are to be shown on the map. If you want to show the number and position of benches in your classroom you will have to draw a plan of the room itself. Such detail cannot be shown on the map of your town or the city.

Sketch

Plan

POINTS OF VIEW

- The globe is the best representation of the Earth.
- A map is a representation of the Earth or a part of it on plain surface to a scale.
- A political map shows the boundaries and area of different countries.
- All maps have a title which tells the reader what the map is about.

A. Tick (✓) the correct option :

1. Green colour shows _____ .

   (a) plains ☐ (b) rivers and oceans ☐ (c) mountains, hills ☐

2. A globe is a _____ .

   (a) book of maps ☐ (b) man-made model ☐ (c) natural model ☐

3. Political map shows the _____ .

   (a) different countries ☐ (b) boundaries of states ☐ (c) Both of these ☐

4. Between the North and East lies the sub-direction _____ .

(a) SE ☐ (b) NE ☐ (c) WE ☐

B. Fill in the blanks :

1. The globe is a big _____ which is not carried easily to any other places.
2. Maps can be _____ on the wall.
3. Brown colour shows the _____ on the map.
4. Yellow colour shows the _____ on the map.
5. Sketch is not drawn according to the _____.

C. Write True or False against each statement :

1. Green colour shows the mountains. _____
2. Political map shows the boundaries of different countries. _____
3. A sketch shows the natural phenomena and human activities. _____
4. Lower part of map shows the east direction. _____
5. Map is man-made model of the Earth. _____

D. Match the following :

Column 'A'	Column 'B'
1. Globe	(i) top of the map.
2. Physical map	(ii) bottom of the map.
3. Topographical map	(iii) model of the Earth.
4. North	(iv) landforms
5. South	(v) natural phenomena

E. Answer the following questions :

1. Why map is an essential component to study of the Earth?
2. What are the limitations of a globe?
3. What are topographical and cadastral maps?
4. What are the main problems with the globe ?
5. Name all the four directions.

6. What do you mean by the political map ?
7. Mention the main symbols of the map.
8. What do you mean by keys and symbols?

ACTIVITY BAG

- Locate the following using appropriate colours on the given outline map of India :

1. Indian Ocean
2. Bay of Bengal
3. Northern Plains
4. The Himalayas
5. Arabian Sea
6. Thar Desert

The Age of Machines

Chap. 7

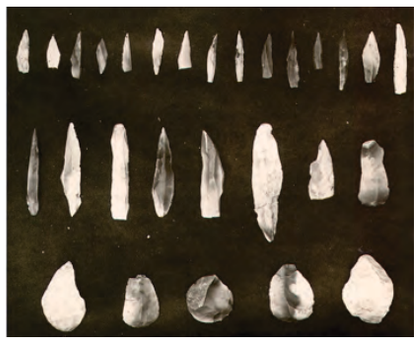
Learning Points

After completing this chapter we will be able to know about :

- Weapons and instruments that early-man was used.
- Discovery of metal.
- How stone age replace in machine age ?
- Role of soures of energy.

In ancient times when there was no machine or any metal was not discovered, man had used simple tools and weapons made of bones, stones or wood. That was the Stone Age.

Gradually, with the discovery of metals man learn to make better use with them and prepare better tools and later became master in making efficient machines which enabled him to do almost work easily and faster. The existing present age is the age of machines. In this chapter we shall learn about the progress of man from the Stone Age to the Machine Age.



Stone Age-Tools used by Early-man

Discovery of Metal

Copper is the first metal to be discovered. It is a reddish, brown shiny metal which occurs naturally. Earlier it was used to make better and strong tools and weapons by early-man. Later on early-man mixed tin with copper and made bronze. Bronze was harder than copper. Afterwards, iron was discovered which was much harder than the both metals. Now, early-man began to make tools like axes, plunges, hammer, etc., of iron. This was termed as the Iron Age. It brought remarkable changes in the man's life. Now the machine age began with the invention of steam engine. Thomas Savery invented a crude steam engine as when he was helping to pump water out of the coal-mines in England that used to get filled with rainwater.

James Watt

George Stephenson

Later, in 1769 James Watt made some improvements upon this steam engine. It was steam engine. That made possible to run big machines using lesser fuel. Its invention was the basis of many more inventions like in 1814, George Stephenson British engineer developed the steam locomotive engine. He is known as the father of the railway industrial revolution.

Steam Engine

Mass Production

The use of machines made production possible. It increased the efficiency of production which enabled the factories to produce a large quantity at a lower cost and in less time. This method of production is called mass production. All this led to an increase in production in factories while decrease in handmade goods.

This major change in the system of production from hand-made goods to machine made goods came to be known as the industrial revolution.

Mass Production

Role of Sources of Energy

It is fuel that makes the machines work and called source of energy. Wood, coal, mineral oils, electricity, solar, wind and atomic energy, etc are sources of energy which are being used by man.

Coal

Coal was the first fuel to be used on a large scale in machines. It is a fossil full and found deep under the Earth.

Mineral Oil

After coal it is the next important source of energy. It is a liquid fuel discovered accidentally in 1857 in America. The first high speed petrol engine and first four-wheel auto mobile were invented by Gottlieb Daimler. This petrol engine was later used in aeroplanes too.

Coal

Mineral Oil

After some year's Rudolf Diesel a German scientist developed another engine that could run on diesel oil instead of petrol. It was very cheaper.

Gottlieb Daimler

Rudolf Diesel

Benjamin Franklin

Electricity

On the basis of his observation on a toy Benjamin Franklin made experiment with a paper kite. He flew paper kite in a cloudy day, during lightning and thunderstorm. He also attached a strong wire to this kite and other end of it was tied to a key. When lightning occurred he experienced a shock on touching the key. This experiment proved Benjamin observations and led to the discovery of electricity.

Later another inventions took place related to electricity. In 1800, an Italian scientist, Alessandro Volta developed the first battery that could produce a small amount of electricity. Further, engineers designed better machines which produced greater amounts of electricity. These are generators. Now electricity can be produced by using various fuels like coal, mineral oil, or gas.

Renewable Energy

Electricity produced from water stored in dams is called hydro electricity. Wind is the air in motion hence wind energy is the energy present in the air that flow around the Earth. This wind energy is also used to generate electricity.

Atomic or nuclear energy is produced by the splitting of an atom in a nuclear reaction. It is a very highly powerful source of energy.

The energy that we go from the Sun is called solar energy. It is a very useful alternative source of energy. Biogas is an eco-friendly fuel used in the rural areas mainly for cooking. This gas is produced by the decomposition of biodegradable waste like animal dung, fruits and vegetables peels, garden litter, etc, all these different energies are form of renewable sources of energy.

POINTS OF VIEW

- Before the invention of metal man had used simple tools and weapons made of stones bones and wood.
- Bronze is the metal of a mixture of copper and aluminium.
- Iron is the hardest metal.
- George Stephemson is known of the father of railway industrial revolution.
- Electricity makes the machines work.
- Coal is the first fuel to be used on a large scale in machines.

A. Tick (✓) the correct option :

1. Which was the first metal to be discovered by man ?
   (a) Iron ☐ (b) Copper ☐ (c) Gold ☐
2. Which fuel was firstly used in all the large scale industries ?
   (a) Coal ☐ (b) LPG ☐ (c) Petroleum ☐
3. An alloy of tin and copper is called_____.
   (a) Bronze ☐ (b) Brass ☐ (c) Steel ☐
4. Who invented the first high speed petrol engine _____ .
   (a) George Stephenson ☐ (b) Gottieb Daimler ☐ (c) James Watt ☐

5. The energy that we get from the sun is called _____ .
   (a) hydro energy ☐ (b) wind energy ☐ (c) solar energy ☐

B. Write True or False statement :

1. Coal was the first fuel to be used in a large scale in machines. _____
2. Wind energy and solar energy are same alternate sources of non-renewable energy. _____
3. George Stephenson is known as the father of railways, as he developed the railway engine in 1814. _____
4. Iron was the first metal to be discovered by man. _____
5. Electricity is the most widely used source of energy at present produced form water and stored in dams. _____

C. Fill in the blanks :

1. _____ is an eco-friendly pollution free fuel used nowadays in the rural areas.
2. _____ started with the change in the system of production from handmade goods to machine-made goods.
3. The energy that we get from the sun is called _____ energy.
4. _____ energy is the energy produced by the splitting of an atom in a nuclear reaching.
5. _____ transform wind energy to electric power for generating electricity.

D. Answer the following questions :

1. Who invented the steam engine? What changes does it brought in the life?
2. What is industrial revolution?
3. Name all the renewable sources of energy.
4. Who invented the first high speed petrol engine.
5. What is mass production? Why is it important?

➤ Renewable sources of energy are very important for us. Write ten lines why they are important and are becoming necessary for our survival.

Means of Communication

Chap. 8

Learning Points

After completing this chapter we will be able to know about :

- The means of individual communication such as post and telegraph, teleprinter, e-mail, fax, mobile and pager.
- The means of mass communication such as newspaper, radio and television, magazines, internet, cinema etc.
- The satellite.

In ancient times people had no means to travel and communicate. Their life was more difficult than in modern time. We have read that there was a time when people used to send their messages through the pigeons or messengers to other places. But nowadays we have different types of means of communication to send and to get our messages sitting in a room. We will study about the means of communication in this chapter.

Means of Communication

We have different types of means of communication. There are of two types which are given below :

1. Means of Individual Communication
2. Means of Mass Communication

1. Individual Communication

This type of communication refers to sharing ideas or information between individuals. Post office, telegraph, telephone, mobile phone, fax machine, etc. are used for this purpose. Means of individual communication are of various types. These are as follows :

Post and Telegraph : To send our message we can write a letter and send it through the post office. Our letters reach within three days to our relatives in any corner of India. Letters are also of various types such as Postcard, Inland letter, envelope, etc.

Post Office

If we want to send any message urgently, we can send through the telegram. In this system, a very short message is sent by a telegraphic machine from one place to another through the telegraphic cables.

Teleprinter

Teleprinter : The invention of the teleprinter has made telegraph services more efficient. Through a teleprinter, we can send messages three times faster than an ordinary telegraph machine. The letters of the alphabet are printed by the teleprinter, even as the message is being sent from the other end.

An E-mail Message

E-mail : Electronic mail is commonly called e-mail. E-mail is a method of exchanging digital messages across the Internet or other computer network. Originally, e-mail was transmitted directly from one user to another computer. That required both computers to be online at the same time. Today e-mail systems are based on a store and forward model. E-mail is quicker and cheaper than a telephone call. A limited edition of services is free for using the e-mails.

Fax (Facsimile)

Fax (Facsimile) : Fax machine is a device that is attached to the telephone. It helps in sending or receiving the exact copy of a message sent from any part of the world. We write a message on paper and put it in the fax machine. Then we dial the number of the person whom we wish to send the message. Instantly, the exact copy of that page is sent to that person. Fax is often used to send information across towns, cities, countries and even continents.

Mobile

Phones or Mobiles : Mobile is a wireless instrument. We not only send message but also talk directly to our relatives, sitting in our room or anywhere. We can carry them anywhere and we can talk at any time.

Pager

Pager : It is also useful means of communication. We send our messages in writing form. For this, you have to write message in your pager and it reaches at once to its subscriber.

2. Mass Communication

The means of communication, which are used to send and give message to a large number of people at the same time are called means of Mass Communication. These are newspapers, magazines, televisions, radio, cinema, etc.

Newspapers and Magazines

Newspapers and Magazines : Newspapers, magazines and journals inform us about the developments around the world. They give us the latest news about events of national and international importance. Newspapers and magazines are published in many regional languages. Often, pamphlets are distributed with the newspaper. This single sheet of paper provides information about events, organizations or schemes.

Television

Television : It is the most important means of mass communication. We not only get news but also we can see all the happenings occurred in any place of the world. Some programmes are telecast as they are being performed. These are called live telecast.

Radio

Radio : G. Marconi invented the radio in 1886. The radio is a source of education and news, as well as entertainment. People throughout the world benefit from it. Before the invention of the televisions the radio was very popular. Today, like television the radio has many channels to entertain us.


Computer

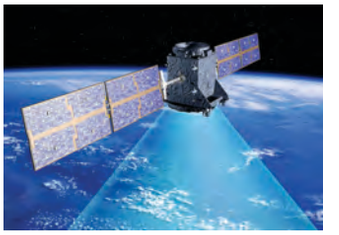
Internet : The Internet is the most recent means of communication. E-shopping, e-banking, and downloads are possible through the Internet. E-mails are sent through the Internet. It is fast becoming very popular.

The Internet is a source of information on almost any topic. There are millions of websites on the Internet. You can go to a website and look for the information you need.


Cinema

Cinema : It is the most popular means of mass communication. It has proved a boon for the people in the field of entertainment. It has influenced the life of a number of people. Social themes presented through cinema have a greater impact on the people than the radio. We have documentary movies and educational movies for knowledge and also movies for entertainment. Films and documents are regularly exchanged between the different countries of the world. International film festivals are held to share good films from different countries. Thus, people come to understand the lifestyle, values and problems of other people.

Satellites : Satellites has made the communication easy and fast. These are sent into outer space by rockets. They revolve around the earth. They pick up signals from one earth station and transmit them around the world.


Satellite

Satellite communication has brought people closer. Incidents happening anywhere in the world are no longer isolated. They can be viewed by the people all over the world. Thus, mass communication, especially through satellites, is fast working towards the creation of one world.

All these means of communication are very useful to us and they must be used for the benefit of mankind.

Knowledge Corner

- Internet is a global electronic community of over one lakh Interconnected computers. It is called the 'Information Super Highway'.

POINTS OF VIEW

- Means of communication have made our life easy to easier.
- Means of communication are of two types : Means of Individual communication and means of Mass communication.
- Means of mass communication are : newspapers, magazines, radio, television, etc.
- We send letters and parcels through the post office.
- Mobile is a wireless instrument.
- G. Marconi invented Radio in 1886.

Exercise

A. Tick (✓) the correct option :

1. In olden times messages are sent through the_____ .
   (a) pigeons ☐ (b) messengers ☐ (c) Both of these ☐
2. Electronic mail is commonly called _____ .
   (a) E-mail ☐ (b) A-mail ☐ (c) Express ☐
3. We can talk any time from anywhere through _____ .
   (a) television ☐ (b) mobile phone ☐ (c) radio ☐
4. We can see live telecast on _____ .
   (a) television ☐ (b) radio ☐ (c) newspapers ☐
5. Radio was invented by _____ .
   (a) Thomas Alva Edison ☐ (b) G. Marconi ☐ (c) Charles Babbage ☐

B. Fill in the blanks :

1. Letters are also of various types such as post card, _____, envelope letter, etc.
2. Electronic mail is commonly called _____.
3. Fax machine is a device that is attached to the _____.
4. _____ is wireless instrument.
5. _____ and _____ are published in many regional _____.

C. Write True or False statements :

1. Means of communication are of two types. _____
2. We can talk to anyone at any time on the phones. _____
3. Radio is the means of mass communication. _____
4. Fax-machine is the means of individual communication. _____
5. The pigeons are used to send messages nowadays. _____

D. Write three means of :

Individual Communication :

1. _____ 2. _____ 3. _____

Mass Communication :

1. _____ 2. _____ 3. _____

E. Answer the following questions :

1. Write the kinds of means of communication.
2. Write a short note on postal and telegraph.
3. What is E-mail ?
4. How radio and television are helpful in communication ?
5. Write six name of newspapers and magazines.

ACTIVITY BAG

➤ Look at the following means of communication and write them under suitable heads :









Individual Communication	Mass Communication
_____	_____
_____	_____
_____	_____
_____	_____

Means of Transport

Chap. 9

Learning Points

After completing this chapter we will be able to know about :

- The means of transport.
- The land transport such as roadways and railways.
- The air transport.
- The water transport.

In ancient times, people used to travel on foot over long distances. If they had to carry goods they moved them on their heads or backs. Sometimes, they dragged the goods behind them if they were too, heavy to carry. Afterwards they started using animals to carry goods.

After a long period, the invention of the wheel brought about a great change in the field of transport. But it was the invention of the steam engine which proved to be the turning point in the life of human beings. The first steam powered vehicle for transport was a complete revolution. It was invented by James Watt in England. These engine powered vehicles were more dependable. They could carry heavy loads and move much faster.

Different Means of Transport

Means of Transport

Nowadays we are passing our life happily. We can go to other countries within a few hours. We have three types of transport. These are given below :

1. Land transport 2. Air transport 3. Water transport

1. Land Transport

Roadways : Roads are the most important for the land transport. These are used by vehicles for faster and smoother movement. Earlier roads were narrow and rough. They were made of mud and stone. Today, the roads are metaled on which heavy vehicles can move easily and in a great speed.

In developed countries broad, smooth, concrete roads with flyovers that cris-cross over each other are found. In the cities where road traffic too heavy, flyovers are built by making two or more road one above the other through bridges.

Expressways and Highways are a network of roads connecting major cities. These are broad and straight roads. Each road is divided into two parts. One part for the traffic moving in one direction and the other part is for the traffic moving in the opposite direction. Each part of the road is further divided into 4 to 6 lanes for fast and slow moving vehicles respectively. Exit lanes are provided on these roads for vehicles that want to turn or stop for a short break. These roads are also called Freeways.

Express Way

Highways

Flyovers

India, too has a large number of roads connecting parts of the country. Some roads, connect India with neighbouring countries like Pakistan, Afghanistan, Nepal, Bhutan, Myanmmar, Bangladesh and China. The Grand Trunk Road (G.T. Road) connects Kolkata (India) with Peshawar (Pakistan). G.T. Road was built by Sher Shah Suri. There, it is also called Sher Shah Suri Marg.

Kyber Pass is the road to Afghanistan. Golden Quadrilateral Road System connect all the four metropolitan cities like Mumbai, Delhi, Kolkata and Chennai in India. Bharat Tibet Road connects India to China.

Golden Quadrilateral Road System

Rail Transport : The trains are the prominent means of land transport. Train journey is cheaper and comfortable for long distances. There are sleepers attached to long route trains. Trains have helped lot in trade and national integration.

Earlier, trains were pulled by horses on railway tracks. With the invention of the steam engine, coal became the source of energy to run engines. Nowadays, diesel is the most commonly used as the source of energy to run railway engines. However there are some electric trains which use electricity as the source of power.

Some trains run at a very high speed. They are called Bullet Trains. Very high speed trains running at a speed of about 300 km/hour or so are found in Japan, France and Germany. The fastest trains of India are Rajdhani Express and Shatabdi Express. They run at a speed of 120 to 140 km/hour. Do you know that the first train in India run between Bombay and Thane on 16 April, 1853? It completed its route of about 34 km in 57 minutes. Some trains run from one country to another. The longest railways of the world are Trans-Siberian Railway the Canadian Pacific Railway and the Australian Trans-Continental Railway.

Trans-Siberian Railway

Rajdhani Express

Shatabdi Express

The Trans-Siberian Railway is 9,332 km long from Vladivostok to Leningrad. The Canadian Pacific Railway connects the Atlantic ocean and Pacific ocean. Its length is 7,050 km. The Australian Trans-Continental Railway connects Sydney in the east and Perth in the west of Australia. The Grand Orient Express connecting Paris with the Istanbul passes through many European Countries.

In many countries some trains run underground. These trains are called Metro Trains.

Metro Train

2. Air Transport

It is the fastest means of transport but it is also the most expensive. The airways are free from the Physical barriers such as mountain ranges, rivers and forests. Wright Brothers had invented the aeroplane in 1903.

Starting with the times when man tried to fly with the help of balloons, today supersonic jets travel faster than the speed of sound.

Knowledge Corner

- A bullet train runs more than 300 km/hour. It began operating in Japan December 1997.

Aeroplane

Helicopter

Jet Aeroplane

Perishable items are sent by air. Millions of people travel to different parts of the world everyday. All the countries of the world and all the major cities are linked by air. Many big cities in the world like London, Paris, Moscow, New York, etc. have large international airports.

Air India : India's major international airline, the Air India has destinations in all continents. The Air India and several private and domestic airlines operate within the country.

There are a number of other private air-taxi services like Jet Airways, Kingfisher Airways, Air Deccan, etc. which operate in India.

Famous Airports of India :

There are five international airport in India. They are following :

1. Indira Gandhi International Airport, Delhi.
2. Sahara International Airport, Mumbai.
3. Meenambakkam International Airport, Chennai.
4. Subhash Chandra Bose International Airport, Kolkata.
5. Thiruvananthapuram International Airport, Kerala.

Major Airlines in India

Helicopter is small aircraft. It can be landed off or on in any small place. It needs no airport. It can carry few passengers. It is useful in dropping food and medicines in remote areas. Some rich people have their own helicopter.

3. Water Transport

As we have read in the previous classes that early-man made first raft, sail boats, etc. Later on, he made steamers and huge ships which have engines and a large number of passengers and goods can be carried easily through the water routes. The water transport is the cheapest means of transport. There are various types of ships such as

Boat

Steamer

Ship

Seaport

Cargo ships which are useful to carry food-grains, minerals, etc.

Some of important ocean routes are North Atlantic Route from Europe to North America, North Pacific Route and Atlantic Route, etc. Seaports are such as Tokyo (Japan), Colombo (Srilanka), Sydney (Australia), Rio-de-Janerio (Brazil), San Francisco (USA), New York (USA), Cape Town (South Africa), Mumbai (India), Karachi (Pakistan), etc. India has eleven major seaports such as Marmagoa, Mumbai, Kandla, Cochin, New Mangolore, Jawaharlal Nehru port, Vishakhapatnam, Tuticorin, Chennai, Paradip, Kolkata-Haldia.

A short-cut water route amongst Europe, Australia and Asia is through the Panama canal. It is connected to the Pacific ocean in the west with Atlantic ocean in the east. Suez canal is very helpful to international trade.

POINTS OF VIEW

- Early-man used sledge and raft for the transportation.
- World has three types of means of transport such as Land transport, Air transport and Water transport.
- James Watt invented first steam engine.
- Rail transport is the cheapest means of the land transport.
- Air transport is the costliest but fastest.
- Water transport is the cheapest means of transport for the international trade.

Exercise

A. Tick (✓) the correct option :

1. The vehicles which run on land are called means of _____ .
   (a) Land transport ☐ (b) Water transport ☐ (c) Air transport ☐
2. The slowest means of transport is _____ .
   (a) aeroplane ☐ (b) car ☐ (c) ship ☐
3. The expensive means of transport is _____ .
   (a) bus ☐ (b) aeroplane ☐ (c) boat ☐
4. Trans-Siberian connects Vladivostak to _____ .
   (a) London ☐ (b) Lemingrad ☐ (c) Perth ☐
5. The most important canal for international trade is _____ .
   (a) Sharda Canal ☐ (b) Panama Canal ☐ (c) Indira Gandhi Canal ☐

B. Fill in the blanks :

1. Aeroplane was invented by _____.
2. G.T. Road was built by _____.
3. Steam engine was invented by _____.
4. Some trains run at a very _____ speed.
5. The fastest trains of India are _____ and _____.

C. Write True or False statement :

1. Ships are faster than aeroplanes. _____
2. Suez Canal is useful to the International trade. _____

3. Helicopter can be landed in a small place. _____
4. Air transport is the cheapest means of transport. _____
5. Indira Gandhi International Airport is located in Delhi. _____

D. Match the following :

Column 'A'	Column 'B'
1. James Watt	(i) Underground trains
2. Wright Brothers	(ii) Shatabdi Express
3. Bullet trains	(iii) Steam Engine
4. Metro Trains	(iv) Aeroplane
5. Fastest train of India	(v) 300km/hour

E. Name the following :

1. A road with 4 or 6 lanes. _____
2. Fastest train of the world. _____
3. A railway route which connects Atlantic ocean to pacific ocean. _____
4. An international airport of South Africa. _____
5. A private airline of India. _____

F. Answer the following questions :

1. How many types of means of transport are there in the world ?
2. Which is the cheapest means of land transport ?
3. Name the four major ports of India.
4. Who invented locomotive engine ?

A. Complete the names of the following :

1. A fastest train of India. R____ ____DH____ ____IE____ ____R____SS
2. A private air service. S____H____R____A____ ____L____N____S
3. Underground Railway. M____ ____ ____O
4. Fastest train of the world. B____ ____ ____E____T____A____N
5. A famous canal. P____ ____ ____ ____A

B. Look at the following pictures of vehicles and write (L) for Land transport, (W) for Water transport and (A) for Air transport :

Test Paper-1

Note : All questions are compulsory :

A. Tick (✓) correct option :

1. How many bones does the skull consist of :

   (a) 32 ☐ (b) 33 ☐ (c) 24 ☐

2. Which of these is a good source of vitamins ?

   (a) Oil ☐ (b) Sugar ☐ (c) Bread ☐

3. A break is bone is called _____ .

   (a) fracture ☐ (b) feature ☐ (c) figure ☐

4. Chloroform a colour less liquid was used as an anesthesia for first time by _____.

   (a) James simpson ☐ (b) Alexander flaming ☐ (c) Edward Jenner ☐

5. The equator divides the Earth into _____ halves.

   (a) four ☐ (b) three ☐ (c) two ☐

6. A globe is a _____ .

   (a) book of maps ☐ (b) man-made model ☐ (c) natural model ☐

7. Which was the first metal to be discovered by man ?

   (a) Iron ☐ (b) Copper ☐ (c) Gold ☐

8. The energy that we get from the sun is called _____ .

   (a) hydro energy ☐ (b) wind energy ☐ (c) solar energy ☐

9. Radio was invented by _____ .

   (a) Edison ☐ (b) G. Marconi ☐ (c) Charles Babbage ☐

10. The most important Canal for international trade is _____ .

    (a) Sharda Canal ☐

    (b) Panama Canal ☐

    (c) Indira Gandhi Canal ☐

B. Fill in the blanks :

1. The vertibral column protects the delicalte _____ cord.
2. Malaria is caused by _____ .
3. _____ is a colourless liquid used as on anesthesia.
4. _____ is an eco-faiendly pollution free fuel used new a days.
5. Electronic mail is commonly called _____ .

C. Write 'True' or 'False' statements :

1. Carbohydrate does or provide energy for the body. _____
2. Do not Gabrial Fahrenait invented the X-ray machine. _____
3. Tropic of cancer is market at 23½°N. _____
4. The pigeons are used to send messages new a days. _____
5. Helicopter can be landed in a small place. _____

D. Match the following :

1. Vitamin C	(a) first metal discovered by man.
2. Penicillin	(b) G. Marcons
3. Copper	(c) Shatabdi Express
4. Radio	(d) scurry
5. Fastest train of India	(e) Alexander Flaming

E. Answer the following questions :

1. What are the function of the blood?
2. How would you help someone with burns?
3. Why map is an essential component to study of the Earth?
4. What is industrial revolution?
5. Which is the chapest means of land transport?

Our Environment

Chap. 10

Learning Points

After completing this chapter we will be able to know about :

- The term environment and its components.
- The relationship between biotic and abiotic components.
- The natural resources and the importance of conserving it.
- Various types of pollution and its causes.
- The need for eco-friendly and help in the protection of the environment.

The surrounding in which we live is called our environment. It consists of both living and non-living things.

We know that all living things, both plants and animals are dependent on each other through the food chain. Living things also depend on non-living things.

Plants use energy from the Sun to grow. Plants provide food for the animals. Animals and plants obtain the things they need from their surroundings.

Look at the pictures and write which type of pollution spread through this activity.

_____ _____ _____

Human Beings and the Environment

All organisms including human beings depend on the environment to fulfill their needs. These needs include basic requirements like oxygen, food, water and shelter. Apart from these, other needs like medicines etc. are also fulfilled by it. Thus we can say, that all our needs, big or small, are met by the environment. So a healthy environment is an absolute necessity for our well-being. However, man has always tried to misuse of environment. For example, due to excessive deforestation for various purposes like building, houses, industries, making roads, etc. pollution is increasing day-by-day. It can cause pollution. Pollution makes the air, land and water dirty. Some of the human activities which are reducing the quality of the environment are as follow:

Deforestation : It is done by man to clear land for building, houses and factories, for agriculture etc. Due to this, an imbalance is created in nature. This imbalance leads to frequent floods, soil erosion, increase in pollution, reduction in fertility of the land and many more problems.

Deforestation

Pollution in Air

Developing Industries : Developing a large number of industries to make life more comfortable. But various harmful gases are being released into the atmosphere by these industries which pollute the air.

Similarly , harmful chemicals and huge amount of waste from industries is disposed into the water bodies which pollute the water. These are not only killing aquatic organism but are also injurious to human health.

Increasing in Vehicles : Increasing in pollution, number of vehicles are also increasing. Vehicles are released harmful gases, smoke etc. in the atmosphere which pollute air. Besides air pollution, vehicles also create noise pollution through various sounds like blowing of horns.

Impact of Pollution on Human Health

Various kinds of pollution like air, water, noise and soil pollution are affecting human beings in different ways.

Breathing in pollute air, some of the common health problems like asthma, bronchitis, pneumonia and lung cancer are caused of air pollution.

If we drink dirty water, we get sick. Polluted water is the cause of diseases like typhoid, jaundice and gastroentrities. Polluted water effects the growth of aquatic plants and animals. As a result some plants and animals died.

Noise problem is responsible for loss of hearing, stress and irritation, digestive problems, etc.

Water Pollution

Noise Pollution

Soil Pollution

Conservation of the Environment

Protection or restoration of natural environment is known as conservation of the environment. We need to conserve it for the survival of human race in future. Few ways to protect the environment are mentioned below :

Plantation

- Plant more and more trees.
- Factories are located in areas away from places where people live.
- Tall chimneys fitted with filters are used in factories to let out smoke and gases.
- Garbage from houses is thrown at proper dumping places.
- The use of plastic bags is reduced.
- Reduce the use of chemical fertilizers.
- Manage industrial waste sensibly.
- Save water and electricity.
- Reuse and recycle the materials like newspapers, plastic bottles, aluminium cans, etc.

Managing Waste : The Three 'R' s (Reuse, Reduce and Recycle)

Managing waste is necessary to prevent pollution of the environment. Waste can be managed by the following ways :

Reuse : This means to use the things which we would normally throw away. Like soft drinks can's can be covered with decorative paper and use as pencil stand.

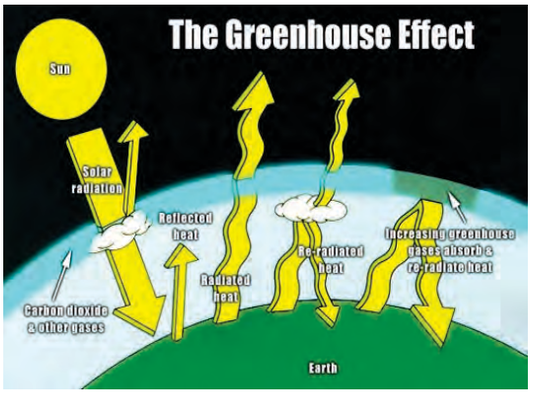
Reduce : Reduce the generation of unnecessary waste. You can carry a cloth bag to the market and put your purchases into it instead of using plastic bag provided by the shop.

Recycle : This means to use waste items to make new things. Old books, magazines, newspapers etc. can be given for recycling. Bags which made of jute or cotton can be used over and over again.

Advantages of Recycling

1. It makes the surrounding clean and healthier.
2. It saves on land filler space utilized for garbage disposal.
3. It leads to reduce consumption of raw material.
4. It reduce the amount of energy required to manufacture new products.

Green House Effects



The earth's atmosphere is a blanket of gases carbon dioxide, nitrous oxide, methane and water vapour. They have the property of trapping energy from the sun. These gases do not allow the heat to escape back into space. So they warm up the earth. These gases are called green houses gases and this effect is known as the Green House Effect.

Carbon Dioxide : It has been increasing in the atmosphere gradually over the last hundred years. The main reasons of increasing this gas in the atmosphere are the burning of fossil fuels and the destruction of rain forests. If this gas keep on increasing at the present rate, more heat will be trapped in the atmosphere and the temperature of the earth could increase.

Methane : It is a natural gas when herbivore animals digest their food, their system release a large quantity of this gas into the atmosphere.

The waste from animals called manure, is used as fertilizers. This releases more methane into the atmosphere. This gas also warms out the Earth.

Water Vapour : Water vapour accounts for 35-75% of the green house effect.

Ozone : It is found in the stratosphere.

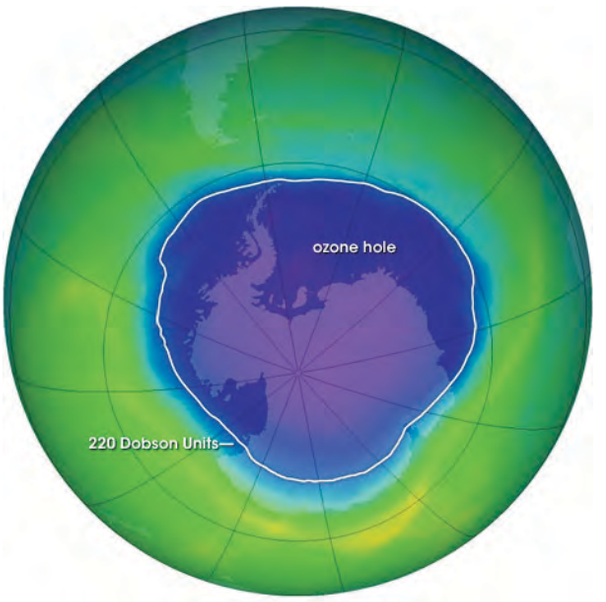
Chloro-fluoro Carbon (CFC) : It is a chemical widely used in air conditioners, refrigerators and in many other industrial processes. It also warms up the atmosphere.

Global Warming

The green house effect is also referred to as the global warming. Green house gases in the atmosphere trap the heat of the sun and there is a rise in temperature on the Earth. This is called global warming. In the last hundred years the average temperature of the Earth has risen by 1°F and in the next century it may rise about 2-6°F. This will change the climate for the worse.

Climate Changes : Due to pollution, there have been unexpected changes in weather in all over the world. The effects of climate change one visible-melting polar ice-caps, rise in water levels of oceans and flooding of places near the sea. There have been widespread floods in Europe and very heavy snowfall in Kashmir. In cold Siberia, summers have come three months before.

Many countries have signed agreements aimed at reducing green house gases. One such agreement is the Kyoto Protocol.



Ozone Hole

The Ozone Hole

Ozone is a thin layer of invisible gas in the atmosphere. This layer protects due to us from the harmful rays of the Sun. But due to some human activities, there is a hole in the ozone. So harmful rays are now entering the atmosphere and affecting plants and animals on the Earth. This is the main cause for increasing in diseases like various cancers and also damage to eyes.

POINTS OF VIEW

- Our environment consists of living and non-living things like air, water, land, plants and animals.
- The abiotic environment consists of non-living things, while the biotic environment comprises of living things.
- Plants make their own food with the process of photosynthesis.
- The organisms that eat the food prepared by the producers are called consumers.
- The organisms which feed on dead animals and plants and reduce them to simple substance, thereby returning the constituents back to the soil are called decomposers.
- Living beings and environment depend on one another.
- Deforestation by man is done to clear land for building houses and factories.
- Developing a large number of industries to make life more comfortable.
- Vehicles are released harmful gases, smoke etc. in the atmosphere which pollute air.
- Various kinds of pollution like air, water, noise and soil pollution are affecting human beings in different ways.
- Protection or restoration of natural environment is known as conservation.

A. Tick (✓) the correct option :

1. Animal that feed on the bodies of dead animals are called _____.
   (a) decomposers ☐ (b) scavengers ☐ (c) consumers ☐
2. The natural causes of air pollution is _____ .
   (a) volcanic eruption ☐ (b) forest fire ☐ (c) deforestation ☐
3. Which of the following can be recycled ?
   (a) Paper ☐ (b) Cans ☐ (c) Plastic bottles ☐
4. Trees help to clean the _____ .
   (a) water ☐ (b) air ☐ (c) monuments ☐
5. Which of these is a decomposer ?
   (a) Lion ☐ (b) Hibiscus ☐ (c) Bacteria ☐
6. Which of these is a heterotrop ?
   (a) Jackal ☐ (b) Cactus ☐ (c) Deer ☐
7. Which of these is caused due to air pollution ?
   (a) Asthma ☐ (b) Deafness ☐ (c) Cholera ☐

B. Fill in the blanks :

1. _____ are known as the producers of food.
2. Cow, buffalo and deer are the _____ animals.
3. Bear and dogs are the _____ animals.
4. Lion and tiger are the _____ animals.
5. _____ and animals depend on plant for food.

6. Pollute water affects the growth of aquatic _____ and _____ .
7. _____ are located in areas away from places where people live.

C. Write True or False statements :

1. The abiotic environment comprises of living things like plants, animals and microbes. _____
2. The biotic environment consists of non-living things. _____
3. Some micro-organism like fungi, bacteria etc. act as decomposers. _____
4. Plants are not depended on animals and man. _____
5. All living and non-living things keep their balance in nature. _____
6. Polluted water is the cause of diseases like typhoid. _____

D. Match the following :

Column 'A'	Column 'B'
1. Abiotic environment	(a) cow
2. Biotic environment	(b) tiger
3. Herbivores	(c) dog
4. Carnivores	(d) living things
5. Omnivores	(e) non-living things

E. Give the reason :

1. If a factory is located near a river, how does it affect the people living close by?
2. Man is responsible of all pollutions how ?

F. Answer the following questions :

1. Why are plants called producers ?
2. What are decomposers and scavengers ?
3. What are consumers ?
4. Define the types of consumers.
5. Write a short note on the impact of pollution on human health.
6. Write a short note on conservation of the environment.

➤ Look at the given pictures and identify the kind of pollution :


_____


_____


_____


_____

Natural Disasters

Chap. 11

Learning Points

After completing this chapter we will be able to know about :

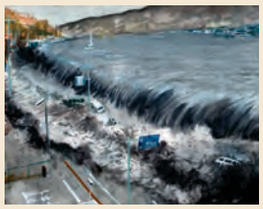
- The various types of natural disasters.
- The different forces of nature and causes of natural disasters.
- The different of natural calamities.
- Man's interference with the working of nature.
- Awareness of disaster management.

The Earth is ever changing dynamic planet. Different forces of nature cause various changes in the atmosphere crust or interior of the Earth. Sometimes these change result in large scale damages to the life and property. These events are called disaster.

Identify the following pictures of natural disasters and write their name below each picture.







_____ _____ _____ _____ _____

Strong winds, heavy rainfall, extreme temperature, etc., change inside the Earth can seriously damage environment-life and property cause sufferings for a long period. Let us study about some natural calamities that can affect our lives in a big way.

Earthquake

An earthquake is a sudden shaking of the ground caused by movements or vibrations deep inside the Earth. These vibrations release great energy and can cause the ground to quiver. These vibrations are called earthquakes. They cause a lot of damage of life and property.


Earthquake

The Earth's outermost layer the crust is made of rocks. These rocks are in the form of large plates which keep on moving continuously and slowly past each other. Usually such movements cause the plates to slide smoothly against each other. However, at times the movements between the plates can be sudden giving rise to earthquakes.

Earthquakes occur without any warning. They are measured by an instrument called seismograph. This instrument measures the force of an earthquake on the Richter Scale.

This scale was invented by Charles Richter in 1935. The scientific study of earthquake is called seismology. People who study earthquakes are called seismologists. They try to predict earthquakes so that the people likely to be affected have time to move to a safer place.

Volcano

The word 'volcano' comes from the name 'vulcan', the Roman God of fire. A volcano is an opening on the Earth's surface, which allows hot, molten rock, ash and gases to escape from below the surface.

Volcano

The strong heat melts the hard rocks. This melted material is called magma. Magma comes from deep inside the Earth through cracks in the Earth's surface, which is known as volcano. The molten rocks that comes out a volcano is known as lava. Lava is very hot. It causes great damage to life and property.

Poisonous gases and dust released from a volcanic eruption can cause severe respiratory problems and even kill people.

Active Volcano

Some volcanoes are formed under the sea. When the lava cools down, the area formed looks like a new island. Based on the nature of the eruptions, volcanoes can be active, dormant or extinct. Volcanoes that have erupted in recent years and may erupt again anytime are called active volcanoes.

Many active volcanoes can be found in the Pacific Asia. Famous active volcanoes include Mount Vesuvious, Mount Etna, Mount Erebus and Mount Fuji.

Volcanoes that have not erupted in recent years but may erupt in future are called dormant volcanoes.

Volcanoes which have stopped erupting are called extinct volcanoes. These are unlikely to erupt again.

Dormant Volcanoes

Extinct Volcanoes

The Barren Island is the only active volcano in the Indian Subcontinent.

Tsunami

A tsunami is a rises of huge

Knowledge Corner

- The world's largest active volcano is Manna Loa in Hawaii.

waves caused by an underwater disturbance such as an earthquake or a volcanic eruption. 'Tsunami' is a Japanese word which means harbour wave.

Strong waves from the sea come rolling towards the shore. They cause destruction on the seashore within seconds. The waves formed due to any disturbance inside water travel in all directions from the area of disturbance. They are similar to the ripples formed an dropping on object in water. As the big waves approach the shallow water along the coast, they rise to a great height and crash over the shore. The waves can be as high as 20 to 30 metres and travel up to 1000 km per hour and causing great damage.

Tsunami

A tsunami brings waves of destruction which are capable of killing thousands of residents along the coasts. When a tsunami strikes populated coastlines, it destroys the entire town or village.

Tsunami hit the coastal regions of many Asian countries, including India on 2004 over three lakh people died. There were seaports of entire towns destroyed from tsunami hit in Japan on 14 March, 2011.

Drought

Some areas get less rainfall throughout the year. Because of less rainfall it causes shortage of water for domestic use and for agriculture. Land and water bodies dry up and crops fail to grow, resulting in a shortage of food. People die due to hunger and scarcity of water. Such a condition is called drought.

Drought

Drought affected areas have very few sources of water. India has faced three major droughts in the twentieth ceuntry - 1904-05, 1965-66 and 1986-87. The 1987 drought was known as the drought of the country and had a major impact on one-third of the country.

Flood

Rain the main cause of flood. Flood generally occur when there is a very heavy rainfall. During the rainy seasons, when a river overflows its bank and the water spreads to the surrounding areas it cause flood.

Floods damage crop, roads, property and life. Different types of dangerous diseases as cholera, dengue and malaria etc. spread in areas hit by the flood.

Flood

Reasons of Flood

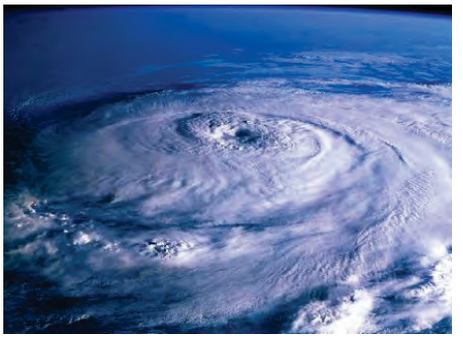
There are many reasons for flood. Some of them are :

1. Melting of snow in a large amount.
2. Blocking of river, channel by land slides.
3. Cyclones and tsunamis in coastal areas.
4. Collapse of a dam built across a river.

Cyclones

A cyclone is a very strong wind accompanied with heavy rain. During a cyclone, wind blows at a very high speed.

In India Andhra Pradesh, Odisha, West Bengal, Tamil Nadu and coastal areas of Maharashtra and Gujarat are very prone to cyclones.



Cyclones

Landslides

Landslides are caused, when big rock and stones slides down along with mud during the rainy season. Landslides are common in the Himalayas and North Eastern hilly areas. Deforestation is the main causes of landslides. Landslides causes great damage to life, property and disrupt communications.

Landslides

POINTS OF VIEW

- Natural disasters are events caused by the force of nature.
- Natural disasters may destroy a part of life and property.
- An earthquake is a sudden shaking of the ground caused by movements or vibrations deep inside the Earth.
- Earthquake is measured by an instrument called seismograph.
- A volcano is an opening on the Earth's surface which allows hot, molten rocks, ashk and gases to escape from the below of the surface.
- A tsunami is a rise of huge waves caused by an underwater disturbance such as an earthquake or a volcanic eruption.
- Drought affected areas have very few sources of water.
- Flood generally occur when there is a very heavy rainfall.
- Different types of dangerous diseases as cholera, dengue and malaria, etc. spread in areas hit by the flood.
- A cyclone is a very strange wind accompanied with heavy rain.
- Landslides are caused when big rocks and stones slides down along with mud during the rainy seasons.

A. Tick (✓) the correct option :

1. The upper layer of the Earth is made of _____ .
   (a) crust ☐ (b) plates ☐ (c) stones ☐
2. The magnitude of this disaster is measured on Richter Scale _____ .
   (a) tsunami ☐ (b) earthquake ☐ (c) flood ☐
3. The liquid that comes out of a volcano is called _____ .
   (a) lava ☐ (b) magma ☐ (c) core ☐
4. It generally occurs when there is a very heavy rainfall _____ .
   (a) landslides ☐ (b) flood ☐ (c) drought ☐
5. It is a very strong wind accompanied with heavy rain _____ .
   (a) cyclone ☐ (b) volcanic eruption ☐ (c) earthquake ☐
6. It is a sudden shaking in the Earth's crust _____ .
   (a) cyclone ☐ (b) tsunami ☐ (c) earthquake ☐

B. Fill in the blanks :

1. _____ can happen at any time or place without a warning.
2. The outermost layer of the earth, known as the _____ is made of _____ .
3. Earthquakes are very common in _____ and _____ .
4. Some _____ are formed under the _____ .
5. Drought affected areas have very few sources of _____ .
6. _____ is the main cause of _____ .
7. _____ are common in the Himalayas and north eastern hilly areas.

C. Match the following :

Column 'A'	Column 'B'
1. Earthquake	(a) heavy rainfall
2. Tsunami	(b) strong wind
3. Floods	(c) series of waves
4. Cyclone	(d) sudden shaking
5. Drought	(e) heavy rainfall
6. Flood	(f) less rainfall

D. Write True or False statements :

1. Sometimes nature becomes a biggest cause of destruction. _____
2. The earthquake in measured by an instrument called seismograph. _____
3. People who study earthquake are called seismology. _____
4. People of Japan make their houses of woods. _____
5. People of Phillippines do not make their houses of wood. _____
6. Poisonous gases and dust release from a volcanic eruption. _____

E. Difference between :

1. magma and lava
2. cyclone and tsunami

F. Give the reason :

1. Tsunami causes more damage on the harbour than in the sea.
2. We should grow more and more trees ?

G. Answer the following questions :

1. How does earthquake occur ? How does earthquake affect the Earth and its people?
2. How do volcanoes erupt ? Write about different volcanoes.
3. How does a tsunami affect human life ?
4. Explain what is a tsunami ?
5. How does tsunami cause destruction ?
6. What are the main causes of flood ?
7. What are the causes of drought ?

➤ Collect the pictures of some natural disasters. Paste them in given boxes and also write their name:

_____	_____	_____

Soil Erosion and Conservation

Chap. 12

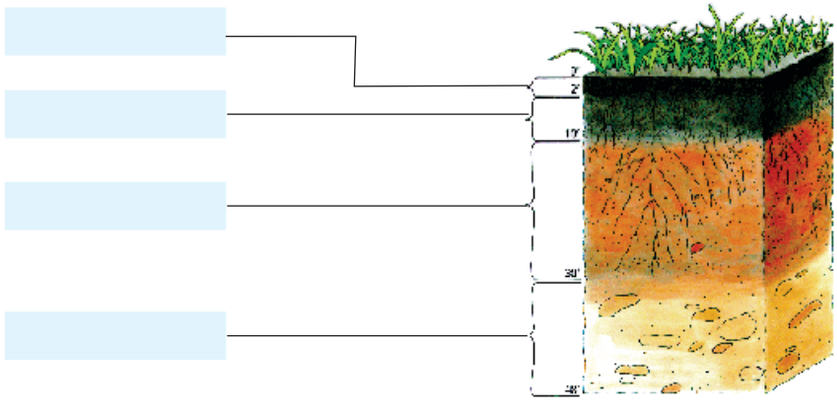
Learning Points

After completing this chapter we will be able to know about :

- Importance and kinds of soils.
- The factors causing soil erosion.
- Formation and composition of soil.
- The methods of soil conservation.

The uppermost layer of the Earth is called soil. It is made up of tiny pieces of rocks and remains of dead plants and animals. Soil also contains many micro-organisms.

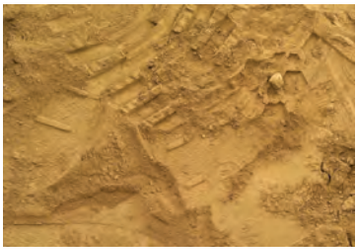
Label the different components of soil in the diagram given here.



Types of Soil

There are mainly three types of soil : sandy soil, clayey soil and loam.

1. Sandy Soil : It does not hold moisture. Thus water and all other nutrients flow away with water. Therefore, it needs regular addition of fertilizers.



Sandy Soil

2. Clayey Soil : It holds moisture, so it is rich in nutrients. But it forms hard lumps when wet. It also develops cracks in hot weather causing harm to the roots of the plants.

Clayey Soil

3. Loam : It is also hold moisture and it is also rich in nutrients. It has good qualities of both sandy and clayey soil. Therefore, it is best suited for plant growth.

Loam Soil

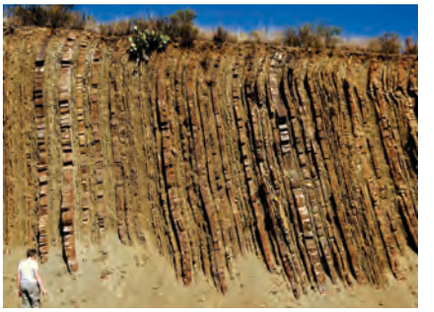
Importance of Soil

Soil is as essential forms as water and air. It is very useful for us in many ways :

- Plants need soil to grow and survive. They provide food to all living things. They grow well only in the top soil. Therefore, farmers preserve the top soil for better crops.
- Animals like snake, rabbit, ant, mole, rat, earthworm, etc. use soil as home.
- We use soil for making pictures, toys and some other works.

Formation of Soil

Soil is formed by the breaking down of rocks due to action of wind, water, temperature and micro-organism. This is called weathering. Formation of soil is very slow and gradual process. It takes thousands of years of constant weathering to form a layer of soil.



Formation of Soil

Composition of Soil

Soil consists of a number of components. These include soil particles (gravel, sand, clay), humus, minerals, water (moisture) and air. Various organisms, like earthworms, snails, insects and other micro-organism like bacteria and fungi are also found in soil. Among these earthworms are very helpful to the soil. They burn in soil, turn it and so make it loose. Their movement helps to bring the nutrients that are present deeper in the soil to the surface. This improves the fertility of soil and helps in plant growth. Due to this reason, they are also known as friends of farmers. Besides this micro-organism like bacteria and fungi also help in the complete breakdown of dead plants and animals.

Composition of Soil

Soil Erosion

The top layer of the soil is fertile, soft and light. So heavy rain, running water and wind can remove the top layer of soil easily. The removal of soil by wind or flowing water is called soil erosion. Soil erosion result in loss of soil fertility which makes the land unsuitable for farming. This affects the food availability in that particular region.

Soil Erosion by Wind

Causes of Soil Erosion

There are various agents of soil erosion.

1. Wind : When wind blows it takes away the top layer of soil leaving the land barren. In desert and semi-desert regions where strong winds blow, a lot of top soil is carried away. This affects the manures because manure too is blown away.
2. Water : Water causes soil erosion in two ways : due to rain and due to running water bodies. Heavy rain washes the soil and running water takes a lot of soil. Heavy water has a worse effect in hilly regions. Water flows at a great speed down the hills and loosen the particles of soil. This results in washing away of the nutrients, rich soil, making the land barren.

Soil Erosion by Water

Moving water of river removes rock and soil from its bank and causes soil erosion.

Soil Erosion by Animal Grazing

3. Grazing Animals : Overgrazing by animals like cows, sheep, goats, etc. also causes soil erosion. Sometimes these animals graze on the same field continuously. So the grass cover gets destroyed and soil can be carried away by wind or running water. Poor farming also result in erosion.

Soil Erosion by Human Beings

4. Human Activities : Thousands of trees are cut down to meet the different needs by the man. Falling of trees or deforestation is a major cause of soil erosion. When trees are cut down, the soil becomes loose and it easily carried away.

Soil Conservation

The protection of soil and its prevention against erosion is known as soil conservation. We have learnt that how soil is important as a natural resource for sustaining life on the earth. Hence it is responsibility of mankind to preserve soil and avoid loosing it as much as possible.

Methods of Soil Conservation

We cannot stop natural forces like wind and water from causing soil erosion. However, soil can be conserved by controlling the actions of these agents of erosion. Following are the various ways by which soil conservation can be done :

1. By Plantation (Afforestation) : Soil can be conserved by planting grass and plants. It is the cheapest and most effective way of soil conservation.

Plantation

The roots of trees and plants hold the soil firmly and prevent it from being blown away or washed away.

If land is not being used for farming, it is good to grow grass on it. The grass covers the top soil and holds it down so that the top layer is not carried away by wind and water.

2. By Terrace Farming : In hilly areas, water flows at a great speed down the hills and loosens the particles of soil. This result in washing away of the nutrient - rich soil, making land barren. To prevent it, slopes are cut into terrace or steps for growing crops. The steps slow down the flow of water. As the water flows down, some soil from one step is left on the next step. Thus soil is never completely lost. Farming on such slopes is called terrace farming.

Terrace Farming

3. By Dams and Embankments : During the monsoon many rivers overflow and flood the field. During flood a great part of top soil is washed away by rivers. In order to prevent the great loss, dams and embankments are build for checking soil erosion. Making walls of rocks and stones on the banks of river is called embankment. This holds the water between the banks and prevents soil erosion.

Dam

4. By Cover Crops : After the crops are harvested, there is a time gap before planting a new crop. To prevent the soil from being blown away plants (grass, peas, groundnut etc.) are grown on the bare field. This is known as a cover crop. The roots of the cover crop holds the soil from being blown or washed away.

Cover Crops

5. By Avoiding Overgrazing : Cattle graze on grass and small plants which cover piece of land. Thus they expose the top layer and make it prone to erosion. Therefore, cattle should not be allowed to graze the field. To prevent the field farmers can use wire boundry around the field.

Wire Boundry

Bund

6. By Bunds : Water of river wash away the soil on their banks. To prevent this tall mud walls are built on the sides of the rivers. These are called bunds. Bunds act as a barrier between the river and river banks.

7. By Trees and Plants Strips : Strips of grass, trees or shrubs can be grown around the fields. These strips slow water run off from field and remove soil, chemicals and nutrients before water enters a stream.

POINTS OF VIEW

- The uppermost layer of the Earth is called soil.
- The soil is the foundation of all life on the Earth.
- Water and all other nutrients flow away with water.
- The soil is formed by the breaking down of rocks due to action of wind, water, temperature and micro-organism.
- Factors responsible for soil erosion are : rain, moving water, air, overgrazing and human activities.
- Soil can be conserved by planting grass and plants.
- To prevent soil, slopes are cut into terrace or steps.
- Dams and embankments are build for checking soil erosion.
- In plains, farmers build fences around the field to prevent soil erosion.
- In plains, farmers build fences around the field to prevent soil erosion.
- Strips of grass, trees or shrubs can be grown around the field to prevent the soil.

A. Tick (✓) the correct option :

1. It is the uppermost layer of the Earth is _____ .
   (a) rock ☐ (b) soil ☐ (c) sky ☐
2. It is known as farmer's friend _____ .
   (a) bacteria ☐ (b) fungi ☐ (c) earthworm ☐
3. This factor is not responsible for soil erosion _____ .
   (a) overgrazing ☐ (b) forest fires ☐ (c) temperature ☐
4. It is not involved in the process of wheathering _____ .
   (a) wind ☐ (b) deforestation ☐ (c) micro-organism ☐
5. Soil is mostly conserved by _____ .
   (a) afforestation ☐ (b) deforestation ☐ (c) making dams ☐
6. Afforestation is a term which means _____ .
   (a) making dams ☐ (b) felling of trees ☐ (c) overgrazing ☐

B. Fill in the blanks :

1. _____ is the foundation of all life on the earth.
2. _____ soil does not hold moisture.
3. _____ of soil is very slow and gradual process.
4. _____ are very helpful to the soil.
5. Moving water of river removes _____ and _____ from its bank.
6. Soil can be conserved by planting _____ and _____ .

C. Write True or False statements :

1. The uppermost layer of the earth is called soil. _____
2. Clayey soil holds moisture. _____
3. Loam has good qualities of both sandy and clayey soil. _____
4. Soil is not important as natural resources for sustaining life on the Earth. _____
5. Enbankment holds the water between the banks and prevents soil erosion. _____
6. Strips of grass, trees or shrubs can be grown middle the field. _____

D. Match the following :

Column 'A'	Column 'B'
1. Afforestation	(a) loss of soil
2. Deforestation	(b) protection of soil
3. Soil erosion	(c) a type of farming
4. Soil conservation	(d) cutting down trees
5. Terrace farming	(e) planting more trees

E. Give reasons for each :

1. Grasses should be grown on barren land.
2. Overgrazing by cattle should be avoided.

F. Answer the following questions :

1. What is soil ? How is it important to us ?
2. How was soil formed from rocks ?
3. How does water act as an agent of soil erosion ?
4. How does wind act as an agent of soil erosion ?
5. How is man responsible for soil erosion ?
6. What is soil conservation ? How can soil be conserved ?
7. Write four ways by which soil can be conserved.

Talk to your school gardener or a farmer and find out how he takes care of the soil and protects it from being blown away or washed away by rain.

Note down in your project file the observations you make about the conservation techniques followed by the gardener or the farmer.

Air and Water

Chap. 13

Learning Points

After completing this chapter we will be able to know about :

- The various layers of atmosphere
- Exhibit the properties of air and water
- Various ways by which soluble and insoluble
- Various ways of purifying water
- The composition of air
- Soluble and insoluble impurities
- Impurities can be removed

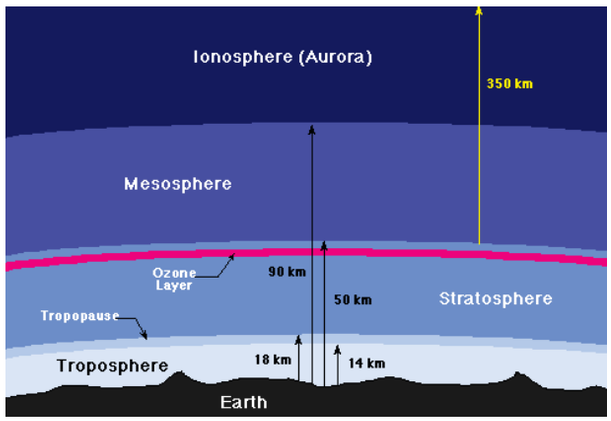
Air and Atmosphere

Our Earth is surrounded by a layer of air. It covers the Earth like a thick blanket. This blanket of air around the Earth is called the atmosphere. This layer of air is held in place due to Earth's gravity. We would not be able to live on the Earth without atmosphere. It protects us from the harmful ultraviolet radiations of the Sun by absorbing them. It traps some of heat of the Sun while reflecting most at it.

Layers of the Atmosphere

The atmosphere is divided into five layers :

1. Troposphere
2. Stratosphere
3. Ionosphere
4. Thermosphere
5. Exosphere

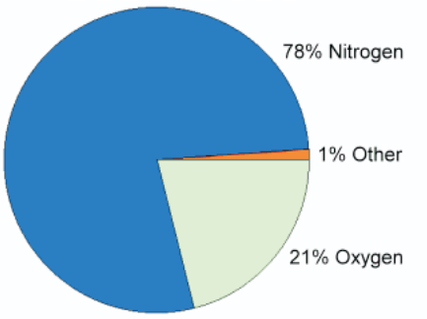


1. Troposphere : It is the first layer above the Earth's surface. It extends to a height of 15 km from the surface of the Earth. About 80% of all the air of the atmosphere is in the troposphere. Water vapour is also present in this layer. All weather take place in the layer.
2. Stratosphere : It is the second layer above the Earth's surface. The ozone gas present in this layer, which protects us from the sun's harmful ultraviolet rays. Mostly aircrafts fly in this layer because it is quite stable far them.
3. Ionosphere or Mesosphere : It is next (third) layer above the Earth's surface. It prevents small rocks called meteoroids (coming from space) from reaching the Earth's surface by burning them. These rocks can cause destruction on earth if they fall on it. It has electrically charged particles which help radio to work.

4. Thermosphere : It is next (fourth) layer above the Earth's surface. Space shuttle orbit in thermosphere.
5. Exosphere : It is outermost (fifth) layer above the Earth's surface. It contains very little layer of air. It helps in long distance communication through radio, mobiles, etc.

Components of Air

We already know that air surrounding us is a mixture of gases. It is a mixture of gases like oxygen, nitrogen, carbon dioxide, hydrogen and many other gases.



Formation of Air

1. Oxygen : It comprises almost 21% of the Earth's atmosphere. It is the most important amongst all gases present in the air. Animals and men both use it for respiration. It is also necessary for burning. It is used to burn the absorbed food inside the body to get energy.
2. Nitrogen : It is the most abundant gas and comprises 78% of the air. It cannot be taken directly from the atmosphere and utilized by plants and animals. Plants take in nitrogen from the soil with the help of bacteria as they can't take in nitrogen directly. They get it from the food they eat.
3. Carbon Dioxide : It comprises around 0.03% of our atmosphere. it is an important gas for plants. Green plants make their food from carbon dioxide and water in the presence of sunlight by the process of photosynthesis. Carbon dioxide is also important to maintain the earth's temperature.
4. Other Gases : Beside oxygen, nitrogen and carbon dioxide, many other gasses are also present in very small quantities in the air like argon, neon, helium, etc. Argon is used to fill electric bulbs. Neon is used in glow signs. Helium is filled in gas balloons. Besides these gases dust, smoke and water vapour also present in the air.
5. Water Vapour : Air also contains water vapour. Most of the water vapour present in the atmosphere is formed as a result of evaporation.


Water Vapour


Smoke in Air

Smoke and Dust Particles : Smoke comes out from factories and vehicles. This smoke mixed with air. Little particles of dust blow and mix in air. Therefore, dust is in the air.

Properties of Air

We already know that air cannot be seen. It is also colourless, tasteless and odourless. We can only feel its presence only when it moves.

Let's discuss some more properties of air.

1. Air Occupies Space : Air occupies space. This can be easily observed when we blow air in a balloon. It gets bigger, why? This is because the air we fill starts occupying space inside the balloon and it grows in size. Air takes up space in the balloon. The process of filling air into any expandable object is called inflation. It can be filled into things like mattressed and football.

2. Air has Weight : Air is made up of matter, therefore it has weight. This can be easily seen by comparing the weights of a deflated object with an inflated object. Inflated object will always be more. This shows that air has weight.

Activity-1

Take a thick long stick and tie a string at its centre. Then take two balloons of the same size. Fill both the balloons with air so that both of them are equal in size. Now tie one of each end of the stick. Now burst one of the balloon. The end with the balloon will come down as it contains more air. This show air has weight.

3. Air exerts Pressure : We know anything that has weight, exerts pressure. Air also has weight and exerts pressure. Air exerts pressure in all directions.

   The pressure exerted by air is necessary for many activities like taking in a liquid through a straw, filling ink in a fountain pen, filling in a syringe, etc.

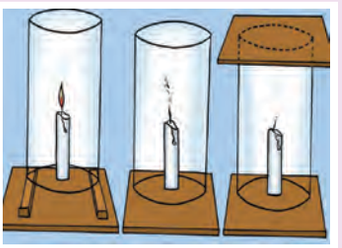
4. Air is Needed for Burning : Air consists of oxygen which supports burning. This can be seen with the help of a simple activity.

Activity-2

Take two candles and light them. Cover one of the candle with an empty glass. After few seconds you will see that the candle has go off.

This happens because covering the candle with a tumbler cuts off the air supply. Since the other candle gets a continuous supply of air, it keeps burning.

This shows that air is needed for burning.



5. Air is Needed for Breathing : All humans, plants and animals need air to breathe. Air keeps us alive. Press your nose and close your mouth. Wait for sometime. What do you feel? You start feeling uncomfortable because you cannot breathe without air.

Water

Lake

Like air, water is also essential for life. It covers over 70% of the Earth's surface. It is found on the Earth in different sources like seas, oceans, lakes, ponds, etc. It is found underground and in the air too. Rain is the main source of water. We need water for disease causing day-to-day requirements like drinking, cleaning, cooking and washing.

Impurities in Water

As the water flows it carries with mud and sand particles along with disease causing germs. Hence water becomes impure. We can get rid off these impurities by employing simple techniques and obtain clean water for drinking and other purpose.

Based on their nature, impurities can be of two types :

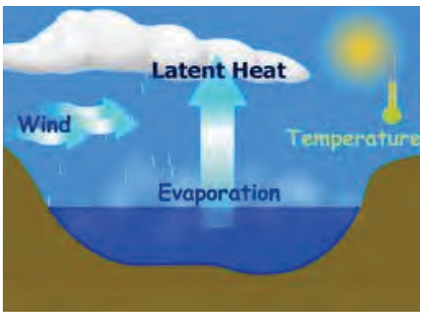
1. Soluble Impurities
2. Insoluble Impurities

1. Soluble Impurities : Impurities like salt and some minerals that can be dissolve in water are called soluble impurities. They cannot be seen.
2. Insoluble Impurities : Impurities like mud, twigs, stone etc. that do not dissolve in water are called insoluble impurities. They can be seen.

Purification of Water

We use different purification techniques to purify water depending on the nature of the impurities.

1. Separating Soluble Impurities : We should always drink clean and pure water. Soluble impurities can be removed in the following ways.

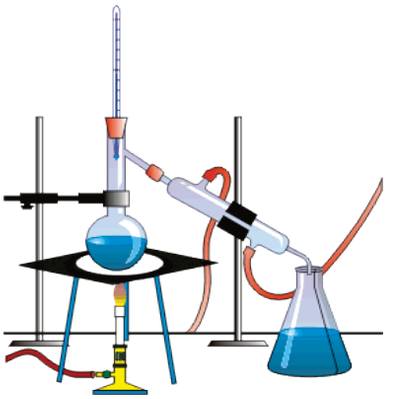


Evaporation

(i) Evaporation : On heating water changes into water vapour. The process that changes the water into water vapour is called evaporation. This is a very simple method of separating impurities like salt from water.

(ii) Distillation : Distillation is another process of water purification. It is carried out in a special apparatus consisting of a round flask, a water condenser and a receiving flask.

In distillation, contaminated water is heated untill it start boiling. This boiling water slowly changes into steam leaving behind the impurities in the flask. The steam then passes through the condenser and gets cooled, thereby turning back into liquid water. This clean water gets collected in the receiving flask.



Distillation

2. Separating Insoluble Impurities : Insoluble impurities can be removed in the following ways :

(i) Sedimentation : Setting down of heavy insoluble impurities present in the water is called sedimentation. In this method let water stand for sometime. Impurities that are heavier than water settle at the bottom. This method is used to remove sand from water.

Sedimentation

Decantation

(ii) Decantation : When the insoluble impurities settle down at the bottom, the water above become clear. The process of pouring out the clean water into another vessel is called decantation.

(ii) Filtration : The method of purifying water by using a funnel and a filter paper or filter cloth is called filtration. The clean water obtained in the beaker or container is called filter. The insoluble impurities left behind on the filter paper are called residues.

Filtration

Now-a-days some households use water filters and purifires to clean drinking water. Adding chlorine to water to purify it is called chlorination.

POINTS OF VIEW

- Air around the Earth is called the atmosphere.
- Troposphere is the first layer above the Earth's surface.
- The ozone gas present in stratosphere. Ozone protects us from the Sun's harmful ultraviolet rays.
- Inosphere has electrical charged particles which help radio to work.
- Exosphere is outermost layer of the Earth's surface. It contains very little layer of air.
- Air is a mixture of many gases in which oxygen 21% Nitrogen 78% and carbon dioxide 0.03%.
- Green plants make their food from carbon dioxide and water in the presence of sunlight by the process of photosynthesis.
- Most of the water vapour present in the atmosphere is formed as a result of evaporation.
- Air occupies space. This can be easily observed when we blow air in a balloon.
- All human, plants and animals need air to breathe.
- Water covers over 70% of the Earth's surface. Rain is the main source of water.
- Impurities like salt and some minerals that can be dissolve in water are called soluble impurities.
- We use different purification techniques to purify water depending on the nature of impurities.
- We should always drink clean and pure water.

A. Tick (✓) the correct option :

1. About 21% of the air is _____.
   (a) nitrogen ☐ (b) oxygen ☐ (c) carbon dioxide ☐
2. The air around the Earth is called the _____ .
   (a) sky ☐ (b) atmosphere ☐ (c) ozone ☐
3. Air exerts _____ .
   (a) mass ☐ (b) pressure ☐ (c) weight ☐
4. Air contains _____.
   (a) dust ☐ (b) smoke ☐ (c) water vapour ☐
5. The change of water into water vapour is called _____ .
   (a) evaporation ☐ (b) humidity ☐ (c) condensation ☐
6. Soluble impurities can be removed by _____ .
   (a) boiling ☐ (b) chlorination ☐ (c) water filter ☐

B. Fill in the blanks :

1. Our _____ is surrounded by a layer of air.
2. Air protects us from the _____ ultraviolet radiation of the Sun.
3. _____ is also present in troposphere.
4. _____ is used to burn the absorbed food inside the body to get energy.
5. _____ is used to glow signs.
6. _____ is filled in gas balloons.
7. _____ is also important to maintain the Earth's temperature.

C. Write True or False statement :

1. Air makes the life possible on the Earth. _____
2. Mesosphere has electrically charged particles which help radio to work. _____
3. Oxygen comprise almost 21% of the air. _____
4. The pressure exerted by air is necessary for many activities. _____
5. All human, plants and animals need air to breathe. _____
6. Salt is a soluble impurity. _____
7. Mud, twigs and stones are insoluble impurities. _____

D. Match the following :

Column 'A'	Column 'B'
1. Troposphere	(a) electrically charged particles
2. Stratosphere	(b) space shuttle orbit
3. Ionosphere	(c) long distance communication
4. Thermosphere	(d) air crafts fly
5. Exosphere	(e) 80% of all the air of the atmosphere

E. Answer the following questions :

1. What do you understand by air and atmosphere?
2. What is stratosphere? How is it useful to us?
3. We would not be able to live on the Earth without atmosphere. Explain.
4. How can you prove that air occupies space?
5. How can you prove that air has weight?
6. Explain the sedimentation and decantation.
7. Water is also essential for life. Justify.

➤ Make your own water purifier :

Materials Required : One 2 litre plastic bottle, fine sand, fine gravel, charcoal granules, fine cotton cloth, cup.

Method :

1. Cut the base of the plastic bottle.
2. Tie a piece of thin cotton cloth on the mouth of bottle.
3. Turn the bottle upside down.
4. Place a layer of fine gravel at the bottom.
5. Add alternate layers of charcoal and sand until the bottle is two-thirds full.
6. Tie a piece of a larger thin cloth of cotton at the top broad end of the bottle. This will act as a strainer and hold back larger particles.
7. Once you have everything in place, pour the water through the cloth at the top. The cloth will act as a strainer and hold back large particles.
8. The water will pass through the different layers to remove the impurities. It will finally reach the bottom and pass out through the narrow mouth of the bottle.
9. Collect the water in a cup. This water is free of most impurities and can be drunk safely.

Our Universe

Chap. 14

Learning Points

After completing this chapter we will be able to know about :

- The different forces of nature.
- The internal structure of the Earth.
- The gravity as the force that keeps plants.
- In orbit around the Sun and the moon in orbit around the Earth.
- Different heavenly bodies in the solar system.
- Physical characters of the moon.
- Causes of four phases of moon.

We see many objects and few events taking place in the sky. Man has always been fascinated by the various objects in the sky; which make up universe. All heavenly bodies in the universe attract each other by the force of gravitation. The closer the two bodies, greater is the force of gravitation acting between them. This force of gravitation causes the planets to move around the Sun.

Look at the picture of solar system. Write the name of all planets :

The Solar System

The solar system consists of the Sun and its planetry of eight planets and their moons. The solar system is shaped like a discount forms a tiny part of galaxy called the milky way.

The eight planets, *i.e.*, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune revolved around the Sun in a fixed elliptical orbit. The planet like

objects made of lumps of rocks are called asteroids or miner planets orbiting mainly Mars and Jupiter. Bodies of dust and frozen gases called comets. All planets orbiting mainly Mars and Jupiter. All planets have almost circular orbits that lie within a nerly flat disc called the ecliptic plane.

The solar system is also home to a number of regions populated by small objects.

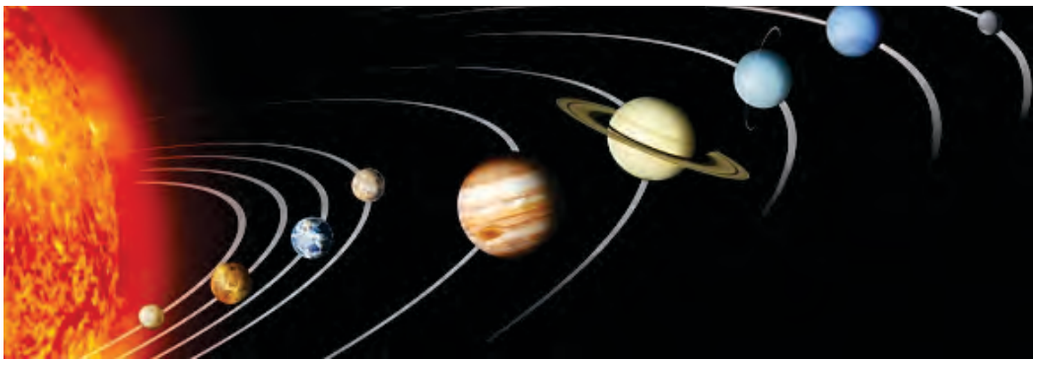
The Sun

The Sun

It is the star at the center of the solar system. It is almost perfectly spherical and consists of hot plasma. It has a diameter of about 1,392,684 km. It is at a distance about 149.6 million kilometer from the Earth. At this average distance, light travels, from the Sun to Earth in about 8 minuts and 19 seconds. The energy of this sunlight supports almost all life on the Earth by photosynthesis and drives Earth's climate and weather. The enormous effect of the sun on the Earth has been recognized since prehistoric times, and the Sun has been regarded by some cultures as a deity. An accurate scientific understanding of the Sun developed slowly, and as recently as the 19th century prominent scientists had little knowledge of the Sun's physical composition and source of energy. This understanding is still development, there are a number of present day anomalies in the sun's behaviour that remain unexplained.

The Planets

A planet is the second largest space object in solar system. The planets revolve around the Sun in fixed elliptical orbits. They reflect the light of the Sun.



Solar System

Eight planets have been discovered in our solar system. Mercury, Venus, Earth and Mars are the planets closest to the Sun. They are called the inner planets. The inner planets are made up of mostly of rock. Jupiter, Saturn, Uranus and Neptune are the outer planets. These planets are large balls of gases with rings around them.

The Earth

The Earth

It is the third planet from the Sun; and densesnt and fifth largest of the eight planets in the solar system. It is also largest of the solar system's four terrestrial planets. It is sometimes referred to as the word, the Blue Planet. The Earth formed approximately 4.54 billion years ago, and life appeared on its surface within one billion years.

Looking at the interior structure of the Earth from a cross-sectional point of view, we can identify three main parts :

Core : It is the very centre of the Earth and is subjected to extreme temperatures and pressure. The inner core is solid and made of iron and nickels metals while outer core is semi-liquid molten iron metal.

Mantle : The mantle is made up of rock materials and is sandwiched between the core and the crust. It consists of mainly solid rocks, but the upper mantle is actually a layer of semi-liquid molten rock called magma. This magma flows slowly underneath the crust.

Crust : It is a relatively thin outermost layer of rocks that 'floats' above the mantle. It is made up of solid rocks which are divided into the continental and oceanic plates. These plates fit together like pieces of a puzzle.

The Moon

The Moon

The moon is the only natural satellite of the Earth, and the fifth largest satellite in the solar system. It is the natural satellite of a planet in the solar system relative to the size if its primary, having 27% the diameter and 60% the density of Earth. The moon is the second densest satellite after IO, a satellite of Jupiter.

Surface of Moon

Surface of Moon : The moon is a ball of gray rocks which are covered with dust. Its surface is made up of mountains and plains.

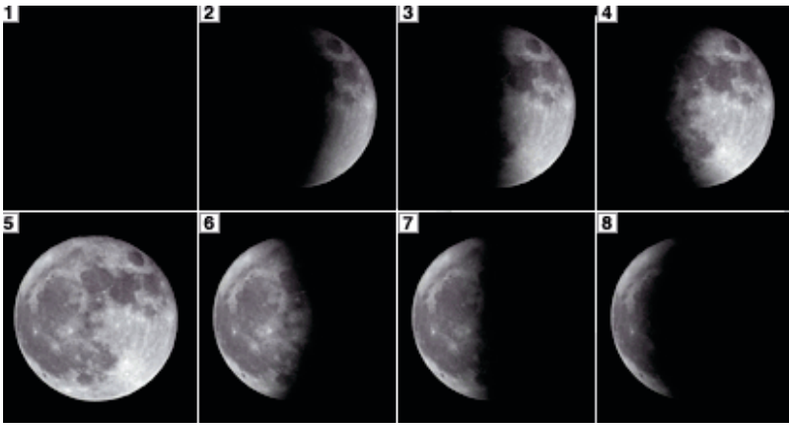
Huge saucer shaped holes are scattered

over the surface of moon. They are called craters. The scientists believe that they are caused by the crashing of meteorites huge pieces of rocks on the surface of moon.

From the Earth, the large flat areas called low lands appear as dark patches while the highlands appear as bright parts. Due to absence of atmosphere, the surface of the moon becomes extremely hot during day and extremely cold during the night, with no air, there is no sound or wind to stir the rocky dust. Without air and water no life can exist on moon. So the moom is a still, barren and lifeless place.

Phases of The Moon

The moon does not have its own light. It reflects the light of the Sun. When the moon phases between the Earth and the Sun, sunlight falls on the part turned away from us and so the moon is not visible to us. This happens on the new moon-light.



Phases of Moon

Every night, the illuminated part grows in size till we see the full moon on the 15th day. From the next day, the illuminated part decreases in size and becomes completely invisible on the 15th day. This is known as the new moon day.

From one new moon to another it takes roughly 30 days and this period is called a lunar month (lunar related to the moon). The part of the moon visible to us is called the phase of the moon.

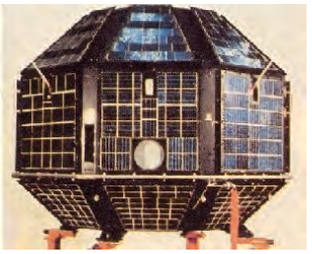
The Moon and The Tides : Tides are periodic rises and falls of large bodies of water caused by the gravity of the moon and the Sun. When the water level falls, it is called low tide. Each day there are two high tides and two low tides. It takes about six hours for the falling water to reach low tide. The Sun, the moon and the Earth are in one line during a full moon or a new moon. Their combined gravity causes higher than normal high normal tides on these days.


High Tide


Low Tide

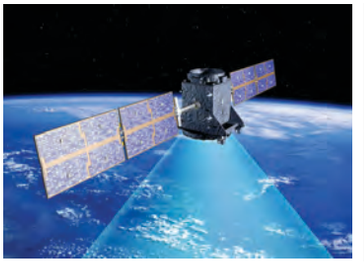
Artificial Satellites

Artificial satellites are man-made objects which revolve around the Earth just as

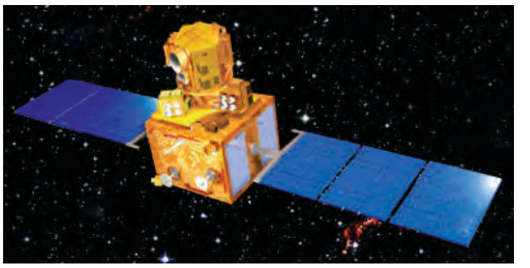


Aryabhatta

Sputnik IA



Bhaskara



CARTOSAT

Artificial Satellite

the moon does. The Earth's only natural satellite is the moon. Like the moon, artificial satellite reflect the Sun's light and can be seen clearly in the night sky. The space age began is 1957 when the first man-made satellite Sputnik was launched to orbit in space by Russian scientists. Since then thousand of satellites have been sent into space. On 12 April 1961, Major Yuri Gagarin of Russia became the first man in the world to go into space. Velentina Tereshkova of Russia was the first woman to go into space. On 3 April 1984, Squadron leader Rakesh Sharma became India's first man to go into space.

Aryabhatta, launched in 1975, was the first Indian satellite. Bhaskara, Rohini, Apple, Insat 1A, Insat 2B, Insat 2C, Insat 3B, Insat 3C, Insat 3A and Insat 3E are other Indian satellites. In April 2008, India launched CARTOSAT 2A, are more sensing satellite into space.

Uses of Artificial Satellite

An artificial satellite is one of the most useful things for mankind. Different kinds of artificial satellites are designed for different purposes.

POINTS OF VIEW

- The solar system is shaped like a discount forms a tiny part of galaxy called milky way.
- There are eight planets revolved around the Sun in a fixed elliptical orbit.
- The diameter of the Sun is about 1,392,684 km.
- Light travels from the Sun to the Earth in about 8 minutes and 19 seconds.
- Planet is the second largest space object in solar system.
- The Earth is the third planet from the Sun.
- The moon is the natural satellite of the Earth.
- An artificial satellite is one of the most useful things for mankind.
- Valentina Tereshkova was the first woman to go into space.

A. Tick (✓) the correct option :

1. Which force cause the planets to move around the Sun ?
   (a) Meganetic force ☐ (b) Friction force ☐ (c) Gravitational force ☐
2. How many planets are there in solar system ?
   (a) Seven ☐ (b) Eight ☐ (c) Nine ☐
3. Bodies of dust and frozen gases are called _____ .
   (a) Comets ☐ (b) Asteroids ☐ (c) Path ☐
4. How much time to take the light reaches on the Earth ?
   (a) 3 minutes ☐ (b) 6 minutes and 15 seconds ☐
   (c) 8 minutes and 19 second ☐
5. _____ are the outer planets.
   (a) Uranus and Neptune ☐ (b) Mars and Jupiter ☐ (c) Moon and Earth ☐
6. The Earth formed approximately _____ years ago.
   (a) 4.54 millions ☐ (b) 4.54 billion ☐ (c) 4.54 trillion ☐

B. Fill in the blanks :

1. The force of _____ causes the planets to move around the Sun.
2. The planet like objects made of lumps of rocks are called _____ .
3. The energy of _____ supports almost all life on the _____ .
4. A _____ is the second largest space object in solar system.
5. The _____ is the third planet from the Sun.
6. The moon is a ball of _____ rocks.

C. Write True or False statements :

1. The bodies of dust and frozen gases revolving around the Sun. _____
2. The solar system consists of eight planets. _____
3. Bodies of dust and frozen gases are called commets. _____
4. The Earth is also known as the Black planet. _____
5. Crust is a thin outer most layer of rocks. _____
6. The moon has its own light. _____

D. Match the following :

Column 'A'	Column 'B'
1. Plants in solar system	(a) 4.54 billion years
2. Diameter of the Sun	(b) Core
3. Formation of the Earth	(c) Indian astronaut
4. Center of the Earth	(d) 1,392,684 km
5. Kalpana Chawla	(e) eight

E. Give the scientific reason :

1. We cannot heard the sound on the moon. Why?
2. We see different shapes of the moon everynight.
3. The moon shines though it does not have its own light.

F. Answer the following questions :

1. What do you mean by solar system ? How many planets are there in solar system ?
2. Write the name of inner and outer planets of the Sun.
3. Why there is no life on the moon ?
4. Why the Earth is called the Blue planet ?
5. What do you mean by man-made satellites and how they are useful to mankind ?
6. What do you mean by astronauts ? Write the name of some Indian astronauts.

ACTIVITY BAG

➤ Look at the given pictures. Find out the phase of moon is seen on the following festivals.

Diwali

Ganesh Chaturthi

Eid

Legends of the World

Chap. 15

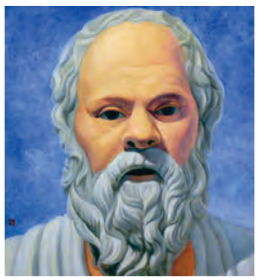
Learning Points

After completing this chapter we will be able to know about :

- Some great people who led to the progress of mankind.

Some great people led to the progress of mankind these were the scientists, mathematicians, doctors, engineers, philosophers, clergymans, businessmen, nun and so on. These people have made useful contributions and selfless dedications to humanity. They lived and died for other. These great people are always remembered with respect. They spread the message of love, peace, unity and brotherhood among people all over the world. Let us read and learn about life and work of such legends of the world.

Socrates (469 BC–399 BC)



Socrates

Socrates was born about 2400 years ago near Athens. He was a Greek philosopher and a great teacher. Socratic dialogues are a book written by Pluto, who was his disciple. The book is the best source of information about Socrates. Socrates believed that mains strength lies in the power of reasoning and not in accepting things blindly. He also said that the only way to discover truth is by asking questions. He taught to believe in truth, to seek truth think with your mind and reason out. Although Socrates had many disciples but some people opposed his teaching. The ruling class forced him to give up his teaching and when they failed to change him he was sentenced to death and was made to drink hemlock, a poison. Socrates gladly consumed the hemlock. He accepted death but did not give up the path of truth and fearlessness.

Abraham Lincoln (1809–1865)

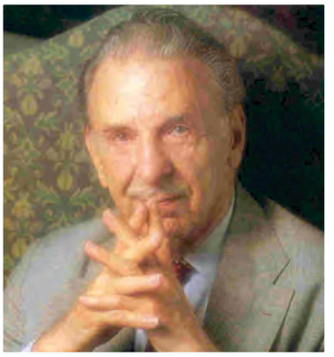
Abraham Lincoln

Abraham Lincoln was born on 12 February 1809 in Kentucky (USA). His father was a poor farmer and he lost his mother at the age of nine. He could not attend school for long but he worked and earned money to study further. He studied law and became a successful lawyer. He was drawn into politics when he was 23. When in 1861 he was elected the President of America, there was unrest in South America and North America. As blacks from Africa he made to work on farms in southern states of America and treated like unpaid slaves.

However the northern states were against slavery. A civil war broke out between them. Abraham put an end to slavery and kept the country united. His popularity led to his victory again in 1865. However, some people opposed him. On 14 April 1865, he was shot dead in a theatre by Johan Wilkes Boom.

Jamshedji Tata (1839–1904)

Jamshedji Tata



J.R.D. Tata

Jamshedji Tata was born on March 3, 1839 in a small town of Gujarat. His father Nusserwan ji Tata was the first businessman in a family of parse priests. Jamshedji went to Mumbai with his father and at the age of 14 he started studying in Elphinstone College. And after his graduation he worked in his father's firm till the age of 29. In 1869, he started his own trading company and a year later he acquired a bankrupt oil mill. He converted it into a cotton mill. It was named as Alexendra Mill and sold for a healthy profit. In 1874 cotton mill in Nagpur was setup. Over the next thirty years till his death in 1904 Jamshedji laid the strong foundation of the Tata group of industries. He was a pioneer's industrialist. Jehangir Ratanji Dadabhoy Tata (J.R.D. Tata) was born on July 29, 1904 in France. Flying was a passion for him he was the first Indian to be a pilot in 1932. He founded Tata Airlines that became Air India in 1948. He was awarded the Bharat Ratna in 1992. He started India's first international airlines in the name of Air India International. He was appointed as the chairman of Air India and director of Indian Airlines in 1953. Till 1958 he retained this position. Thus Tata's sought to provide economic self sufficiency to the country.

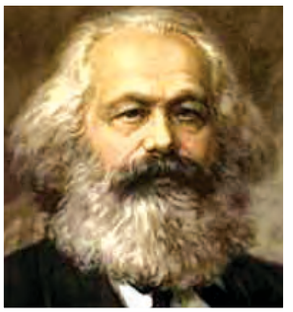
Sir C.V. Raman (1888–1970)

C.V. Raman

Chandrasekhar Venkata Raman, popularly known as C.V Raman was born on November 7, 1888 in Tiruchirappalli, Tamil Nadu. His father was a lecture in mathematics and physics. Raman had a genius mind. Enthusiasm and interest to learn new things were natural to Raman. He had stood a first place in B.A and M.A.

Raman used to visit the IACS laboratory for research purposes after his office hours in 1917. He joined as a professor of physics at the University of Kolkata. Working here for 15 years he simultaneously continued his researching work at IACS and became the honorary secretary. He go worldwide recognition for his work in optics and scattering of light. In 1930, he received the Noble prize in physics for it. His discovery was named the Raman Effect. To commemorate his discovery we celebrate 28 February as the National Science Day. He established the Raman Research Institute in Bangalore, Karnataka. Raman also worked on the sounds of musical instruments. His teaching practice was very interesting and based on explorations. He was awarded the Bharat Ratna in 1954 and Lenin Prize in 1957. He passed away in he year 1970, he left behind a distinctive research institute with beautiful laboratories, museums, library and valuable additional land for future expansion. He even donated all his personal property to be utilized as to supports the institute.

Karl Marx (1818–1883)



Karl Marx was born in Germany. He was a philosopher, historian, political economist and a communist. He worked for the up liftment of the workers. During industrial revolution the factory owners called capitalist became very rich however the workers were being exploited by them as they were not paid enough wages for their work. Karl Marx wrote two books Das Capital and the Communist Manifesto. Which become very famous. According to the theory of Maxim, the property of a factory should be owned by the community of workers and not the capitalists. Karl Marx's ideas brought an awakening in the society and later inspired many communist revolutions all over the world.

POINTS OF VIEW

- People who have made useful contributions and selfless dedications to humanity are known as legends of the world.
- Socrates accepted death but did not give up the path of truth and fearlessness.
- Abraham Licoln was the President of USA.
- Abraham Licoln put an end to slavery and kept the country united.
- Jamshed ji Tata was setup the cotton mill in Nagpur in 1874.
- Chandra Shekher Venkat Raman, popularly known as CV Raman.

A. Tick (✓) the correct option :

1. Who was a Greek philosopher and a great Teacher ?

   (a) Plotinus ☐ (b) Socrates ☐ (c) Aristotle ☐

2. Who said "Democracy is the government of the people, by the people and for the people"?

   (a) Karl Marx ☐ (b) Pluto ☐ (b) Abraham Lincoln ☐

3. Das Capital the famous book is written by _____ .

   (a) Abraham Lincoln ☐ (b) Pluto ☐ (b) Karl Marx ☐

4. Who was the President of the United States that put an end to slavery ?

   (a) Abraham Lincoln ☐ (b) Karl Marx ☐ (b) Martin Luther King ☐

5. Who get the noble peace prize in 1964 for his work to end racial discrimination ?

   (a) Socrates ☐ (b) Martin Luther King ☐ (b) Abraham Lincoln ☐

B. Fill in the Blank :

1. Karl Marx was a _____ philosopher, political economist, historian and a communist.
2. _____ is remembered for his vital role as a leader who led to the end of slavery.
3. _____ was a student of Socrates.
4. _____ was a German philosopher who laid the foundation of modern communism.

C. Write True or False statements :

1. The capitalists were a class of rich industrialists who exploited the laborers. _____
2. The Communist Manifesto and Das Kapital are famous books is written by Karl Marx. _____
3. Socrates was a German philosopher and a great teacher. _____
4. Socrates accepted death but did not give up the path of truth. _____
5. Abraham Lincoln was elected President of USA in 1816. _____

D. Answer the following questions :

1. Who was Abraham Lincoln? What was his greatest achievement?
2. In which field did Jamshed ji Tata is remembered for?
3. Who were the capitalisms? Explain briefly.
4. Who was Socrates and what were his preaching's?
5. Karl Marx was an eminent German philosopher. What contribution did he made?

- Abraham Lincoln was a great leader. Write few lines about his upbringing and his work, for which he is remembered and loved by all in your notebooks.

Social and Cultural Awakening

Chap. 16

After completing this chapter we will be able to know about :

- The characteristics of Indian movements
- Brahmo samaj
- Movement for Hindu remarriage
- Aligarh movement
- Ramakrishna Mission
- Theosophical Society
- Arya Samaj

Indian society was beset with many evils and in human practices. However, the Indian society and culture continued to undergo the dynamic process of change and continuity. During the 19th century, it went through one more phase of socio-religious reforms and cultural regeneration. Several reform movements were started by the Indian enlightened people. In this chapter we will study about these enlightened people and the movements which were launched by them.

Characteristics of the Indian Renaissance

1. Renaissance aroused nationalism.
2. It highlighted the need for ancient Indian ideals and love for the motherland.
3. People began to oppose superstition and superfluous rituals.
4. The nation began to be considered as a part of world community.
5. The western education infused in people the ideas of liberty, equality and fraternity.

Many educated young people visited England where they got working knowledge for democratic institutions.

Brahmo Samaj : Raja Ram Mohan Roy founded the Brahmo Samaj in India in 1830. He was influenced by the broad outlook of the European culture. The members of Brahmo Samaj opposed idol, worship and preached the belief in one God.

Raja Ram Mohan Roy was a great social reformer of the 19th century. He was born in Bengal in 1772. He was a great scholar of Arabic, Persian and Sanskrit.

Raja Ram Mohan Roy was deeply hurt when his sister-in-law was forced to become *sati* when her husband died. He spent his entire life fighting against evil practices like *sati*, child marriage and caste system. His greatest achievement was the abolition of sati system in 1829.

Raja Ram Mohan Roy

Movement for Widow Re-marriage : Ishwar Chandra Vidyasagar openly supported widow remarriage and proved that it was not prohibited by the *shastras*. He strongly opposed the orthodox Hindus. However, Governor General Lord Dalhousie appreciated his efforts and widow Remarriage Act was passed in 1856. First of all, Vidyasagar married a widow in Calcutta (Kolkata) in 1856.

Arya Samaj : The reforms by Raja Ram Mohan Roy, Mahadeo Govind Ranade were greatly influenced by the Eruopean culture. However, there were other social reformers who had strong beliefs in Indian culture and customs. So, they based their reforms on Indian culture.

Swami Dayanand Saraswati founded Arya Samaj in 1875. He was a great scholar of Sanskrit and had studied the religious books deeply. He believed that though Vedas from the base of Hindu religion, their basic principles are not followed. He opposed casteism, idol worship and discrimination between man and woman. He believed in one God and did not believe in religious superstitions. He wrote a famous book called 'Satyarth Prakash' based on the philosophy of the Vedas.

Swami Dayanand Saraswati

Swami Viveknanad

Arya Samaj also allowed non-Hindus to be converted into Hindus.

Ramakrishna Mission : The Ramakrishna Mission was established by Swami Vivekanand. He was the pupil of Shri Ramakrishna Paramahans. He had a dynamic personality, deep knowledge of Hinduism and a rare vision. He attended the World Parliament of Religion at Chicago in 1893. Where he was heard with great favour. Vivekanand was a first Indian who re-established the spiritual Pre-eminence of the Vedanta philosophy on a global scale. He aroused nationalism among the Indian people and opposed all the social evils.

Aligarh Movement

In 19th century, the Muslim Society was against European culture and education. Their religious leaders were against the education of women. They did not like to send their girls to schools. Purdah System was hardly practised in Muslim society. Sir Syed Ahmed Khan took the support of the British to improve the condition of the Muslims. He opposed the injustice done to the Muslim women and Purdah System. He also emphaslised that the education was very important to change the society. He set up Mohammedan Anglo Oriental College in 1875 at Aligarh which later came to be known as the Aligarh Muslim University. He also brought new awakening in the Muslim society so that Muslim women could also get higher education.

Sir Syed Ahmed Shariatullah also worked towards the reformation of the Muslim society. Nawab Abdul Latif was another Muslim reformer who worked in favour of modernisation in the Muslim Society. He changed Hindu College into Presidency College in Calcutta (Kolkata) and thus opened it for Hindus as well.

His next important step was the establishment of the Mohammedan Literary Society in Calcutta (Kolkata) in 1863 in order to formulate Public opinion in favour of modern education and to bring enlightened Muslims, Hindus, and Englishmen together for mutual benefits. He also established numerous educational institutes, including Rajashahi Madrasah.


Sir Syed Ahmed Khan


Aligarh Muslim University


Presidency College

The Theosophical Society : The Theosophical Society led by Annie Besant in India was inspired by the philosophy of western enlightenment. But it found in the *Upanishads* a storehouse of wisdom for the realization of the absolute. Based on this discovery, the Theosophical Society of India was founded at Adyar in Madras (Chennai) in 1886 carried out extensive research on the Hindu religious systems. This society published many books and founded the Central Hindu College at Varanasi in1858. Society strongly opposed child marriage and supported the abolition of caste system.


Annie Besant

Ramabai Ranade holds a place of pride among the women social reformers. She founded the Poona Seva Sadan where girls were trained as nurses.

Mahadev Govind Ranade founded Prathana Samaj at Bombay (Mumbai) in 1868. He emphasised the education of women, widow remarriage and abolition of *purdah* system.

Keshav Chandra Sen and Maharishi Devendra Thakur founded Veda Samaj at Madras (Chennai) which followed the principles and aims of Brahmo Samaj.

All these Social reformers helped improving the status of women and spreading education. They developed the people of India. It helped a lot in giving new life to the Indian National Movement.


Ramabai Ranade


Mahadev Govind Ranade


Keshav Chandra Sen

POINTS OF VIEW

- Ishwar Chandra Vidyasagar married a widow.
- Swami Vivekanand established Ramakrishna Mission.
- The Theosophical Society of India was established in 1886 at Adyar in Madras.
- Mohammedan Anglo Oriental College was established in 1877 by Sir Sayed Ahmed Khan at Aligarh.

A. Tick (✓) the correct option :

1. Raja Ram Mohan Roy was born in _____ .
   (a) 1712 ☐ (b) 1772 ☐ (c) 1872 ☐
2. Who married a widow first ?
   (a) Ishwar Chandra Vidyasagar ☐
   (b) Raja Ram Mohan Roy ☐
   (c) Keshav Chandra Sen ☐
3. Who passed widow remarriage act ?
   (a) Lord Bentinque ☐ (b) Lord Dalhosie ☐ (c) Lord Mountbetan ☐
4. Poona Seva Sadan was founded by _____ .
   (a) Dayanand ☐ (b) Vivekanand ☐ (c) Ramabai Ranade ☐
5. Keshav Chandra Sen was the founder of _____ .
   (a) Veda Samaj ☐ (b) Brahmo Samaj ☐ (c) Prrthana Samaj ☐

B. Fill in the blanks :

1. Raja Ram Mohan Roy was a great _____ of India.
2. Ishwar Chandra Vidyasagar married a widow in _____.
3. Swami Vivekanand established _____.
4. The Theosophical Society was founded in _____.
5. Ramabai Ranade founded _____.

C. Write True or False statements :

1. Sir Syed Ahmed Khan started Aligarh Movement. _____
2. Central Hindu College was established at Varanasi in 1898. _____
3. Vivekanand participated in World Parliament of Religions at Chicago. _____
4. Vidyasagar established Arya Samaj. _____
5. 'Satyartha Prakash' is written by Dayanand Saraswati. _____

D. Answer the following questions :

1. Who married a widow ?
2. Who was Raja Ram Mohan Roy ?
3. Who established Arya Samaj ?
4. Who was Sir Syed Ahmed Khan ?
5. Write a short note on Ramakrishna Mission.

ACTIVITY BAG

▸ Identify the pictures of social reformers and write their name and works :

Name : _____

Works : _____

Name : _____

Works : _____

Name : _____

Works : _____

Name : _____

Works : _____

Name : _____

Works : _____

Name : _____

Works : _____

Mahatma Gandhi Leads the Nation

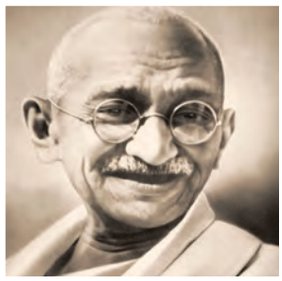
Chap. 17

Learning Points

After completing this chapter we will be able to know about :

- The role of Mohandas Karam Chand Gandhi in struggle for freedom of India
- The Rowlatt Act 1919
- Non-corporation movement
- The Simon commission
- Civil Disobedience movement
- Quit India Movement

The story of our struggle for freedom is incomplete without discussing the contribution of Mohandas Karamchand Gandhi. He become one of the most respectful political leaders of the time as he adopted the path of non-violence and helped to free the Indians from British Rule. The show their respect the people of India started calling him "Mahatma Gandhi".



Mahatma Gandhi

Gandhiji was born on October 2, 1869 at Porbandar Gujarat. He studied law in England and then went to South Africa to practice law. Mahatma Gandhi stayed therefor 21 years. He fight against the racist policies of white rulers there. As the British ruled South Africa and the Indians there were ill-treated at that time.

On returning to India in 1915, Gandhiji became an important part of the Indian National Congress. He was shocked to see the poor state of Indian under British Rule and also become very unhappy about the untouchables (lower cast people). The disunity among the Indian people due to religion cast and gender was a hindrance in the achievement of freedom.

Hence Gandhiji decided to work for their unity and freedom from such evils and as well as British Rule. He started working both on service and as well as political fronts. He gave the name 'Harijans' to untouchables. He started Satyagrah in India too, as according to him, it was the most important weapon against the British Rule. Gandhiji is simplicity kindfullness and commitment to the causes attracted the Indian masses who followed his philosophy.

Rowlatt Act of 1919

Jallianwala Bagh

In the year 1919, the British Government passed a new law called Rowlatt Act, under which it had power to arrest people and keep them in prison without any trail. Gandhiji called for a countrywide protest against the act and it was raised by calling a 'Hartal'. The Rowlatt Act led the agitations by political leaders as well as the common public and reached the pinnacle in Amritsar, Punjab, where two leaders of the INC, as Staypal and Dr. Saifuddin Kitchlaw were arrested and taken to an unknown place. Protest their arrest a public meeting was attended by about 5000 people at Jallianwala Bagh in Amritsar on 13 April 1919. It had one entrance gate only. The British General Dyer blocked the entrance with his troops and commanded them to fire on the gathered people without any warning.

The firing rested for 10 -12 minutes killing about thousands of people and many people were left wounded. This masscare of Jallianwala Bagh was the worst picture of British Rule. This shattered the faith of the whole nation and provoked a great rage amongst the Indians against the British Government.

Non-co-operation Movement

After the Jalllianwala Bagh massacare massier protests,strikes and acts of civil disobedience spread across India. In 1920 Gandhi Ji led nation wide people's movement of non-violent resistances called the non-co-operation movement it opened the Gandhi and era in the Indian independence of movement. According to this movement Indians did not co-operate the British Government and started breaking the laws deliberately. They decided to return the titles and honours conferred by the British

- Thousands of students and teachers left the schools and colleges run by the British.
- Boycott of elections and government functions.
- They left their government jobs.
- People protested in front of shops selling British Goods and laid stress on buying Indian goods only.
- Subhash Chandra Bose resigned from the Indian Civil Services.

The movement was a great success Gandhiji had always emphasized that the movement should be peaceful however, an angry mob attacked and burnt the British Police station at Chauri Chaura, a village in Uttar Pradesh. 22 Policemen were killed in this incident. Gandhiji was so shocked with it and he withdraw the movement immediately.

Bhagat Singh

Sardar Patel

Lala Lajpat Rai

Jawahar Lal Nehru

Sarojni Naidu

A new group of revolutionaries like Bhagat Singh, Rajguru, Jatin Das, Chandra Shekar Azad and many more became active. They sacrificed their lives and this shoote the foundation of British Rule in India.

A few more leaders also came to the front in the struggle for freedom. Among them were Sardar Vallabh Bhai Patel, Rajendra Prasad, Maulana Abdul Kalam Azad, Sarojini Naidu, Motilal Nehru, and Jawaharlal Nehru.

Simon Commission

In 1927, The British Government appointed Sir John Simon the head to investigate and make some changes and reforms in the administration of India. The INC boycotted the commission as there were no Indian representative in it. When Sir Simon come to India, the people protested by carrying out black flags in their hands on the road with the slogan of "Simon Go Back" the protestors were lathi charged and in one such act Lala Lajpat Rai was badly injured in Lahore. On 17 November 1928 he died.

Protesting Simon Commissinor

The Great Sacrifices' of the Revolutionaries : On 8 April, 1929 Bhagat Singh and B.K. Dutt exploded two bombs on the floor of Central Assembly. Bhagat Singh, Rajguru and Sukhdev were sentenced to death. Jatin Das died in Jail after an unlimited fast for many days.


B.K. Dutt


Jatin Das

Civil Disobedience Movement : In December 1929, the INC passed a resolution and demanded complete independence or Poorna Swaraj from the British they also started Civil Disobedience movement under the leadership of GandhiJi. The movement was started on 12 March, 1930 by conducting the Dandi Salt March which he broke the salt laws imposed by the British Government on the Indians.


Dandi March

The Dandhi March as the British Government had taken complete control over salts manufacture and did not allow Indian to make salt from sea water. The Indians had to buy salt from the British at high prices. Gandhiji covered the area on foot and broke the law by preparing salt at Dandi. This journey of Gandhiji with is 78 followers was called the "Dandhi March".

The movement continued till 1934 and ultimately in 1938 the British introduced same reforms in India. The British Government passed the government of Indian Act, 1935 as per the act Indians were promised more participation in the administration but control power remained with the British. The INC leaders contested the elections and won in most of the provinces and formed provincial Government.

Quit India Movement : It was civil disobedience movement bunched in India in August 1942. In response to Gandhi Ji call for immediate independence. He asked the people of India to "Do or Die" for the freedom of their nation. The British tried hard to supers the movement but were not successful as the Indian were now determined to have freedom and brandy faced them.

Ought by Jawaharlal Nehru

In 1945, after World War II ended the British accepted that they could no longer be able to rule India. They decided to give its freedom.

15 August, 1947 was the great day in the Indian history as India finally become a free nation. Pt. Jawaharlal Nehru became the First Prime Minister and Dr. Rajendra Prasad became the first President of Indepentent India. But the 'Divide and Rule policy of the British had been successful some how because it led to the partition of India into two parts - India and Pakistan on demand of Mohd. Ali Jinnah who become the Leader of Pakistan.

POINTS OF VIEW

- Mahatma Gandhi was born on October 2, 1869 at Porbandar Gujarat.
- Gandhiji was return to India in 1915 and became an important part of Indian National Congress.
- Rowlatt Act was passed in 1919.
- Jallianwala Bagh massacre was the worst picture of British rule.
- British Government appointed Sir John Simon in1927.
- Lal Lajpat Rai died on 17 November 1928.
- Quit India Movement was started in August 1942.
- India become a free nation in 15th August 1947

Exercise

A. Tick (✓) the correct option :

1. Lala Lajpat Rai died on _____ .
   (a) November 17, 1928 ☐ (b) November 27, 1928 ☐ (c) October 27, 1948 ☐
2. The Jallianwala Bagh Massacre on 13 April 1919 was led by _____ .
   (a) General Dyer ☐ (b) Sir Simon ☐ (c) Lord Dalhousie ☐
3. Gandhiji started the Civil Disobedience Movement in _____ .
   (a) 1903 ☐ (b)1913 ☐ (c) 1930 ☐
4. The Indian National Army was organized by _____ .
   (a) Bhagat Singh ☐ (b) Chandrashekhar ☐ (c) Subhash Chandra Boss ☐
5. First Prime Minister of India was _____ .
   (a) Sardar Patel ☐ (b) Jawahar Lal Nehru ☐ (c) Dr. Rajendera Prasad ☐

B. Write a short note one each of the following topics :

1. Simon Commission _____

2. Dandi March _____
3. Rowlatt Act _____
4. Quit India Movement _____

C. Fill in the blanks :

1. Gandhiji gave the name _____ to untouchables.
2. In the year 1919 the British Government passed a new law _____ .
3. Gandhiji started _____ movement in 1920.
4. The British Govement appointed sir john simon in _____ .
5. On _____ Bhagat Singh and BK Dutt exploded two bombs on the floor of Central Assembly.
6. Dandi March was started in _____ .

D. Write 'True' or 'False' statements :

1. Gandhiji adopted the path of non-violence and helped to free India from British rules. _____
2. Gandhiji was very happy to see the poor state of Inadians under British rules. _____
3. Simon Commision was launched in 1919 in India. _____
4. Gandhiji started non-co-opration movement in 1925. _____
5. Poorna Swaraj resolution passed in 1929. _____

E. Match the following :

1. Chauri Chaura	(i) Ahmedabad
2. Jallianwala Bagh	(ii) Lahore
3. Sabarmati Ashram	(iii) Amritsar
4. Muslim League	(iv) Uttar Pradesh

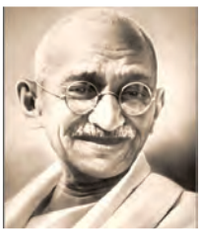
F. Answer the following questions :

1. What do you mean by “Rowlatt Act”?
2. Why did the British divide Bengal and what were its results?
3. Write in your own words a brief account of the Jallianwala Bagh Massacre.
4. Why was the Dandi March held?
5. Give a brief life sketch of “father of the nation”.

ACTIVITY BAG

▶ Identify the given pictures and write their name:


_____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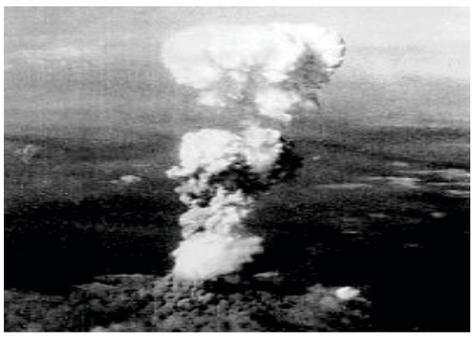
Origin of United Nations and Its Working

Chap. 18

Learning Points

After completing this chapter we will be able to know about :

- The birth of United Nations
- Working of United Nations
- Symbol of United Nations
- Main organs of United Nations



Hiroshima and Nagasaki Bombing

The high ambitions of European countries like England, Netherlands, Portugal and France led them to explore more and more trade with other countries. Slowly they established their own colonies there. Gradually they bought there countries under their control and become more powerful and economically developed. At the same time these European nations wanted to rule over the under developed countries and began fighting among themselves for supremacy. This caused two major wars among the nations of the world. World War I which was between two groups of countries lasted into loss of lives and property. The war was the first of its kind. This disturbed gone rise to the need of an international body that would stop and solve such problems which erupted world peace. Hence an organization called League of Nation was setup in 1919 to prevent such a war in future. However it could not stop the upsurge of second world war in 1939 and failed to achieve its goal.

World War - II

The World War II lasted for about six years. It was more destructive than the First World War. The war ended when USA dropped atom bombs on two Japanese cities, Hiroshima and Nagasaki. All unfavorable conditions during Second World War made the people realise the need to replace the League of Nations by a more effective body that would help to stop wars between countries. This feeling gave birth to the Origin of United Nations Organization (UNO), also called the United Nations (UN).

Franklin Roosevelt

UN Headquarter, New York

It was the result of three main leaders of strong and powerful countries i.e; American President Roosevelt, British Prime Minister Winston Churchil and Russian Prime Minister Stalin. The name UN was given by Franklin Roosevelt.

The UN was officially declared on 24 October, 1945 in San Fransisco USA, When 50 countries signed its charter. This day is celebrated all over the world as the UN. The UN Headquarter complex is in New York, USA. At present there are 192 members in the UN.

Objectives the UN

The main objectives of the UN is to achieve world peace and also :

- Maintaining international peace and security at each level.
- Developing friendly relations among nations of the world.
- Co-operating with nations in solving the economic, social, cultural and humanitarian problems.
- Promoting social process and better stand of living.
- Protecting basic freedom and human rights all over the world.

In respect of achieving these adjectives the UN issued a universal declaration of Human Rights. It was adopted on December 10, 1948. So this day is celebrated as the Human Right Day every year. Right to live as free citizen of a country, education and employment, freedom of worship, speech, writing, travel and equal pay for equal work and equality before the law are some of the important human right selecte in the declaration.

Symbol of the UN

The symbol of UN is world map surrounded by two olive branches in white on an light

blue background. These olive branches are a symbol of peace. The UN symbol was adopted on 20 October, 1947.

Main Organs of the UN

The five principal organs of the UN charter serve different functions. They are the General Assembly, the Security Council, the Economic and Social Council. The International Court of Justice and the Secretariat are the International Courts of justice. Its headquarter is situated at. The Hague and all four organs are located in New York. The UN family however is much large having 15 agencies and several programs and bodies.

UN Symbol

General Assembly

The General Assembly : It is the largest body of the UN. It works like an international parliament and composed of all members states of the UN. It makes main policies, discuss budgetary maters and peace keeping efforts of the UN. The assembly meets once every year. However it can meet in a special session in case of some emergency.

The Security Council : The Security Council of 15 members consisting made up 5 permanent members USA, UK, China, Russia and France and 10 non-permanent members elected by the council assembly for a term of two years. This organ is responsible for maintaining peace and security among countries.

Security Council

ECOSOC

The Economic and Social Council (ECOSOC)

The ECOSOC deals with social and economic problems. It helps to promote social progress, better living standard and providing education to all. Its 54 member countries, are elected for a term of 3 years by the assembly. The various agencies of this council like the World Health

Organization, UNESCO, and UNICEF work greatly in such fields.

The International Court of Justice

It is also called the world court and is located at the Hague, Netherland. It is judicial organ of the UN which settled international disputes peacefully. It consists of 15 judges elected by the assembly and the Security Council from different countries for term of 9 years.

International Court of Justice

The Secretariat

The Secretariat : It is the administrative organ of the UN. The secretariat is headed by the Secretary General. It carries out day-to-day tasks of the UN. The Secretary General is appointed for a term of 5 years and acts as the spokes men and leader of the UN. It is his duty to report to the Security Council. The Present Secretary General is Ban Ki Moon of South Korea who was appointed in 2007.

Membership and official Language of the UN : The UN provides membership to all peace loving nations. At present there are 193 member countries now in the UN. It is the duty of the member countries to co-operate with the UN in achieving their goals maintaining peace and security among the world. The UN has declared six major languages as its official languages. These are English, French, Russian, Spanish, Chinese and Arabic.

POINTS OF VIEW

- Some European countries wanted to rule over the under developed countries.
- The World War II lasted for about six years.
- USA dropped two atom bombs on two Japanese cities Hiroshima and Nagasaki.
- The UN was officeally declared on 24 October 1945 in San Fransisco USA.
- The UN Headquarter complex is in New York, USA at present.
- The General Assembly, the Security Council, the ECOSOC, the International Court of Justice and the Secretariet are the main organs of UN.

Exercise

A. Tick (✓) the correct option :

1. The UN stands for _____ .
   (a) United Nations ☐ (b) Unlimited Nations ☐ (c) None of them ☐
2. First World War was broken out in the year _____ .
   (a) 1924 ☐ (b)1912 ☐ (c) 1914 ☐
3. The main aim of the UN is to achieve _____.
   (a) World Power ☐ (b) World Peace ☐ (c) World War ☐
4. Which organ of United Nation workes like an Internationa Parliment.
   (a) The Security Council ☐ (b) The General Assembly ☐ (c) None of them ☐

B. Fill in the blanks :

1. The World War II lasted for about _____ years.
2. The UN was officially declared on _____ in Sam Fransisco USA.
3. The UN Headquarter complex is in _____.
4. The _____ is responsible for maintaing peace and security among countries.
5. _____ of South Korea is the present Secretory of Security Council.

C. Answer the following questions :

1. On which two cities of Japan America has dropped theAtom bombs ?
2. When and where was UN officially declared ?
3. What are the main organs of United Nation ?
4. At present time how many countries are the member of UN ?
5. Which five countries are the permanen members of UN ?

ACTIVITY BAG

➤ Identify the following pictures and write their name and works:




Name : _____ Name : _____ Name : _____ Name : _____

Works : _____ Works : _____ Works : _____ Works : _____

Role of India in World Peace

Chap. 19

Learning Points

After completing this chapter we will be able to know about :

- The India in the United Nations
- The Untied Nations help of India
- Non-aligned movement

India is the peace-loving country. It wants that all the countries of the world should live peacefully and co-operate with one another in their economic and social progress. It does not like any type of prejudice among the people or among the communities. Hence India, was called the "Golden Bird" in ancient times. A number of scholars and saints were born here. They spread the message of peace, non-violence and truth throughout the world. We will study in this chapter about the contribution of India to the peace of the world.

India in the United Nations

India also co-operates the United Nations in many ways. It has always supported and co-opreated with the United Nations whenever the need arose. It was at the insistence of India that the Declaration of Human Right and Freedom was added to the Charter of U.N.

Dr. Radhakrishnan

Dr. Nagendra Singh

India played a prominent role in Bangladesh's entry to the U.N Dr. Nagendra Singh was twice elected (1973-1987) as a justice the Chief Justice of the International Court of Justice in 1985. Dr. Radhakrishnan was elected chairman of the UNESCO in 1956.

India has been the member of United Nations since it was organized on 24th October, 1945. India has full faith in aims and objectives of the UN. It was also elected to the Security Council. It has been an active member of the WHO, UNESCO, UNICEF and FAO. Smt. Vijayalakshmi Pandit was elected the President of the General Assembly of the United Nations in 1953. She was the first woman president of the UN General Assembly.

Smt. Vijayalakshmi Pandit

India has always stood against injustice towards mankind. It opposed strongly the oppression of the Blacks by the whites minority of South Africa. It organised world opinion against the policy of the then government of South Africa. It organised world opinion against the Policy of the then government of South Africa. It also supported the Palestians who were being deprived freedom in their own land Israel.

India has sent its many soldiers to various countries like Zaire, Sri Lanka, Korea, Somalia, Iran, etc, as part of the UNPKF (United Nations Peace Keeping Force). The General Assembly in a special session in July, 1982 discussed the issue of disarmament. India proposed to total ban on nuclear weapons at the session.

The United Nations Help to India

United Nations is helping India in many ways. Many experts of the United Nations have come to our country to help and solve our problems. Through UNESCO we have sent our students and officers to receive advance training in new fields. The FAO has helped Indian farmers in the use of new machinery. It also advised how to increase production of milk and milk products. It helped in making the Terai region in Uttar Pradesh fit for cultivation. The WHO has trained nurses and health officers. It helped in the eradication of small pox and the control of infectious diseases like cholera and malaria. It supplied vaccines to control diseases such as tuberculosis. The UNICEF has several programmes in India such as 'Anganwadi' for children and caring mothers.

Non-Aligned Movement

After the Second World War, the USA and the USSR emerged as the two super powers. Both of them wanted to spread their influence possible in many countries.

Many other independent countries joined either the USA blocs or the USSR bloc. India did not join any of the blocs. It had been separated from both the blocs. At this time, Pt. Jawaharlal Nehru was the Prime Minister of independent India. India initiated a movement of those nations which neither wanted to join the USA nor USSR bloc. This movement was called the Non-Aligned Movement (NAM). It was based on five principles known as Panchsheel. These five principles are :

- Mutual non-aggression.
- Mutual non-interference in each other's affairs.
- Peaceful existence.
- Equality and mutual benefits.
- Mutual respect for each other's territorial integrity and sovereignty.

The NAM was born in September 1961. Its first meeting was held at Belgrade in Yugoslavia. President Naseer of Egypt, Pt. Jawaharlal Nehru of India and President Marshall Tito of Yugoslavia were the founders of this movement.

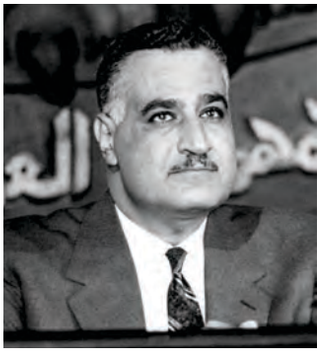
The main objectives of the Non-Aligned Movement are not to join the military camps or pacts. In the beginning, countries did not realize the importance of the NAM but gradually its importance was duly considered.

The first meeting of NAM was attended by only 25 members. Today it has 114 members and most of them are developing countries. At present Nelson Mandela of South Africa is the Chairman of Non-Aligned Movement.

The main objectives of the Non-Aligned Movement are not to join the military camps or pacts. In the beginning, countries did not realize the importance of the NAM but gradually its importance was duly considered.


Pt. Jawaharlal Nehru


Marshall Tito


Gamal Abdul Naseer

The first meeting of NAM was attended by only 25 members. Today it has 114 members and most of them are developing countries. At present Nelson Mandela of South Africa is the Chairman of Non-Aligned Movement.

Knowledge Corner

- Nelson Mandela, the first black president of South Africa, spent 27 years in cell for fighting against the policy of apartheid.

POINTS OF VIEW

- Nelson Mandela is the Chairman of NAM at present.
- Pt. Jawaharlal Nehru, Marshall Tito and Naseer were the founders of NAM.
- India has been a member of UN since it was organized on 24th October, 1945.
- Vijayalakshmi Pandit was elected the President of General Assembly.

Exercise

A. Tick (✓) the correct option :

1. United Nations was established on _____ .
   (a) 24th Oct, 1944 ☐ (b) 24th Oct 1945 ☐ (c) 24th Oct 1946 ☐
2. Non-Aligned Movement was organised in _____ .
   (a) 1960 ☐ (b) 1961 ☐ (c) 1963 ☐
3. Marshall Tito was the president of _____ .
   (a) India ☐ (b) Pakistan ☐ (c) Yugoslavia ☐
4. The FAO has helped Indian farmers in the use of new _____ .
   (a) medicines ☐ (b) machinery ☐ (c) stationery ☐

5. Dr. Radhakrishnan was elected as the chairman of _____ .
   (a) FAO ☐ (b) UNICEF ☐ (c) UNESCO ☐

B. Fill in the blanks :

1. India was called the _____ in ancient times.
2. The FAO has helped _____ in the use of new machinery.
3. This movement was called the _____ Movement (NAM).
4. The NAM was born in September _____.
5. Today NAM has _____ members and most of them are developing countries.

C. Write 'True' or 'False' statements :

1. India was called "Golden Bird" in ancient times. _____
2. Nelson Mandela is the chairman of NAM at Present. _____
3. America had the USA block. _____
4. There are 114 members in the Non Aligned Movement. _____
5. India does not participate in the UN. _____

D. Answer the following questions :

1. Who were the founders of NAM ?
2. Who is the chairman of NAM at present ?
3. Name the people who had been elected for the United Nations.

➤ Collect photographs of three founder leaders of the Non-Aligned Movement. Paste them in given boxes and write their names:

Test Paper-2

(Based on chapters 9 to 19)

Note: All questions are compulsory.

A. Tick (✓) the correct option :

1. The script of the early-man was called _____ .

   (a) Roman ☐ (b) Hieroglyphics ☐ (c) Devnagri ☐

2. The liquid comes out of a volcano is called _____ .

   (a) lava ☐ (b) magma ☐ (c) Core ☐

3. This factor is responsible for aoil erosion _____ .

   (a) overgrating ☐ (b) forest fire ☐ (c) temperature ☐

4. The change of water into water vapour is called _____ .

   (a) evaporation ☐ (b) humidity ☐ (c) condersation ☐

5. Bodies of dest and feozen gas are called _____ .

   (a) Comets ☐ (b) Asteroids ☐ (c) Path ☐

6. Poona Seva Sadon was founded by _____ .

   (a) Diamond ☐ (b) Sir Simon ☐ (c) Lord Dolhousie ☐

7. The Jallianwala Bag massacre on 13 April 1919 was led by _____ .

   (a) General Dyer ☐ (b) Sir Simon ☐ (c) Lord Dolhousie ☐

8. Who was tghe first prime minister of independent India?

   (a) Sardar Patel ☐ (b) Jawaharlal Nehru ☐ (c) Dr. Rajendra Prasad ☐

9. First world war was broker out in the year _____ .

   (a) 1924 ☐ (b) 1912 ☐ (c) 1914 ☐

10. Masshal Tito was the Prasident of _____ .

    (a) India ☐ (b) Pakistan ☐ (c) Yugaslavia ☐

B. Fill in the blanks :

1. Lion and tiger are the _____ _____animals.
2. Drought affactad are a have very few sources of _____ .
3. _____ is also present in troposphere.
4. The energy of _____ supports almost all life on the _____ .
5. Ramabai Ramade founded _____ .

C. Write 'True' or 'False' against each statement.

1. Polluted water is the cause of dises like typhoid. _____
2. Air makes the life possible on the Earth. _____
3. The solor system consists of eight planets. _____
4. Vidyasager Established Arya Samaz. _____
5. Nelson Mandela is the chairman of NAM at present. _____

D. Match the following :

1. Herbivorous	(a) heavy rainfall
2. Carnivorous	(b) 4.54 billion years
3. Floods	(c) Uttar Pradesh
4. Formation of the Earth	(d) tiger
5. Chauri Cheena	(e) cow

E. Answer the following questions :

1. How does water act as an agent of soil erosion?
2. Explain the sedimentation and decantation.
3. Why is the Earth called blue planet?
4. Why did the Britishers divide Bengal and what were its results?
5. What are the main organs of United Nations?