CONTENTS

Chapter-1: Food: Where Does It Come From?

There are varieties of food with different nutritional value. Each food is prepared with the help of several different ingredients.

Ingredients are the food materials required to prepare a dish. For example to make *halwa* we need milk, suji, dry fruits, sugar, ghee and cinnamon powder.

Ingredients to make *Halwa*

Food Materials and Sources

- **Plant source**
- **Animal source**

The food items obtained from plants are called plant products. The vegetables, cereals, grains, wheat and rice all are plant products similarly food items obtained from animals like chicken, fish, prawns, pork, beef are called animals products. Milk which we drink is also an animal product that is further processed to make curd, paneer, cheese, ghee and butter.

Plant products

Animal product

Plant Parts Products as Food

It is surprising to know that we eat different parts of the plant in different food variety. For instance take the example of cabbage, a green leafy vegetable that most kids dislike to eat. It is the leaf of the plant that we eat.

Below is a table discussing the edible parts of various plants.

Leaves The leaves of spinach are eaten. Other e.g. are mustard and fenugreek.	 Spinach
Roots Carrot, radish and beetroot are the roots.	 Carrot
Flower Flower of banana and pumpkin are the edible parts.	 Banana
Stem The sugarcane that is used to make sugar is the stem of the plant. Potato is also an underground stem called tuber.	 Sugarcane

Seeds The seeds of mustard are used for making vegetable oil. Other e.g. is soyabean. Black pepper is a seed used as a spice.	 Mustard seeds
Fruit Apple, banana and mango are all eaten as fruit.	 Mango

On the basis of the type of food they eat animals are divided into three categories.

These are

Herbivore- Animals which eat only plants are called herbivore. For e.g : horse, deer, goat, cow etc

Carnivore- Animals which eat flesh of other animals are called carnivore. For e.g. lion, leopard, tiger etc.

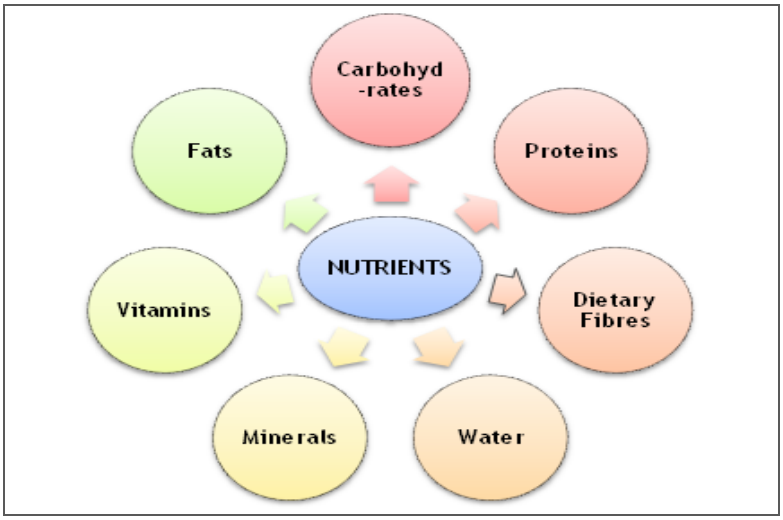
Omnivore- Animals which eat both plants as well as the animals are called omnivore. Fro e.g. crow, pigeon, human

Chapter-2: Component of Food

All food items contain various components that are essential for the proper growth and functioning of the body.

The components present in the food that are essential for the growth and development of the body are called **nutrients**.

The main nutrients are:



Carbohydrates- It is a nutrient that is found in the food in the form of starch and sugar. Food item rich in carbohydrates are brown rice, white bread and potato.

Proteins- A nutrient that is required for the growth and repair of the body. For example pulses, peas, egg. They are also called as body building foods.

Fats- A nutrient which provides energy to carry out the various processes of the body. For example ghee, butter, chicken, pork.

Vitamins- These are required in very less amounts and helps in protecting our body against disease. There are several types of Vitamins like Vitamin A, B, C, D, E and K.

Minerals- Nutrients that are needed in small amount by our body for proper growth and to maintain good health. For e.g. calcium is a mineral found in milk.

Roughage - Roughage obtained from plants, is an essential component of our foods but do not contain any nutrient. This helps our body get rid of undigested foods. These are also called as dietary fibres.

Test for Starch

Cut a piece of potato and add few drops of iodine to it. Observe the color change in the potato. The color of iodine changes to blue-black color. This confirms the presence of starch in food item

Test for Protein

Take some gram and grind it and add this to a test tube containing some amount of water. Shake well. Now add two drops of copper sulphate to it and then ten drops of caustic soda to it. After shaking it properly let it stand for a while. Observe the color change in the test tube. The color changes to violet confirming the presence of protein in gram.

Test for Fats

Take some butter and wrap it with a paper and crush it. Now hold the paper against the light source and see if there are any oily spot or patch on the paper causing a translucent appearance of the paper. The appearance of these spots confirms presence of fats.

Balanced Diet

A diet consisting of all the essential nutrients that our body needs in right proportion for proper growth is called as a **Balanced Diet**.

Eating excess of food rich in fat food like French fries or samosa may end up in **obesity.**

Deficiency diseases

Diseases occurring due to lack of nutrients over a long period of time are called **Deficiency diseases**. For e.g. lack of iodine in diet causes goiter.

Protein deficiency- If a person does not get enough proteins in his/her food for a long time, he/she is likely to have stunted growth, swelling of face, discoloration of hair, skin diseases and diarrhea**. Marasmus and Kwashiorkor** are protein deficiency diseases.

Below is a table discussing the deficiency diseases with their symptoms

Vitamin/ Mineral	Deficiency disease/ disorder	Symptoms	Image
Vitamin A	**Poor vision**	**The vision is lost in dark or may get lost completely.**	
Vitamin B1	**Beriberi**	**The muscles become weak and hence very less energy is left to do work.**	
Vitamin C	**Scurvy**	**The gums become weak and bleed.**	

Vitamin D	**Rickets**	**The bones get affected. They become soft and twisted.**	
Calcium	**Bone and tooth Decay**	**Leads to tooth decay.**	
Iodine	**Goiter**	**The gland in the neck region swells.**	
Iron	**Anaemia**	**The blood lacks iron and there is weakness in the whole body.**	

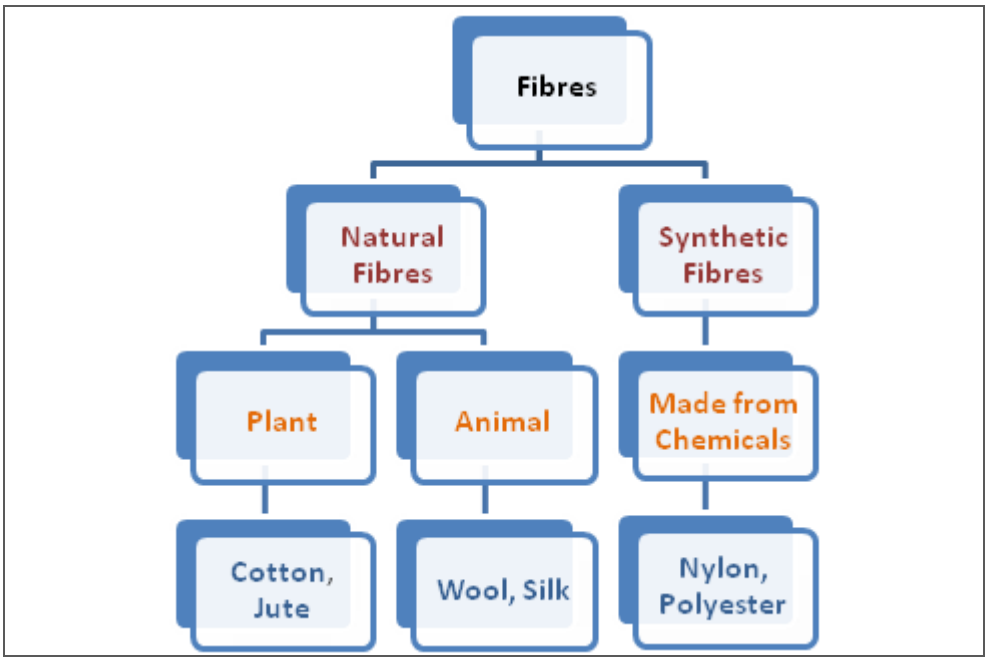
Chapter-3: Fibre to Fabric

Fibre

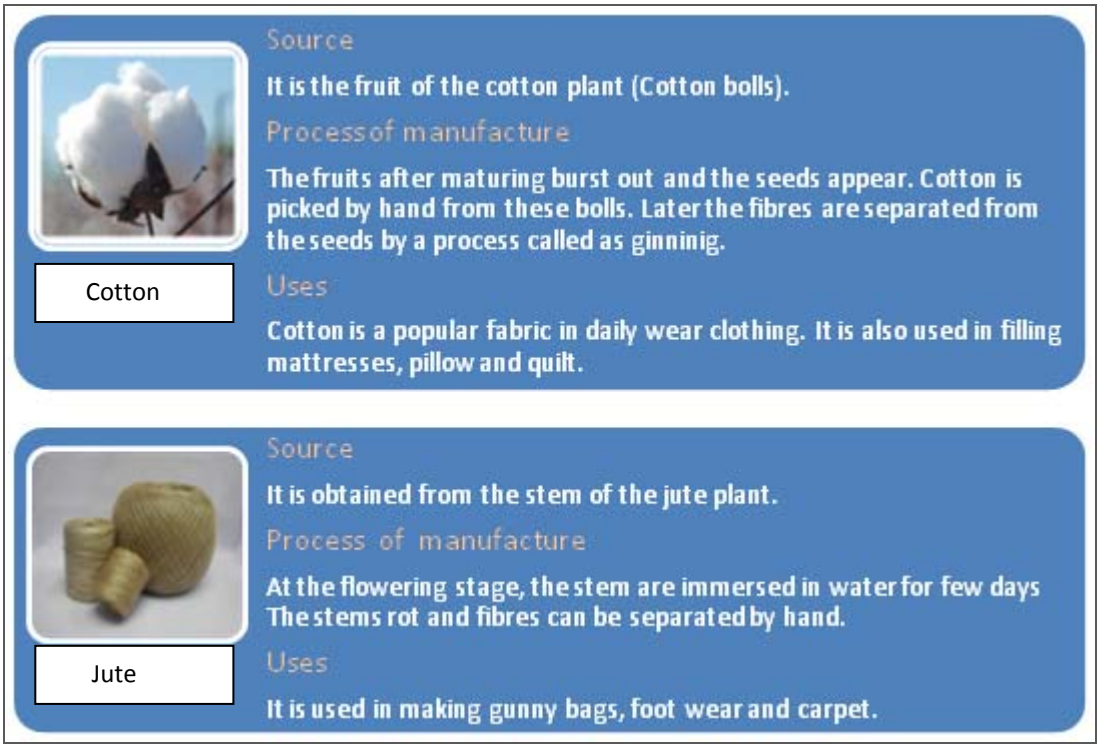
Take a cloth that is torn and try to pull out the thin strands of thread from it. Many of these thin strands combine to form a fabric. These thin strands of thread or yarn are called as **Fibre**.

Each fabric is different in texture. You can easily feel the difference when you touch it.

Variety of Fabric



Some Plant Fibres



Spinning Cotton Yarn

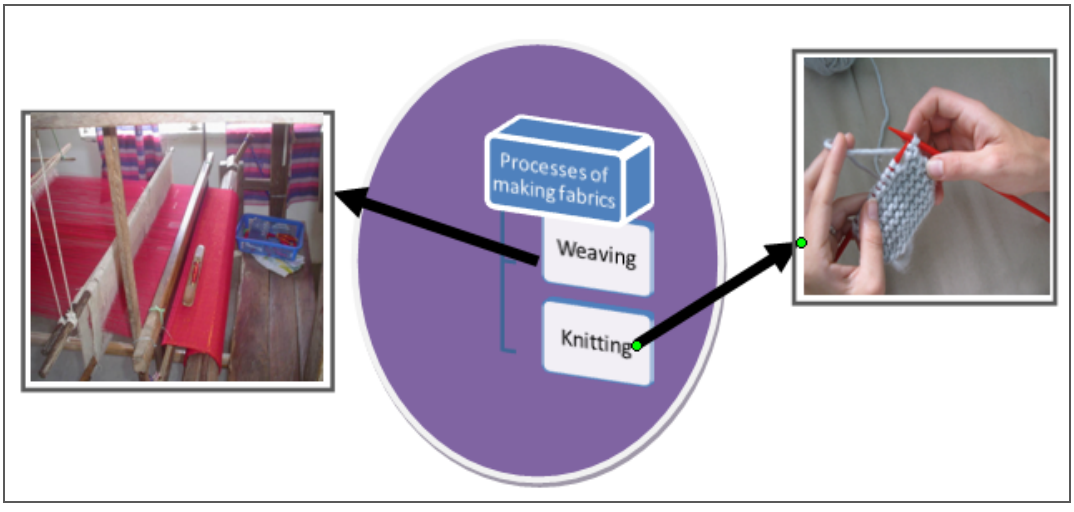
You must have observed during winters your mother before making pullovers make balls of wools by twisting the wool between the thumb and the forefingers. This process where we spin a yarn from fibres is called as spinning. This can be done by using devices like takli or charkha. It is also done by using machines.

Spinning of cotton yarn

Charkha

Yarn to fabric

We have till now studied how yarn is obtained from fibres. Let's now see how this yarn is converted to fabric.



Weaving - The process of arranging two sets of yarns together to make a fabric is called weaving. It is done on looms.

Activity

On a piece of paper, mark a series of parallel lines with the straight. Put the paper on a cutting board. Cut along the lines with a craft knife. Cut several strips of paper of another color. Take one of the strips. Weave it over and then under the cuts in the first piece of paper. Take a second strip. This time, weave is under and then over the cuts. Continue weaving in strips until you have completely filled the piece of paper. You can make greeting cards by weaving thicker paper.

Knitting- The process of intertwining yarn or thread in a series of connected loops either by hands using needles or with the help of machines is called as knitting.

History of Clothing Materials

In ancient times, it was bark and leaves of trees or fur and skin of animals that were used as clothing. Then they started to weave twigs and grass into mats and baskets. Vines, animal fleece or hair were twisted together into long strands which were woven into fabrics. People started growing plant fibers like cotton and flax but didn't know to stitch. They draped them on their body. Stitching fabrics became popular after the sewing needle was invented.

Chapter-4: Sorting Materials into Groups

Objects Around Us

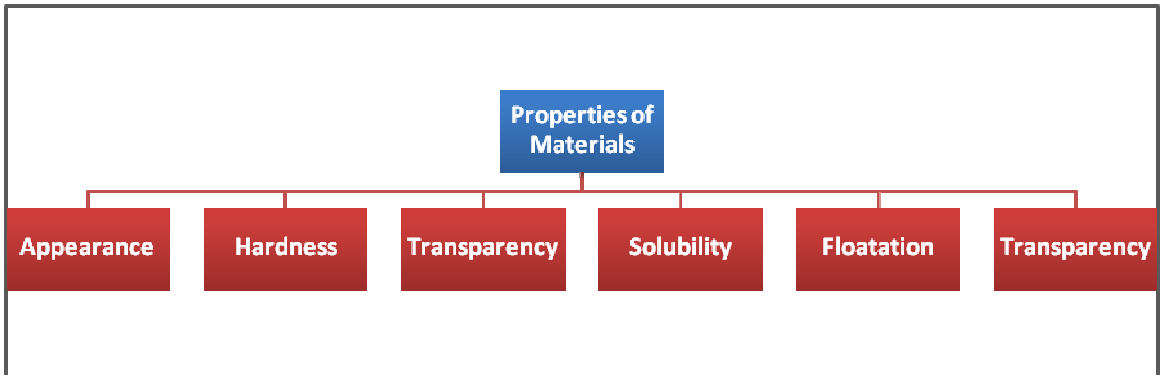
Objects around us are made of one or more materials. These can be categorized on the basis of the materials from which they are made.

Materials	Objects made
Wood	Chair, desk, pencil
Plastic	Toys, bottles, pen
Leather	Bag, shoes,
Paper	Books, newspaper, bags

Properties of materials

The property of the material decides its usage. Like for example we use utensils made of metals because they are hard and heat resistant similarly tyres of automobiles are made of rubber. You cannot make utensils of rubber or electric wires of wood because rubber cannot withstand heat and wood is bad conductor of electricity and hence won't allow current to pass through it.

Let us discuss the various properties of materials.



Appearance

Take a gold earring, an eraser, a plastic box and wooden block. Now rub them with sandpaper. What do you see? The earring shines while the other items don't. It shines because it has luster. This property is found only in materials made of metals. Sometimes due to moisture they may lose luster but if you cut the metal or rub it with sandpaper you can see it shining.

Gold jewellery

Hardness

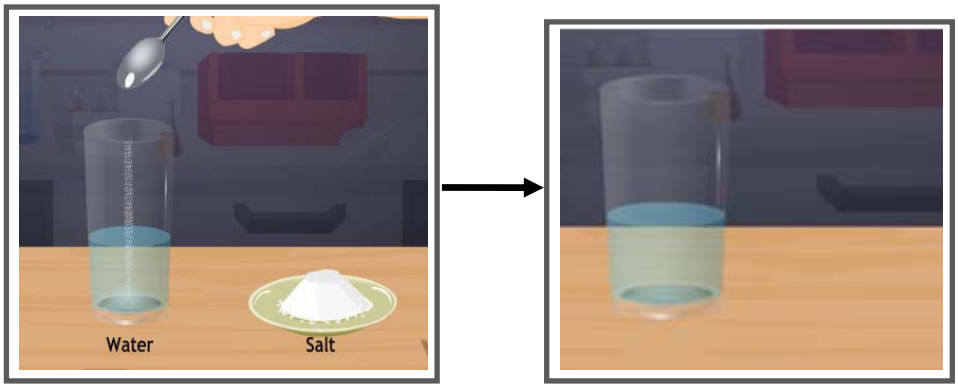
What will you if you are told to sleep on any iron bed without mattress? Definitely you would say no. You cannot see on iron bed because it is **hard** and does not compress while the mattress is made of **soft** material that compresses on applying pressure. Likewise touch a stone, its surface is **rough** but the sponge will be very soft.

Hard iron bed

Solubility

Solution is made up two things i.e. solute (soluble in nature/ lesser amounts) and solvent (Substances can dissolve in it/ large amount).

Substances (solute) that dissolve in a solvent like water are called as soluble. Like for example salt, sugar while substances that do not dissolve in water are called as insoluble for e. g. chalk powder, sand. Some liquids like milk, lemon juice dissolve in water. There are also liquids that don't dissolve like kerosene and oil.



Salt dissolves in water

Floatation

You found that objects like coin and stone sank in water while empty plastic bottle, crumbled paper and vegetable oil floats. This is due to the floatation property of these materials.

Oil floating in water

Transparency

Wear a pair of spectacles. You are able to see through it because spectacles are made of materials which allow us to see through them. These materials are called as transparent materials. Now try to see through a wooden door. The wooden door is made of wood does not allow us to see through it. These materials are called as opaque materials. There is another type of material through which you are not able to see properly like wax paper, spray bottle. Objects appear blurred. These materials are called as translucent material.

Spectacles

Materials are grouped according to their similarity. It is necessary to group materials as it becomes easier to identify and study them.

Chapter-5: Separation of substances

The tea is been separated from the mixture of tea and tea leaves with the help of a strainer. The tea leaves are the impurities which are not required after the tea is made. The other examples from our day to day life are churning of milk to obtain butter and removing stones from grains.

Separation of tea leaves

We separate some substances from a mixture because they act as impurities or become harmful or useless. Like the tea leaves become **useless** after the tea is made. If the stones are not removed from the grains they become **harmful** to us when consumed with grains. When we churn milk for butter, both remain **useful**.

Methods of Separation

Handpicking

It is the method of separating impurities from a mixture by hands. It can be used to separate only impurities that are larger in size like separating stones from grains.

Separation of stones from grains by handpicking

Threshing

The process in which the stalks of wheat from beaten to free it from seeds is called threshing. The grain seeds are separated from stalks by threshing.

Threshing stalks of wheat

Winnowing

Winnowing is a process used to separate heavier and lighter components of a mixture by wind or by blowing air. Chaff and husk can be separated from grains.

Winnowing

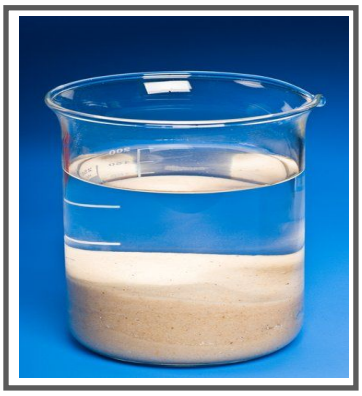
Sieving flour

Sieving

The process of separating slightly larger particles from a mixture with the help of a sieve is called sieving. Separating pebbles from sand at construction sites, bran from flour.

Sedimentation

When the heavier component in a mixture settles after water is added to it, the process is called sedimentation. To separate dust and soil from pulses, rice.



Sedimentation

Decantation

Decantation

Decantation is a fast method for separating a mixture of a liquid and a heavier solid. In this process, first the solid impurities are allowed to sediment at the bottom of the container. Then, the pure liquid is poured out carefully from the container into another container for example separating sand from water.

Filtration

The process of separating solid impurities from a liquid with the help of a filter is called filtration like separating lemon seeds from lemon juice.

Filtration

Evaporation

Evaporation

The process of conversion of water into its vapour form is called evaporation. Salts from sea are formed by evaporation and common salt is obtained by purification from the mixture. This method can be used to separate out salt from water.

Condensation

The process in which vapour gets converted into liquid is called as condensation. Condensation is involved in the regulation of water cycle.

Condensation

Activity

To filter chalk power mixed with water

Take a filter paper and fold it to form a cone which is able to fit in a funnel. Now clamp this funnel on a stand and keep a beaker below it. Add the chalk powder mixed with water to it. You will observe chalk powder remains on the filter paper while water collects in the beaker.

Use of more than one method of separation

For separation of some mixtures more than one method is used for e.g. separation of sand from salt. Let us see how it is separated. It takes place through four processes.

1. Decantation
2. Filtration
3. Evaporation

4. Condensation

- Add some water to the sand and salt mixture and allow it to settle for some time.
- The sand has settled at the bottom. Now decant the water.
- Sand is separated but the salt still needs to be separated from water.
- Boil the water in a kettle and place a metal plate with ice on it just above the spout of the kettle.
- Water droplets begin to fall from the metal plate. Collect it in a beaker.
- Let whole of the water evaporate. What is left behind is the salt.

Can water dissolve any amount of a substance?

Every liquid dissolves a solute in a fixed amount. If the quantity of the solute increases it remains undissolved. Also a liquid dissolves different solids in different amounts. Perhaps we can dissolve more amount of solid in a liquid even after the saturation point has reached by heating the solution.

A solution that contains the maximum amount of solute that a solvent can dissolve in it is a **saturated solution.**

Activity

Take one table spoon of glucose powder and add it to some amount of water. Stir it till is dissolves. Now add another table spoon and stir it. The glucose dissolves. Keep repeating this process till a stage comes when the glucose remains undissolved. The stage where no more of the solid can be added to the liquid is called as **saturation point**. Now heat the solution and add some more amount of glucose. To your surprise you will find that the glucose dissolves. This shows that salt can be dissolved beyond the saturation point. Now try to repeat the same process by taking sugar. You will find that less amount of sugar dissolves as compared to glucose. Or in other words, different solids have different saturation point.

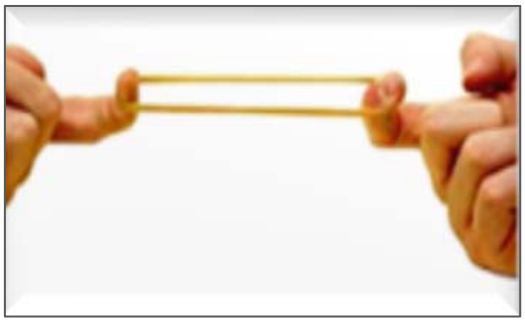
Chapter-6: Changes Around Us

Reversible

Take a rubber band. Stretch it and then release it.

What happens to the rubber band?

Does the stretched band recover its original shape and size on releasing or does its shape change permanently when it is stretched?



Stretching of rubber band is a reversible change

It will be observed that the rubber band regains its shape when it is released. Thus, the change that the rubber band undergoes on stretching is a reversible change. For examples: Melting of ices, melting of wax, evaporation of water, dissolution of common salt , boiling of water , freezing of water, etc.

A reversible change is the one in which a substance that is undergoing the change can be recovered in its original form.

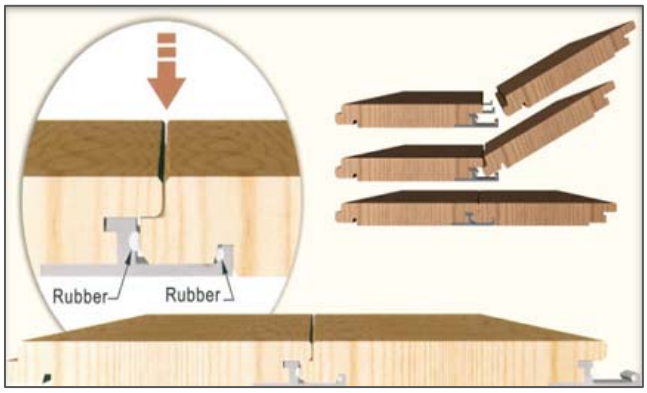
For example, when ice cubes are kept at room temperature for some time, they melt to give water. If the same tray containing water is kept in a freezer, then the water turns into ice. As the ice cubes are re-obtained when the tray is kept in the freezer, the change is reversible.

Forms of water

Expansion and Contraction in Materials by Heating and Cooling

All metals expand when heated and contract when cooled.

When heated, if there is an increase in the volume of a substance, then the process is known as expansion. Again, when cooled, if there is a decrease in the volume of a substance, then the process is called contraction.

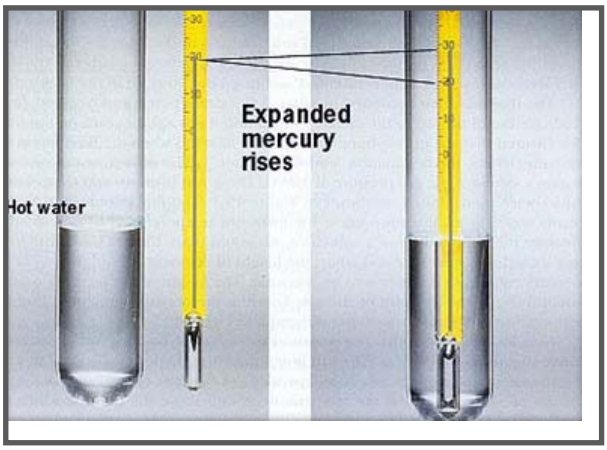


Silicone beads cushion the planks to reduce noise that results from normal contraction and expansion.

Expansion and Contraction in Liquids:

When the particles in a liquid are heated, its average energy increases and hence need more room so they expand.

When the particles in a liquid are cooled, as result the volume decreases, or contracts due to the particles need less room. This is demonstrated by the liquid used in a thermometer. As the liquid expands and contracts, it moves up and down inside tubing of the thermometer.



Expansion and Contraction in Gases:

When the particles in a gas are heated, their average energy increases and they need more room, so they expand.
When the particles in a gas are cooled, the volume decreases, or contracts, since the particles need less room.

Under extremely high temperature conditions (like the temperatures inside the Sun, particles can be split into what makes them up (electrons and ions). This creates a fourth state of matter called plasma.

Activity

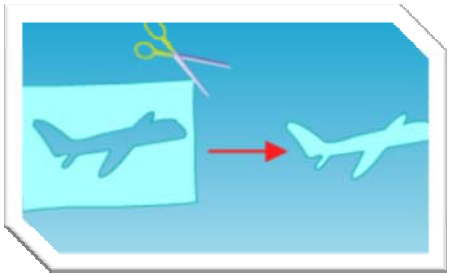
Take a metal ball and goes easily through the ring. Burn a Bunsen burner. Hold metal ball above flame and heat for a minute. Try to put the heated metal ball through the ring and observe. You will be observed that ball cannot pass easily through the ring due to expansion of ball on heating. Put the heated metal ball in the beaker with the cold water. Put the cooled metal ball through the ring again. You will notice that ball goes easily through the ring due to contraction on cooling.

Irreversible change

The change in which a substance that is undergoing the change cannot be re-obtained is known as an irreversible change. Hence, it can be said that an irreversible change is the one in which a substance that is undergoing the change cannot be recovered in its original form.

Activity

Take a piece of paper and draw aeroplane on it and then cut along its outline, as shown in the figure.



Few examples:

- Cooking of food
- Burning of wood
- Ripening of fruits
- Burning of cracker

Slow and fast changes

Slow changes are those which occur very slowly. On the other hand, fast changes are those which occur very fast.

Example for Slow Change

- Rusting of iron
- Growth of plants
- Curdling of milk

Rusting of Iron

Example for Fast Change

- Lighting of electric bulb
- Bursting of a balloon
- Burning of paper

Desirable and undesirable changes

Change brought about by a person or the nature, which is useful, is called a desirable change. On the other hand, change brought about by a person or the nature, which is harmful, is called an undesirable change.

Formation of curd

Some examples of desirable changes

- Formation of manure from animal dung and dead leaves is a desirable change as these waste materials are converted to useful manure.
- Formation of curd is a desirable change as it is more easily digestible than milk.
- Cooking of food is a desirable change.

Some examples of undesirable changes

- Spoiling of food in summer is an undesirable change as spoiled food is not edible.
- Flooding of rivers during rainy season is an example of undesirable change. This is because floods not only damage property and endanger the lives of humans and animals, but also have other detrimental effects.

Spoiling of food in summer

- Breaking of glass articles is an undesirable change as broken glass cannot be rejoined.

Periodic and Non-periodic Changes

Changes that occur again and again after a fixed interval of time are called periodic changes. On the other hand, changes that do not occur repeatedly after regular intervals of time are called non-periodic changes.

A pendulum clock

Chapter-7: Getting to know plants

Plants make be big or small, some may have huge leaves while some may have coloured leaves. Even the flowers are of different colors. The plants are divided into three categories namely herbs, shrubs and trees. There are also plants like creepers and climbers.

Herbs

Plants with green and soft stem are called as herbs for e.g. fenugreek.

Fenugreek

Rose plant

Shrubs

Plants having the stem hard but not very thick branching out near the base are called shrubs. For e.g. rose

Trees

Plants that are very tall and have hard and thick brown stem which have branches in the upper part, much above the ground are called trees like the banyan tree.

Mango tree

Water melon

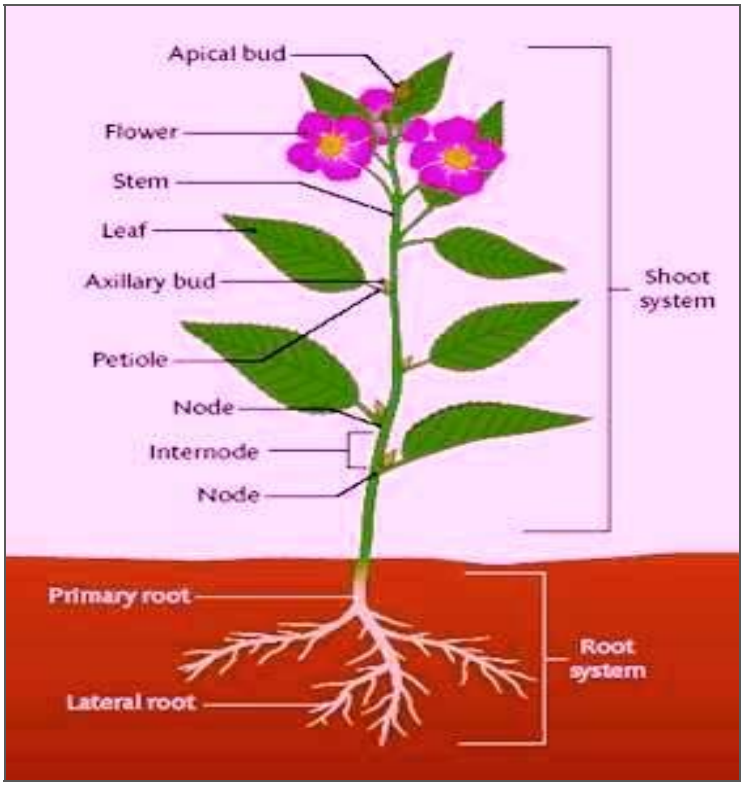
Creepers: These are plants with weak stem that cannot stand upright and spread on the ground. For e.g. water melon.

Climbers

Plants that take support of neighboring structures and climb up are called climbers. For e.g. money plant

Money plant

The unwanted plants which grow along with the other plant are called as **weeds**. For e.g. Chilean needle grass.



The various parts of a plant

Stem

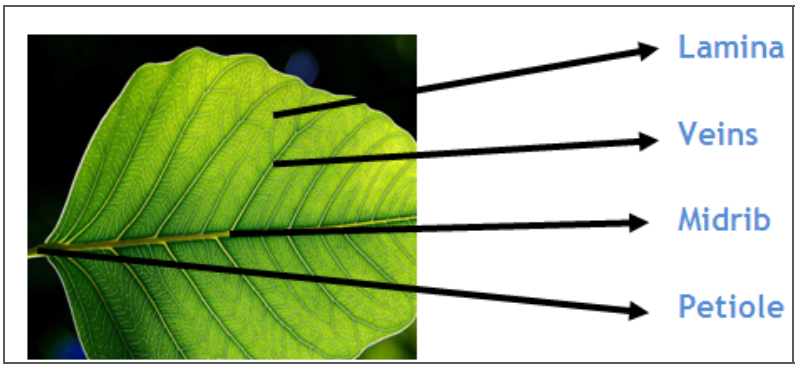
It is the part of the plant which conducts water. The minerals dissolved in water move up in the stem, along with the water. The minerals go to every part of the plant through narrow tubes inside the stem.

Activity

Take a beaker with some water and put a few drops of blue ink in it. Now take the tender twig of a plant with leaves and flowers and keep it in the glass for 8-10 hours. Note the observations. You observe blue coloured lines through the stem and leaves; indicating the path of movement of water and showing that transport of substances occurs through stem.

Leaves

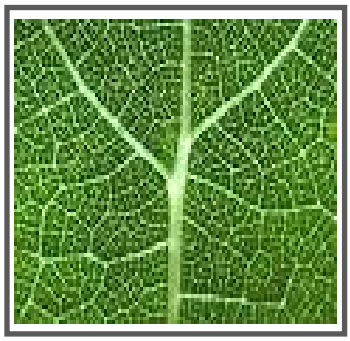
It is the part of the plant which prepares food. The portion of a leaf by which it is attached to the stem is called **petiole** while the broad, green part of the leaf is called **lamina.** The lines present on the leaf are called **veins**. This middle vein of the leaf is called the **midrib**.



Parts of a leaf

The pattern made by the veins is called as venation. These are of two types namely parallel and reticulate venation. When the veins are parallel arranged then it is called as parallel venation while if it is in net like fashion on both the sides of the midrib is called as reticulate venation.

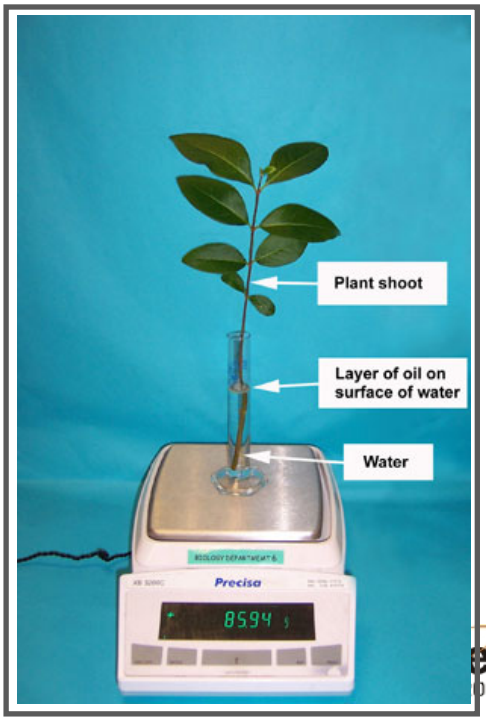
Parallel venation



Reticulate venation

Activity to show transpiration

- Put water in 3 measuring cylinders.
- Take 3 similar cuttings from the plant of 8 cm each.
- Place the plant cutting in the measuring cylinder.
- Adjust the water level to an exact level (for example 8 cm^3)
- Make a note of the volume of water.
- Add about 1 cm^3 of oil on top of the water in the measuring cylinder.



- Place the measuring cylinder on the balance and record the mass.
- On the measuring cylinder, write the starting volume of water.
- Take 3 more cuttings at timed intervals for the next couple of days.
- Uptake of water gives an estimate of water loss by transpiration.

Activity to show leaves contain starch

- The leaf is first decolourised by treating it in 90% ethanol (alcohol) solution. It is then rinsed in hot water to remove all alcohol and to soften the tissue.
- The leaf is now colorless. Then iodine solution (brown in color) is poured over the leaf.
- The leaf turns blue-black indicating that it contains starch.

This proves that leaves produce starch in the presence of sunlight.

Plants synthesize their own food in the presence of sunlight, green coloured substance (chlorophyll) from water and carbon dioxide. This process id called as **photosynthesis**.

Roots

Roots help in absorption of water from the soil. They anchor the plant firmly to the soil. There are two types of roots.

Fibrous roots and tap roots

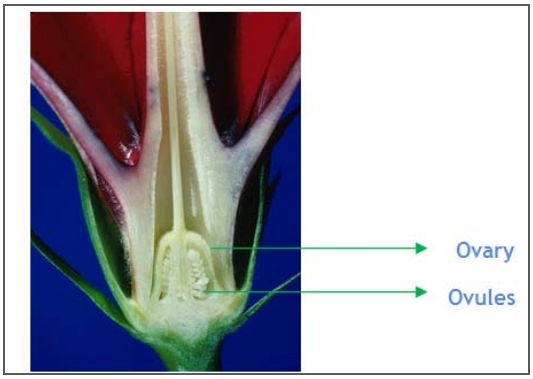
A root where only one main primary root is present is called as tap root and the smaller roots from these roots are called lateral roots.

Plants that do not have primary roots and all roots appear similar are called as fibrous roots.

The food prepared by the leaves is transported through the stem and stored in various parts of the plants. In some it is stored in roots like carrot, tapioca etc.

Flower

The flowers are the reproductive parts of a plant. These produce seeds which develop into a new plant.



Inner structure of a pistil

The prominent parts which appear are the **petals** and the leaf like structures below it are called as **sepals**. The two major parts of the flower are the **stamen** and the **pistil**.

The stamen is made up of a stalk called **filament** and **anther**. The pistil is further divided into three parts namely the **style**, **stigma** and ovary. The bottom swollen part of the pistil is the ovary which has small bead like structures called **ovules**.

Chapter-8: Body Movements

The Human Skeletal System

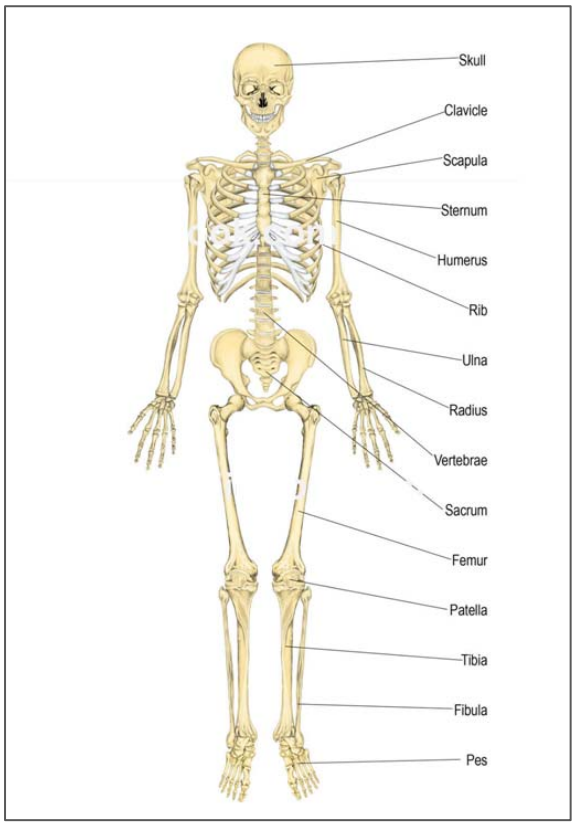
The human skeletal system is a framework of bones which gives shape to the body. It is made of bones and the cartilage. The main bones are the ribs, backbone, skull, shoulder bones and the pelvic bones.

The **rib cage** is a bony cage that protects the delicate organs like lungs and heart. It has many bones which are attached to the sternum.

The **backbone** starts from the neck at the back of your body. It is made of many smaller bones and is connected to the rib cage.

The **skull** is composed of many bones joined together and protects the most important organ of our body, the brain.

The bones at shoulder are the **shoulder bones** while the portion on which we sit is the **pelvic bone.**



The Skeletal System

Cartilage

A tough, elastic, fibrous connective tissue found in various parts of the body, such as the joints, outer ear, and larynx. It is not as hard as bone and also can bend.

Joints

It is a point of articulation between two or more bones, especially such a connection that allows motion. We can move our body only at places where bones meet or at joints.

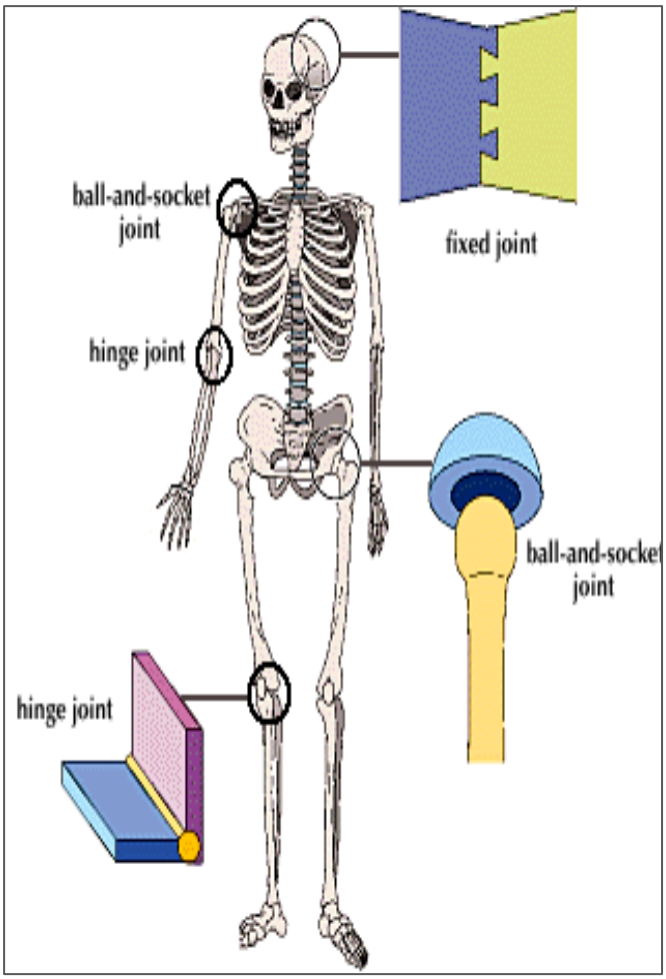
Activity

Place a scale length-wise on your arm so that your elbow is in the centre. Ask your friend to tie the scale and your arm together. Now, try to bend your elbow. Are you able to do it? Now remove the scale and bend you hand. We are able to bend or rotate our body in places where two parts of our bones are joined.

Types of joints

Ball and socket joint

In a ball and socket (spheroid) joint, the ball-shaped surface of one rounded bone fits into the cup-like depression of another bone. For e.g. the joint in shoulder allows movement in all directions.



Types of joints

Hinge joint

A hinge joint is a bone joint in which the articular surfaces are molded to each other in such a manner as to permit motion only in one plane. Joint in knee and elbow

Pivotal joint

This is the joint where our neck joins the head. It allows us to bend our head forward and backward and turn the head to our right or left.

Fixed joint

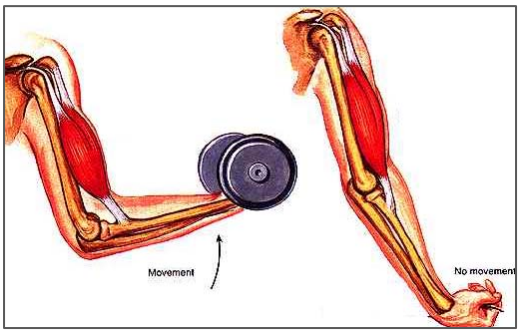
Bones in the skull also have joints that cannot move or remain fixed. These are the fixed joints.

Muscle

A band or bundle of fibrous tissue in a human or animal body that has the ability to contract, producing movement in or maintaining the position of parts of the body are known as muscles.

Movement

When one of them contracts, the bone is pulled in that direction. The other muscle of the pair relaxes. To move the bone in the opposite direction, the relaxed muscle contracts to pull the bone towards its original position, while the first relaxes. Thus, two muscles have to work together to move a bone.



Movement of muscles

Movement in other animals

Earthworm – The body is made of many rings and but do not posses bones. They have muscles which help in expansion and contraction of the body. Bristles are present that help in gripping the ground.

Snail – It has outer skeleton called shell and lacks bones. Movement in snails is with the help of muscular foot.

Cockroach – Its body is divided into three parts head, thorax and the abdomen. The breast muscles help in flying while the muscles of the leg help in walking.

Birds – The forelimbs are modified into wings for flight and hind limb help in walking and perching. Bones are hollow and light and the flight muscles are attached to the breastbones.

Fish – They have a streamlined body which allows easy movement in water. The muscles move making a curve. Fins and tail help in movement and maintaining balance.

Snake – It has a long backbone and thin muscles. It slithers and moves by curving its body forming loops.

Chapter-9: The Living Organisms and Their Surroundings

Organisms and their Surrounding

Organisms are the living creatures that inhabit an area. These organism vary from region to region like the desert has camel and mountain has yak.

Habitat and Adaptation

The surroundings where organisms live are called a **habitat.** For example fishes and aquatic plants live in water and have an aquatic habitat.

The presence of specific features or certain habits, which enable a plant or an animal to live in its surroundings, is called **adaptation**. For example leaves in desert plants are small or reduced or are present in form of spines to reduce transpiration.

Biotic and Abiotic Components

The plants and animals which are the living organisms comprise of the **biotic component.** The rocks, water, soil and air are non living and are hence called the **abiotic components.**

Types of habitat

Terrestrial habitat

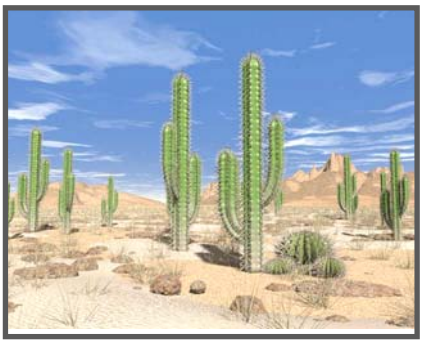
Deserts

Adaptation of Animals

- Desert animals like rats and snakes live in burrows during day time to escape intense heat.
- Camels have long legs that help them keep away from the heat of the sand.

Adaptation of Plants

- Desert plants have extensive root system that go deep in the soil for absorbing water.
- Leaves are small or reduced in form of spines to reduce loss of water due to transpiration.
- Photosynthesis is carried out by stem which have thick waxy coating to retain water.



Cactus

Activity

Bring a potted cactus and a leafy plant into the classroom. Tie polythene bags to both the plants. Then keep the set up under the sun light. Carefully observe both the potted plants after 4-6 hours. You can notice that the polythene bag covering leafy plant contains more water in comparison to the cactus plant.

This concludes that desert plants lose very little water through transpiration.

Mountain region

Adaptation of Animals

- Snow leopards have thick fur on its body to protect them from cold when they walk on snow.
- Yaks have long hair to keep them warm.
- The mountain goat has strong hooves for running up the rocky slopes of the mountains.

Adaptation of Plants

- Trees are normally cone shaped and have sloping branches.
- The leaves of some of these trees are needle-like which helps the rainwater and snow to slide off easily.
- Snow leopards have thick fur on its body to protect them from cold when they walk on snow.
- Yaks have long hair to keep them warm.
- The mountain goat has strong hooves for running up the rocky slopes of the mountains.

Pine trees

Grasslands

Adaptation of Animals

- Animals like lion, deer, and zebra inhabit in grasslands.
- The lion has light brown in colour which makes it hide in dry grasslands easily.
- It has long claws in their front legs that can be withdrawn inside the toes.
- The eyes in front of the face allow it to have a correct idea about the location of its prey.

- Deer has strong teeth for chewing hard plant stems of the forest.

Animals in grassland

- It has long ears to hear movements of predators. The eyes on the side of its head allow it to look in all directions for danger.
- The speed of the deer helps them to run away from the predators.

Aquatic Habitat

Oceans

- Aquatic animals like fish have streamline body that enable them to swim in water.
- Animals like squid and octopus stay deep in ocean bed and make their body streamlined while moving.
- Mammals like whales can stay long without breathing. They have blowholes that help in breathing near water surface.
- Both plants and animals use oxygen dissolved in water for respiration.

Aquatic habitat

Ponds and lakes

- In aquatic plants, roots are much reduced in size and their main function is to hold the plant in place.
- Stem are long hollow and light which grow on the surface of water while flower and leaves float on the water surface.
- Leaves of submerged plants are highly divided or ribbon shaped to allow easy flow of water without damage
- Amphibians like frog have strong back legs that help them in leaping and catching their prey.
- They have webbed feet which help them swim in water.

Pond habitat

Characteristics of Living Organisms

- **Nutrition** – All living organisms require food that provides energy and enable them to grow. Plants synthesize their own food by photosynthesis and animals depend on plants for food.
- **Growth** – Living organisms grow like an egg hatches to produce hen, seeds germinate into a seedling and pups grow into adult dog.
- **Respiration** – Plants and animals take in oxygen and give out carbon dioxide by the process of breathing which is a part of respiration. The glucose from food is broken down to generate energy. Earthworm breathes through skin while fish through gills. Lungs are the respiratory organs in mammals. Plants photosynthesize during day while respiration takes place all the time.
- **Response to stimuli** – Changes in our surroundings that makes us respond to them, are called **stimuli**. All living organisms respond to stimuli. For example the leaves of mimosa plant close on touching and wild animals run away when bright light is flashed towards them.
- **Reproduction** – It is the process in living organisms where the organism produces offspring.

Leaves of mimosa plant close on touching

Mode of reproduction may vary. Some animals like hen lay eggs while dogs and cow give birth to young ones.

- Plants reproduce by seeds but can also grow from leaves, roots or stem like a potato with a bud grows into a new plant.
- **Excretion** – plants and animals get rid of their waste materials through the process of excretion. Plants secrete resins and gums while animals excrete in the form of uric acid or urea.

Chapter-10: Motion and Measurement of Distance

Distance and measurement

The length between two points is called "Distance". The length is measured to determine the distance between two points.

Standard Units of Measurements

Measurement is actually a comparison between known and unknown quantity. Non standard units of measurements are hand span, foot span, finger width and palm length. Unknown quantity is the object to be measured and the known quantity is called as "**UNIT**". Nowadays, world has accepted a set of units to be the Standard unit of Measurements. This set or system of Standard units is known as SI System. As per SI system, METER is the standard unit of Measurement.

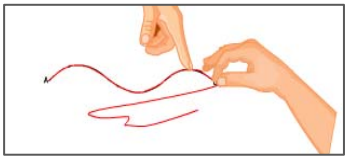
Table of metric conversion	
1 centimeter =	10 millimeter
1 decimeter =	10 centimeter
1 meter =	10 decimeter
1 dekameter =	10 meter
1 hectometer=	10 dekameter
1 kilometer =	1000 m = 10 ha

Correct measurement of length

For correctly measuring the length, the scale by which the object is to be measured should be placed along its length.
Measure the object from the zero point of the scale, if using any other full mark of the scale, then the reading of this mark must be subtracted from the reading at the other end.
The eye must be exactly in front of the point where the measurement is to be taken

Measuring a curved line

A curved line can be measured with the help of a thread which can then be measured on meter scale.



Rest and Motion

The object which is stationary and not changing its position is said to be on Rest. The object which changes its position from one place to another is said to be in motion.

Types of Motion

The different types of motion around you can be categorized as follows:

Linear motion: If an object moves from one position to another along a straight line in one direction is called linear motion. The freely falling football is also following linear motion.

Circular motion: when a body moves on its own axis or around a fixed centre, then the body is said to be in circular motion. Both Rotation and Revolution are examples of circular motions.

Activity

Observe the motion of the giant wheel. We see that it moves along a circular path. In this motion, the distance of stokes from the centre point remains the same. This type of motion is called circular motion.

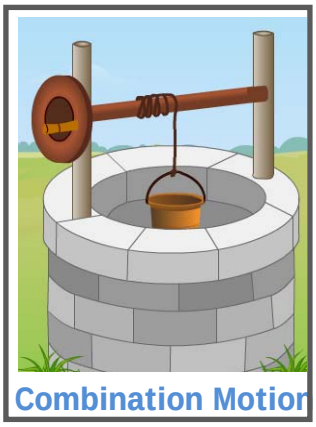
Giant wheel

Combination motion: Motion having more than one type of motion is called combination motion. In a well, the pulley on which the rope runs has a circular motion and the bucket has a linear motion.

Periodic Motion: The motion where an object repeats its motion after a fixed time interval is called periodic motion. Child Swinging on swing – Periodic Motion.

Linear Motion

Circular Motion



Combination Motion

Periodic Motion

Chapter-11: Light, Shadows and Reflections

We are able to see all things around us because of light.

Luminous Objects

Some objects emit light of its own are called as luminous objects. For example the sun and the stars give out their own light. Even the lighted candle or torch bulb can be considered as luminous objects.

Non-Luminous Objects

The objects that cannot produce light of their own are called as non-luminous objects. The moon for example reflects the light of the sun.

Transparent, Translucent and Opaque Objects

Objects that allow light to pass through them completely are called as transparent objects like a transparent glass. They do not cast any shadows as they do not block the light.

Objects that allow light to pass through them partially are called as translucent objects like a butter paper or a tracing paper. They cast faint shadows as they block the light partially.

Objects that do not allow light to pass through them are called as opaque objects like a wood, rubber ball. They cast dark shadows as they block the light.

Shadows

When an opaque object comes in the path of the light, a shadow is formed.

Essential conditions for Shadows:

- Sources of light
- Opaque objects
- Screen

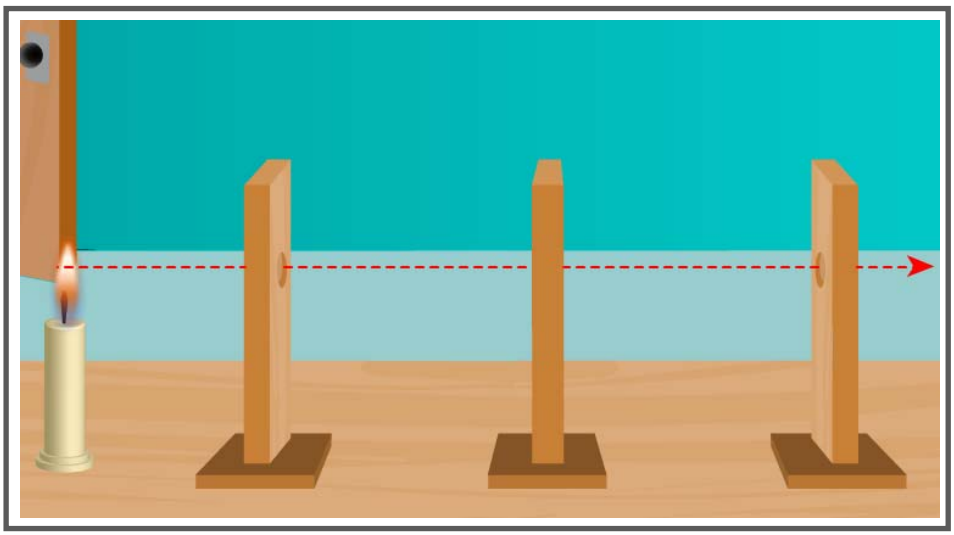
Characteristics of Shadows

- The shadows give only an outline of the object
- They require a screen for the shadow to cast.
- They are dark in colour and not of the colour of the objects.
- The size of the shadow varies according to its distance from the source of the light.

Rectilinear Propagation of Light

The light always travels in a straight light. Take three wooden boards and drill a hole at the same position in each of them evenly. Now take a candle and place it behind the boards such that the flame of the candle can be seen through the hole. Arrange the boards in such a

manner so that they superimpose each other. What did you observe? Yes you are correct the candle flame could be been through the holes in the boards. Now let's see another example. Take a ball and two wide hollow tubes. One bent and one straight. Try to see the ball through both the tubes. You will notice that ball is visible through the straight tube but cannot be seen through the bend tube. This explains rectilinear propagation of light.

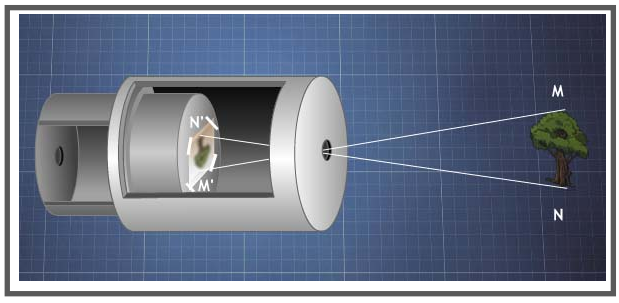


Light travels in a straight line

Pinhole Camera

Pinhole camera is an optical device that forms an image without using a mirror or lens. The light rays entering through the holes of the roof act as a pinhole camera as they produce images of the sun when they fall on the ground. The image formed by a pinhole camera is always real, inverted and dimished.

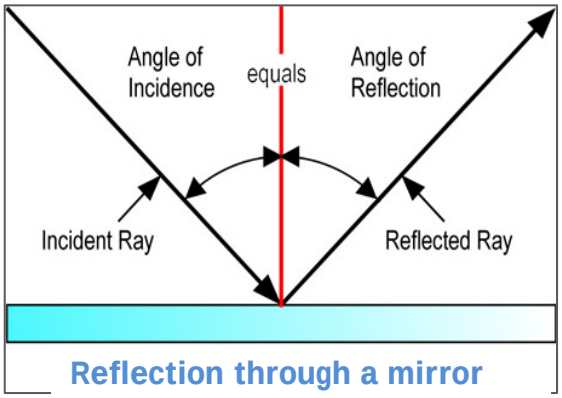
Natural pin hole camera



Pin hole camera

Mirrors and Reflection

Mirrors are capable of reflecting sufficient light to form an image of an object placed in front of it.



Reflection through a mirror

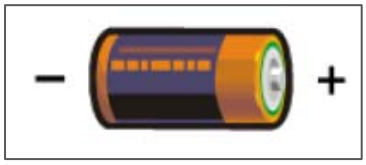
When the light rays from the object hit the mirror and bounce back, it is called reflection. The light rays meet the mirror at the point of incidence and makes angle of incidence with the normal while the reflected ray from the mirror forms the angle of reflection with the normal. The incident ray, reflected ray and the normal all lie in the same plane and the angle of incidence is equal to the angle of reflection. These are the laws of refection.

Chapter-12: Electricity and Circuits

Electricity has become an indispensable part of our life. It makes our task easier. The metro train runs with electricity which has made conveyance easier likewise many electronic appliances have made work simpler.

Electric Cell

An electric cell produces electricity from the chemicals stored inside it. It has two terminals namely the positively and the negative terminal. The metal cap is the positive terminal of the electric cell and the metal disc is the negative terminal. Electricity in the torch, wristwatches and alarm clocks is provided by the electric cell.



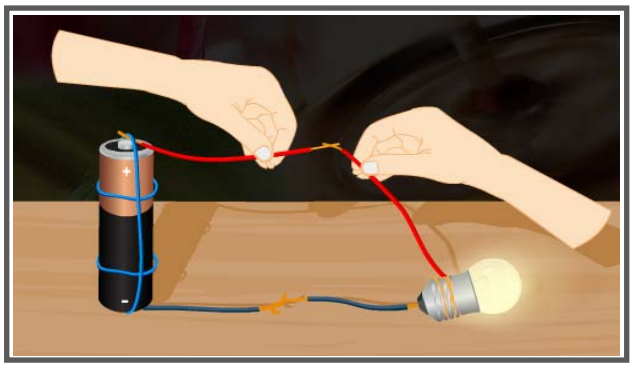
An electric Cell

A Bulb connected to an Electric Cell

The bulb glows with the help of the electricity produced by the electric cell. The thin wire that gives off light is called the **filament** of the bulb.

Activity

Take four electric wires with differently coloured plastic coverings. Remove the plastic covering from the ends of each wire. This would expose the metal wires at the ends. Connect one wire to the positive terminal of the cell and the other to the negative terminal. Similarly connect the other two wires to the two terminals of the bulb. Now, connect the wires fixed to the bulb with those attached to the cell as shown in the figure. You will notice that bulb glows. If you connect both the wires of the bulb to the same terminal of the cell you will notice that bulb does not glow.

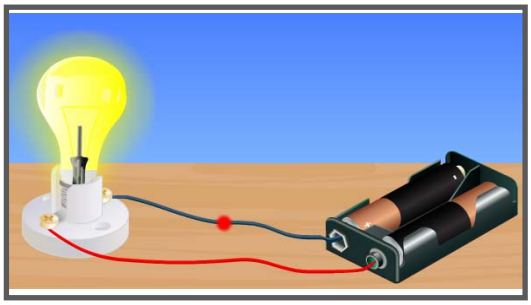


An Electric Circuit

Electric circuit is a path through which electric current flows. It consists of electric cell, electric device and wires.

How to make an Electric Circuit

Take a bulb and insert it into a bulb holder. Now take two cells and place them in a cell holder. Connect one terminal of the electric bulb to the positive terminal of the first cell and negative end of the second cell to the other terminal of the electric



An electric Circuit

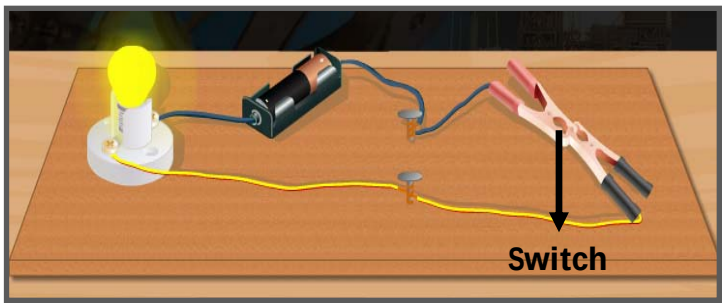
bulb with the help of wires. You observe that the bulb glows. This is due to the flow of current through the circuit.

Electric switch

An electric switch is a simple device that either breaks the circuit or completes it.

Working of a electric switch

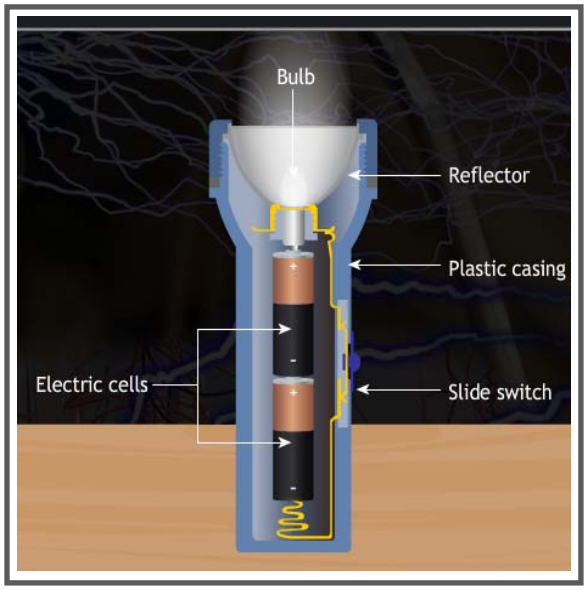
The materials require are a wooden board, two iron nails stuck to the board, bulb, bulb holder, a set a cells, wire and two metal clips. Connect one terminal of the electric bulb to the positive terminal of the electric cell through wires.



Now connect the other terminal of the second cell to the metallic clip such that it passes through the iron nail. Another wire is connected from the second clip to the other terminal of the bulb again passing through the nail. The bulb does not glow. This is because the circuit is not complete. Now connect both the clips and observe. The bulb glows because the **current** flows through the circuit. Here the metallic clip acts as a switch which regulates the flow of current. Such an arrangement is an example of an electric circuit.

Working of a Torch

A torch is an electric device that works with the help of electric cell which generates electricity for the bulb to glow. The bulb has an outer case of glass that is fixed on a metallic base. The metal parts of the torch must **conduct** electric current if the torch is to function. There are two electric **cells** ('batteries'), a switch and a lamp (the torch bulb). This is the lamp which is connected to the positive terminal of the cell while the spring of the torch is connected to the negative terminal of the second cell. The negative terminal of the first cell is connected to the positive terminal of the second cell. In the torch, closing the switch completes the circuit and allows current to flow and thus the bulb glows.



An electric torch

Electric Conductors and Insulators

Conductors are substances that allow electricity to pass through them. All metals are examples of conductors.

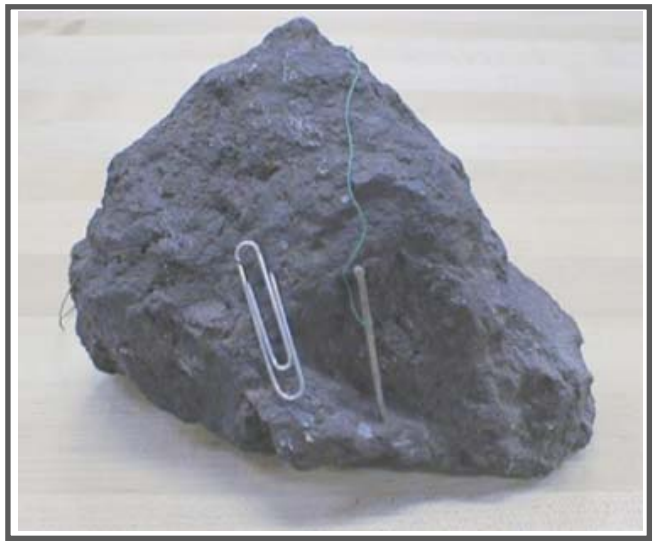
Substances which do not conduct electricity through them are called insulators like rubber, plastic and wood.

Chapter-13: Fun with Magnets

How Magnets were discovered?

A Greek shepherd named **Magnes** discovered magnets 4,000 years ago in Magnesia, Greece. The name **magnetite** has been derived from **Magnesia or Magnes**. Magnets are named after Magnetite.

Magnets attract magnetic materials. Natural rocks that have the property of attracting iron are called naturals magnets. Magnes discovered a natural magnetic rock, called the **lodestone.** In the form of a bar, it was used to find directions on the earth, and so the name, 'lodestone,' which means the stone that leads.



Lodestone

Lodestone has a compound of iron called magnetite. These natural magnets have the magnetic property of attracting materials like iron.

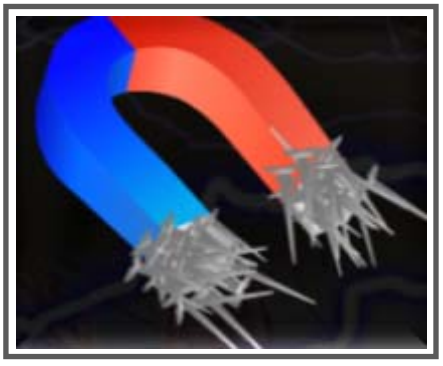
Artificial magnets

Magnets made by man are called artificially magnets. A rectangular iron bar, an iron needle, a blade or an iron nail can be turned into a magnet by rubbing a bar magnet over it.

Magnetic and Non-magnetic Materials

Magnetic Materials

Materials that are attracted by a magnet are called magnetic materials. Objects made of materials such as iron; cobalt and nickel are magnetic in nature. Examples of magnetic materials include iron nail, key, metal spade, needle and metal door handle.



Horse shoe magnet

Non-Magnetic Materials

Materials that are not attracted by magnets are called non-magnetic materials. Modern coins are made of uniform mixtures of different metals so they become non- magnetic. Examples of non-magnetic materials include rubber, coins, feather and leather.

Rubber Coin

Types of magnets

Bar magnets

In these magnets, the poles are located at the ends of the bar.

Cylindrical magnets

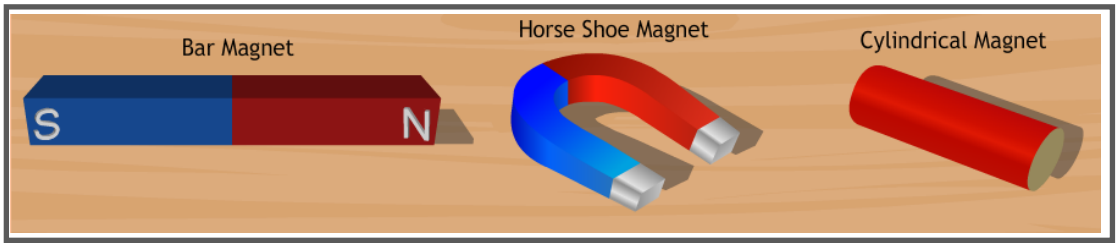
In these magnets, the poles are located at the two circular ends of the cylinder.

Horseshoe magnets

In these magnets, the poles are located at the two free ends of the 'U' shape.

Dumb-bell shaped magnets

In such magnets, the poles are located at the two dumb-bell shaped ends.



Properties of a Magnet

- Substances that possess the property of attracting iron are called magnets.
- The two ends of a magnet are called its poles.
- All magnets have two poles, and they are called dipoles.
- A magnet with a single pole doesn't exist. Since poles have high magnetic power, they attract objects easily.
- The poles of a magnet are named as the North Pole and the South Pole. In order to identify the poles, the North Pole is usually painted in red color. The other end of the magnet will, therefore, be the South Pole.
- In laboratories, magnets are painted completely red in color with a white dot to indicate the North Pole. The other end will, therefore, be the South Pole.
- A magnet can be cut into two pieces. Each piece will behave like an independent magnet, with a north pole and a south pole.

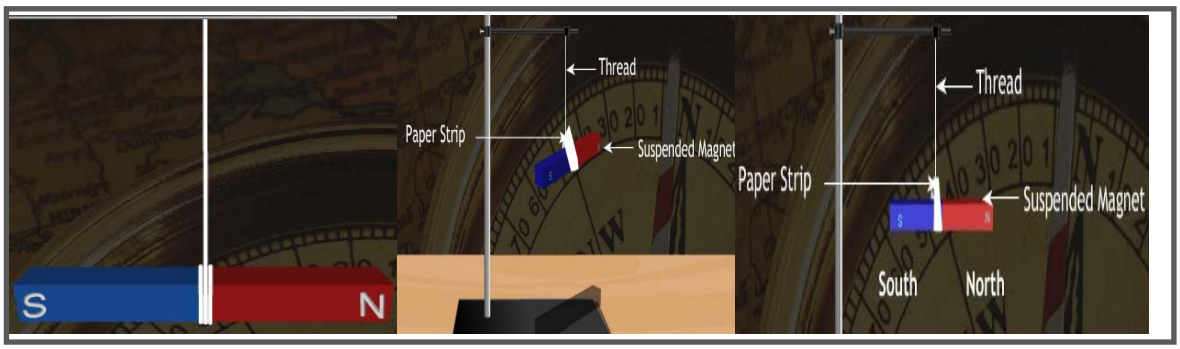
Finding directions

- In the ancient days, an old pointing device was called the south pointing fish. It was used to know the directions. The head of the fish pointed towards the south.
- A compass is an instrument that is used to find the directions. It has a thin magnetic needle supported from a pivot so that it can rotate freely. The needle is placed over a dial with the directions marked. The entire assembly is placed inside an airtight box. The north pole of the magnetic needle is painted red. The magnetic needle in the compass points in the north-south direction. By aligning the dial properly, the directions can be found.

Compass

Activity

Take a bar magnet having labels of North and South Poles. Take a thread and tie it in the middle of the magnet. Now suspend it freely from a laboratory stand. You will find that the magnet rests in that particular direction only as shown in figure. **Observation:** The line along which the Magnet rests is called North-South Line. It is because North Pole of Magnet points towards the North direction and South Pole points towards the south Direction. Line drawn perpendicular to North-south line shows east to the right & West to the left of North-South Line.



Make your own Magnet- Magnetization

Magnetization is the process by which a magnetic substance attains magnetism temporary or permanent.

The methods used to magnetize a magnetic substance are -

- Single touch method
- Double touch method
- Electrical method of magnetization

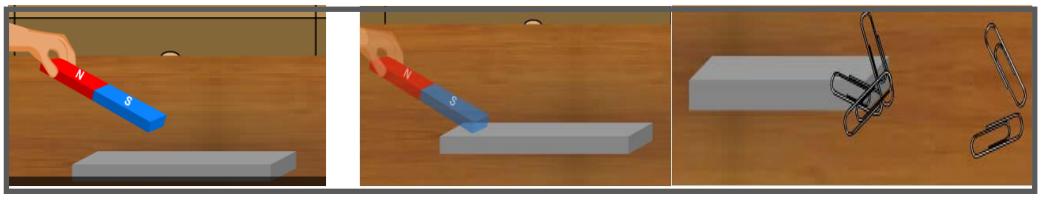
Demagnetization

Demagnetization is the process of removing the magnetic property of a magnet.

A magnet loses its magnetic properties when heated, hammered or dropped from a height.

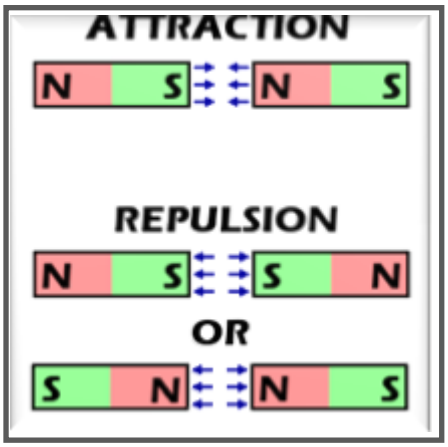
Activity

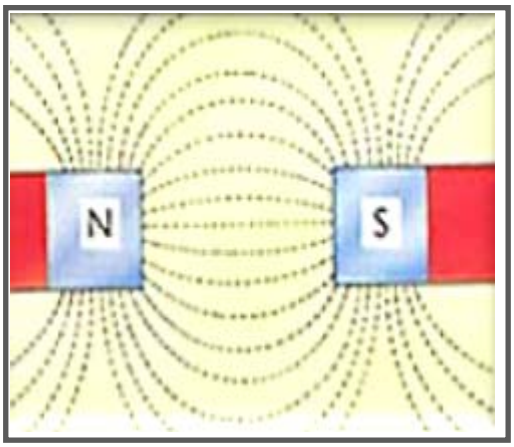
Take a bar magnet and an iron bar. Now rub the bar magnet 30-40 times over the iron bar. Bring the iron bar near the needle clips. **Observation:** You will see that iron bar attracts the needle clips.



Attraction and Repulsion

The poles of two magnets that are different or opposite will attract. Magnetic lines of force from north and south poles pull together and join. The poles of two magnets that are the same will repel or push each other apart.





Law of magnets

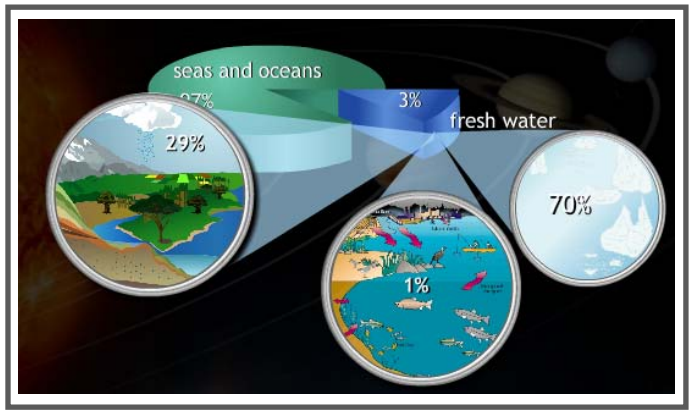
Unlike poles attract each other and like poles repel each other.

Chapter-14: Water

Water is an important resource that is required by all living organism. It is needed for various purposes like drinking, cleaning, irrigating fields, manufacturing products in industries and many others.

Source of water

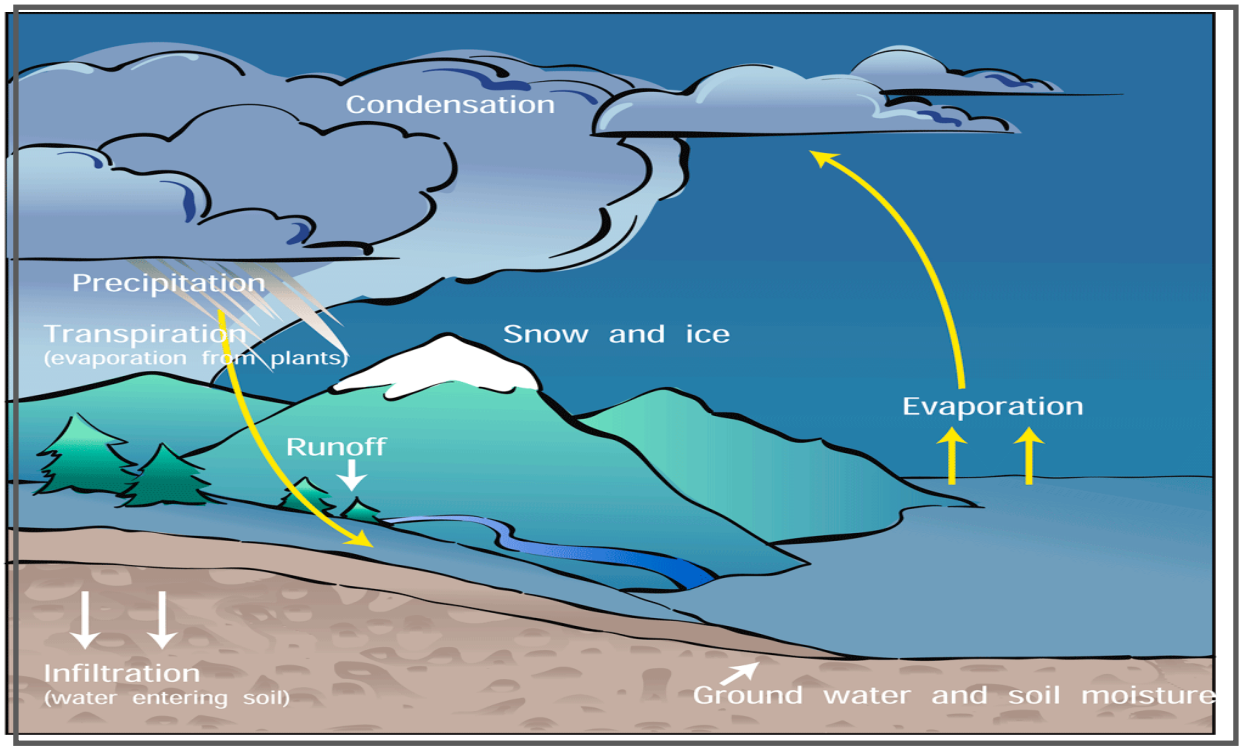
Three fourths of the earth's surface is covered with water but only a little amount of that water is in usable form. The water in oceans is salty and is therefore unfit for drinking and other uses. Some water is trapped in the form of snow and glaciers in the polar region. The ponds, lakes, wells are the source of fresh water that is potable. Although we don't use ocean water it plays a substantial role in the water cycle.



Water Distribution

Water cycle

The amount of water present on earth circulates from one form to another. The circulation of water between ocean and land is known as the water cycle.



Water cycle

This cycle is made up of a few main parts:

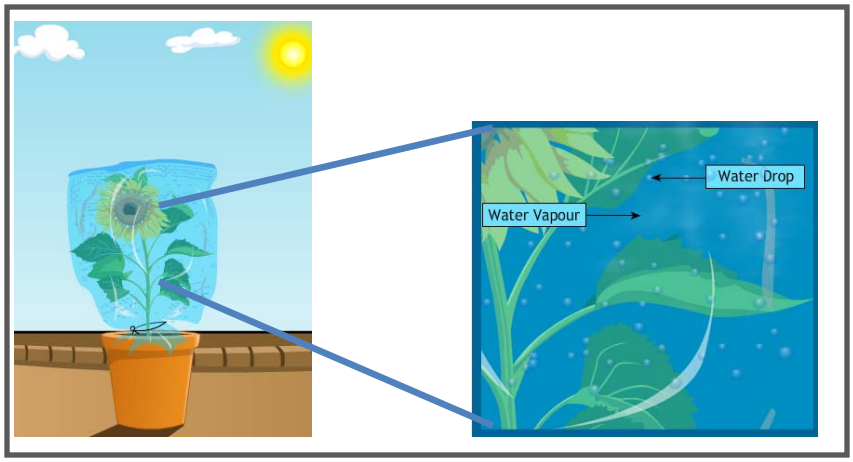
- Evaporation (and Transpiration)
- Condensation
- Precipitation
- Collection

Evaporation

Evaporation is when the sun heats up water in rivers or lakes or the ocean and turns it into vapor or steam. The water vapor or steam leaves the river, lake or ocean and goes into the air. Plants also lose water in the form of water vapour from the leaves by the process of transpiration.

Activity

Take a potted plant and cover it with a polythene bag. Keep it in sun for some time. After 4-5 hours you will observe water droplets collected on the inner portion of the polythene bag.



Transpiration

Condensation

Water vapour on reaching higher altitudes condenses to form water droplets which float in air. These are the clouds. This conversion of water vapour into water is called as condensation.

Precipitation

Precipitation occurs when so much water has condensed that the air cannot hold it anymore. The clouds get heavy and water falls back to the earth in the form of rain, hail, sleet or snow.

COLLECTION

When water falls back to earth as precipitation, it may fall back in the oceans, lakes or rivers or it may end up on land. When it ends up on land, it will either soak into the earth or it may run over the soil and collect in the oceans, lakes or rivers where the cycle starts again.

Ground water

The water that falls on the earth surface through rains seeps into the surface and becomes ground water. This groundwater is also the source of lakes. The water obtained from tube wells and hand pumps is nothing but the ground water. Urbanization has made the land surface concrete due to which rain water cannot be absorbed. Increasing use of this ground water has led reduction in the level of water table and ultimately groundwater depletion.

Floods

Heavy rain can cause floods. If a lot of rain falls quickly, the earth is unable to soak it up, and the water builds up on the ground. When it runs off into the rivers, the rivers overflow their banks. The worst floods happen where the land is flat and low-lying. These areas are known as floodplains. Mud, earth, and large objects, like cars, can be carried long distances by flood waters. They rip up anything not firmly anchored to the ground. Then, disease spreads quickly because the flood water is polluted and there is no fresh drinking water.

Floods

Effects of floods

Causes damage to the animals as they get carried away with water
Crop fields is destroyed
Damage is caused to life and property

Drought

Drought is a temporary reduction in water or moisture availability significantly below the normal or expected amount for a specific period. This condition occurs either due to inadequacy of rainfall, or lack or irrigation facilities. It drought persist for a longer period it may lead to famine.

Droughts

Consequences of drought

- Death of livestock
- Reduced crop yields
- Malnutrition, dehydration and related diseases
- Famine due to lack of water for irrigation
- Desertification

Conservation of water

The water in oceans cannot be used while the groundwater is depleting day by day therefore to meet the demands of the increasing population measures should be taken to conserve this water. This can be done by stopping wastage of water and use it judicially.

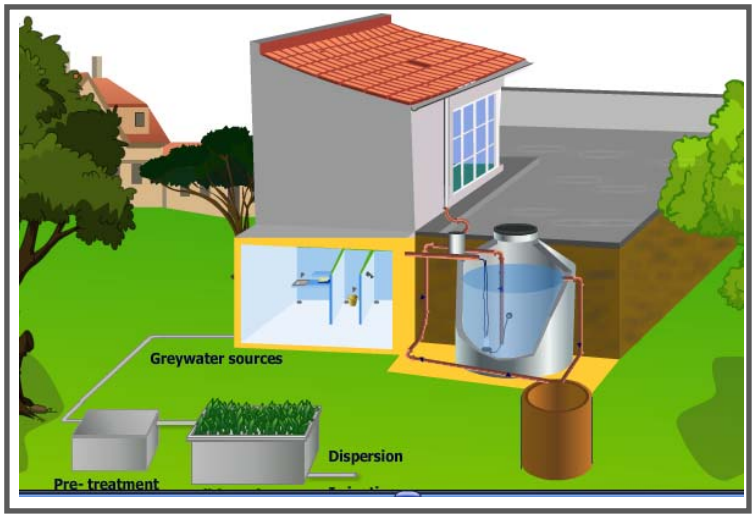
Rain water harvesting

One way of increasing the availability of water is to collect rainwater and store it for later use. Collecting water in this way is called Rainwater Harvesting.

This can be done by two ways

1. Rooftop rainwater harvesting
2. Direct collection of rainwater into drains which gets absorbed into the ground.

In rooftop rain water harvesting the water from the rooftops is collected into a tank which after filtration to remove the impurities becomes fit for use or goes into pits from which it seeps into the ground. The water collected is then made available for use.



Rainwater Harvesting

Another method of harvesting water is to allow the rainwater to directly make it absorbed in the ground through the roadside drains.

Chapter- 15: Air Around us

Air is Present Everywhere

Our earth has a thin layer of air called the atmosphere. This air is present everywhere around us. Air occupies space and weight. It is colorless and odorless.

Activity

Air occupies space

Take a glass and place a crumbled paper at the bottom of it. Now invert this glass in a tub containing water. Invert it in a tub having water. Take out the glass and observe the paper. Does the paper get wet? No, the paper isn't wet.

Conclusion: The water does not enter the glass because air is filled in it which does not allow the water to rush in.

Composition of Air

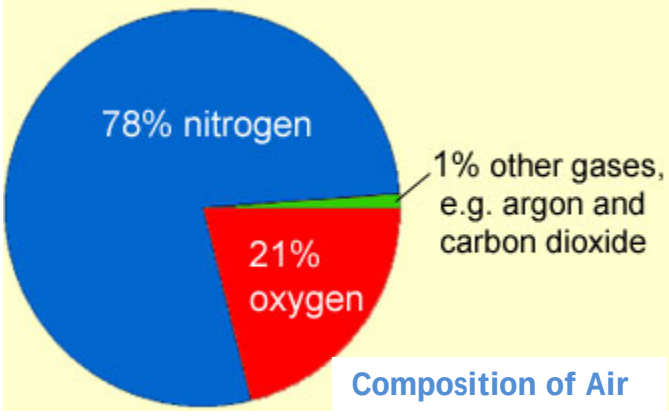
Air is composed of a mixture of gases.

Nitrogen – 78%

Oxygen – 21%

Carbon dioxide, water vapour & other gases – 1 %

Air also contains smoke from burning of fuels and exhaust from industries and dust.



Nitrogen – It is the most abundant gas which occupies nearly four- fifth of the space.

Oxygen – This gas is utilized by the living organism for respiration. Plants give out oxygen gas as a product of photosynthesis. Oxygen gas is essential for the purpose of burning.

Carbon dioxide – Green plants use carbon dioxide for photosynthesis and both plants and animals consume oxygen for respiration and produce carbon dioxide.

Oxygen Availability to Animals and Plants Living in Water and Soil

Plants and animals living in water utilize oxygen in the dissolved form for respiration. This oxygen content is depleting due to dumping of wastes in water. The whole aquatic habitat is affected because of water pollution.

Oxygen is required by animals like earthworm living in soil also. These tiny creatures live in burrows and consume oxygen present in between the soil spaces.

Replacement of Oxygen in Atmosphere

Plants use carbon dioxide for photosynthesis while both plants and animals use oxygen for respiration. The consumption of oxygen for respiration by plants is very less in comparison to the oxygen given out by photosynthesis. Plants give out oxygen which is used by animals and animals give out carbon dioxide that is used by plants.

Uses of Air

Moving air is called as wind. This can be used for various purposes

- Windmill which moves by wind are used for the generation of electricity.
- Air helps in the movements of sailing yachts, gliders, parachutes and aeroplanes.
- Birds, bats and insects can fly due to the presence of air.
- Air also helps in the dispersal of seeds and pollen of flowers of several plants.
- Air plays an important role in water cycle.

Chapter-16: Garbage in, Garbage out

All the unwanted wastes are dumped as garbage but it also contains useful components that can be recycled back.

Dealing with Garbage

The garbage collected from the all sources is brought to a low lying area or landfill. The useful components are separated out and the unwanted wastes are dumped into the landfill and covered with a layer of soil. The organic material of the waste breaks down into simpler components (nutrients) that are returned back to the soil. These wastes are biodegradable.

Garbage dumped into landfill

Polythene bags, plastics, glass and aluminums foils are non-useful garbage or non-biodegradable. These take longer to decay. Decaying of these non-useful components is known as decomposition. When non-useful components decay, they release harmful gases that damage the environment. To avoid the adverse impact, these garbage items are sent for recycling.

For example, when leaves burn, they release harmful gases and causes air pollution. Moreover, they lead to asthma and lung diseases. That is why leaves should be buried so as to convert them into manure.

Vermicomposting

The process of utilization of red worms for preparing compost is called vermicomposting.

Process of vermicomposting

The organic waste comprising of the vegetables, papers, green leaves and peels of fruits are dumped in a pit after which a layer of sand is deposited followed by sprinkling of some water over it. The red worms are then allowed to act on the waste and after 3 to 4 weeks it will convert into manure which is rich in nutrients. Put some amount of food waste next to the pit and the red worms would move away from the pit. Now the manure is in usable form.

Vermicomposting

The red worm requires moisture for their growth and grinds the food with the help of gizzard. It can consume food equivalent to its body weight.

Recycling Paper

It is important to reuse things than discarding them as waste. Many nice articles can be made out of waste.

Industries use recycled or waste paper to regenerate paper. Paper that is suitable for recycling is called "scrap paper". You can recycle old newspapers, magazines, notebooks and used envelopes, but not waxed paper, oil-soaked paper, paper contaminated with food, carbon paper, thermal fax paper, plastic laminated paper, stickers, and sanitary products or tissues.

Activity
Recycling paper

Put them in a tub or a bucket and pour water in it. Let the pieces of paper remain submerged in water for a day. Make a thick paste of paper by pounding it. Now, spread the wet paste on the wire mesh fixed to the frame. Pat it gently to make the thickness of layer of the paste as uniform as possible. Wait till water drains off. If required spread an old cloth or a sheet of newspaper on the paste to let it soak up the extra water. Now, carefully remove the layer of paste from the frame, spread it on a sheet of newspaper in the sun. Keep the corners of the newspaper sheet pressed by putting some weights so that these do not curl up. You get a recycled paper with beautiful texture.

Plastics

Plastics are non-biodegradable materials which cannot be decomposed by nature and are harmful for health.

We use many plastic items such as tooth brush, combs, containers, bottles, shoes, toys, wires, frames and bags every day. Certain parts of vehicles like cars and buses, and electronic goods like radios, televisions and refrigerators, are all made of plastic. All these are useful to us in many ways, but using plastic is very harmful in terms of health and as well as the environment.

Plastics

Demerits of using plastics

1. Plastics are not suitable for storing cooked food because they emit harmful chemicals when they are exposed to high temperatures. Using plastics causes health problems such as heart disease, diabetes and reproductive dysfunction. Harmful gases are emitted from burning plastics, which cause cancer and they kill living beings. That is why plastics should be disposed in the right way.
2. Plastics thrown casually get into drains and sewages, often blocking the way and causing water-logging. A major cause of the floods in Mumbai, India, in August 2005 was the choking of the drainage system by plastic waste. So polythene bags should not be used for garbage disposal.