

# KV AFS KUMBHIRGRAM

## SILCHAR REGION

Reading Material for Half Yearly Examination -2018

Class: VI

Subject: Science

### Chapter 1



We need food because We require energy to perform different activities. This energy is obtained from the food we eat which is oxidized in the cells to release energy. Food also protects us from diseases.

#### Milk is a complete food:

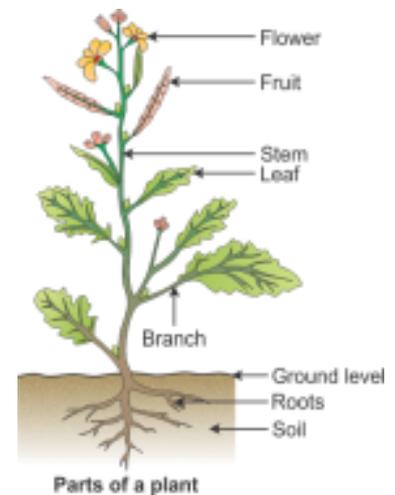
Milk contains a lot of proteins (casein is the most important one) and some amount of fat. Milk is a rich source of minerals like phosphorus

and calcium which are required for making the bones strong. It is known as an energy drink that helps to build up muscles and bones and also helps in body growth. Milk is considered as a complete food.



#### Photosynthesis

Photosynthesis is the process by which green plants prepare their food. In this process, green plants trap sunlight with the help of the chlorophyll present in them and synthesize the sugar known as glucose from carbon dioxide and water. In the process oxygen is given out from plants as a by-product.



Plant eating animals are called **herbivores**. Eg Deer, Cow, Goat etc

Flesh eating animals are called **carnivores**. Tiger, Lion, Vulture

Animals that eat both plants and flesh of animals are called **omnivores**. Dog, Cat, Bear, Crow etc.

### Chapter 2



#### Balanced Diet:

A diet that contains all the nutrients needed for the growth and maintenance of a good health is called a balanced diet. It should also contain good amount of roughage and water.

#### Glucose as Instant energy food:

Glucose directly enters the blood stream and produces energy through respiration immediately. Hence, it acts as a source



of instant energy.

**VITAMINS:** Vitamins are complex organic compounds, which are essential for the growth of our body. They do not provide energy.

**Deficiency Disease:** The diseases caused due to prolonged shortage of required nutrient in Body over long period of Time

**Ans.**

Vitamin/mineral	Deficiency disease/disorder	Symptoms
Vitamin A	Loss of vision	Poor vision, loss of vision in darkness (night), sometimes complete loss of vision
Vitamin B1	Beri-beri	Weak muscles and very little energy to work
Vitamin C	Scurvy (See Fig. 2.1)	Bleeding gums, wounds take longer time to heal
Vitamin D	Rickets (See Fig. 2.2)	Bones become soft and bend easily
Calcium	Bone and tooth decay	Weak bones, tooth decay
Iodine	Goitre	Glands in the neck appear swollen, mental disability in children
Iron	Anaemia	Weakness

### TEST FOR FOOD

CARBOHYDRATE	PROTEIN	FAT
Take a small quantity of food item and put <b>2-3 drops of dilute iodine solution</b> to it. If it turns blue or black in colour, it indicates the presence of starch in the food item.	Take a small quantity of food item in a test tube. Add <b>10 drops of water</b> into it and shake the test tube. With the help of a dropper, add <b>two drops of copper sulphate solution</b> and <b>ten drops of caustic soda</b> solution to the test tube. Shake the test tube and let it stand for a few minutes. The appearance of <b>violet</b> colour indicates the presence of proteins in the food item.	Take sample of Food in Paper, Crush it and see for Oil Spot. If Present it has Fats.

### Chapter 3

- ✓ The process of removing seeds from cotton fibres is called ginning.
- ✓ A single yarn is used for knitting.
- ✓ The process of arranging two sets of yarns together to make a fabric is known as weaving.

The process of making yarn from fibres is called **spinning**. In this process, fibres from a mass of cotton or wool are drawn out and twisted. This brings the fibres together to form a yarn. Devices which are used for spinning are spindle(takli) and charkha.

Coconut fibres are rough and very hard. Thus,  
 (i) can be used for making ropes.  
 (ii) Coconut fibres are used for making mattresses



Natural Fibre	Artificial /Synthetic Fibre
The fibres that are obtained from plants and animals eg.Wool and Jute. Wool is an animal fibre which is obtained from silkworm and jute is a plant fibre obtained from plant.	Certain fibres are prepared in Industries using inorganic raw material as Acrylic, Polyester and Rayon. These are man-made fibres and are prepared from different chemical substances.

## Chapter 4

Materials can be classified into three groups on the basis of physical states :

**Solids**—They have definite shape and volume, e.g., iron, ice, etc.

**Liquids**—They have definite volume but do not have definite shape, e.g., water.

**Gases**—They do not have definite shape and volume, e.g., air.

Hardness is the property of materials that can be found out by pressing the material.

**A material may be soft or hard.**

**Soft materials**— The materials which can be compressed easily are known as soft materials. For example – cotton, sponge, etc.

**Hard materials**— The materials that are difficult to compress are known as hard materials. For example – iron, wood, etc.

Transparent materials	Translucent material	Opaque materials
Those materials or substances through which things can be seen.	The materials through which objects are only partially visible, are known as translucent materials.	Those materials or substances through which things cannot be seen.
e.g. glass, water	e.g. butter paper.	e.g. wood, cardboard

## Chapter 5

**Condensation:**The process of conversion of water vapour into its liquid form is called condensation.

**Loading :**The process of settling down of solid particles quickly by addition of alum is known as loading.

**Centrifugation** is a process of separating suspended solid particles from a liquid.

**Evaporation :**The process of conversion of water into its vapour is called evaporation. It takes place at all temperature. For example, when seawater is allowed to stand in shallow pits, water slowly turns into water vapours by absorbing the heat of the sun, leaving behind the solid salts.

**Decantation** is a method of separation, when two components do not mix with each other. When the insoluble solute particles settle down, the liquid is poured into another container.

**Sedimentation** : mixture is allowed to stand for some time, the heavier component in a mixture settle at the bottom. For example, when mixture of sand and water is allowed to stand for some time, the particles of sand settle down to the bottom of vessel. The settling down of sand particles is called sedimentation.

**Sieving** is a method used for separating solid components of mixtures varying in size. Sieving allows the fine particles to pass through the holes of the sieve while the bigger particles remain on the sieve. It is used to separate pebbles and stones from the sand.

**Winnowing** is a method of separation which is used to separate heavier and lighter components of mixture by wind or by blowing air.

**To separate the mixture of saw dust and sugar**, we will follow these steps:

1. Add water to the mixture.
2. Sugar present in the mixture dissolves in water but saw dust does not.
3. The solution is then filtered through filter paper.
4. We will get sugar solution as filtrate and saw dust will remain on the filter paper.
5. Then the solution is heated and when water evaporates completely, sugar is left behind.
6. In this way, we will separate the mixture of sugar and saw dust.

**To separate the mixture of flour and sugar**

Sugar can be separated from the mixture of wheat flour and sugar by sieving process. The mixture is poured on a sieve. The fine particles of wheat flour pass through the holes of the sieve and the sugar particles being bigger in size remain on the sieve. In this manner, sugar can be separated from the mixture of wheat flour and sugar.

## Chapter 6

Physical change	Chemical Change
(i) Only physical properties like colour, volume etc. change. (ii) No new substance is formed.	(i) The chemical composition and chemical properties of the reacting substances undergo a change. (ii) One or more new substances are formed.
Conversion of water into ice, tearing of paper.	Burning of cooking gas, ripening of fruits.

### BURNING OF CANDLE:

When a candle burns, both physical and chemical changes take place. On burning a candle, the wax melts and is solidified again on cooling. So, melting of wax is a physical change. But the burning of candle also produces light and some gases like carbon dioxide. Hence, the burning of wick of a candle is a chemical change.



Why cement bags should be preserved in Air Tight Rooms?

- ✓ Cement bags are converted in to a hard mass due to the chemical reaction with water. A new product is formed, which has entirely different properties. So, this chemical change cannot be reversed.

**Change can be :**

**Periodic change.** A change that occurs during a definite time interval is known as periodic change, e.g., phases of moon, heart-beat, etc.

**Non-periodic change.** A change that does not repeat again and again after a regular interval of time is called non-periodic change, e.g., earthquake, flood and so on.

## Chapter 7

### Why do we need Plant ?

Life is not possible without plants. We should save plants. Plants give us oxygen which is essential for life. They provide us raw materials for various purposes. They are the house of many birds and animals.

### CHARACTERISTICS OF PLANTS ARE:

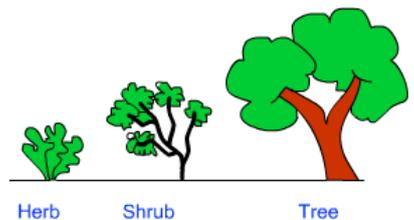
- ✓ They cannot move from one place to another.
- ✓ They can prepare their own food.
- ✓ These are the living organisms on the earth which are responsible for the formation of food for all the living forms directly or indirectly.
- ✓ All other organisms on the earth depend on the plants and their products for their survival.
- ✓ These living things grow in the soil from where they take nutrients for their growth and propagation.

Plants are characterised into three types on the basis of several features. One of the features is type of stem

**Trees** : They are tall, have hard, thick and woody stems.  
mango, apple

**Shrubs** : They are of medium height, have hard and woody stems. tulsi, rose

**Herbs** : They are short and have tender, green and short stems. coriander, mint



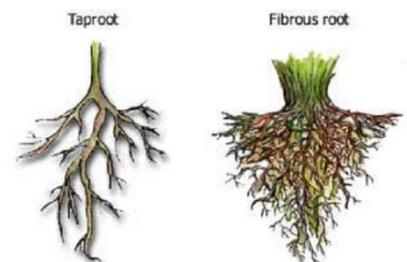
### Roots perform following functions in the plant :

- Roots absorb water and minerals from the soil.
- Roots hold the plant to the soil.
- Roots store food.

### Types of Root

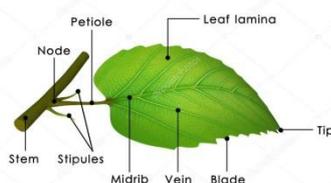
**Tap root** : There is one main roots then the branches of roots arise. They are found in dicotyledons.

**Fibrous root** : There is no main roots. All the roots forms branches. They are found in monocotyledons.



### The stem performs following Function:

- The stem carries water and mineral from the roots to the different parts of the plant.
- The stem provides support to the branches, leaves, flowers and fruits.



A leaf is a thin expanded outgrowth arising from the node of a stem. The part of a leaf by which it is attached to the stem is called a petiole. The broad green part of the leaf is called Lamina. The lines on the leaf are called veins. The thick vein in the middle of the leaf is called the midrib.

The design made by the veins on the leaf is called venation. If the design is net like, it is termed as reticulate venation where as if the veins are parallel to each other, it is termed as parallel venation.

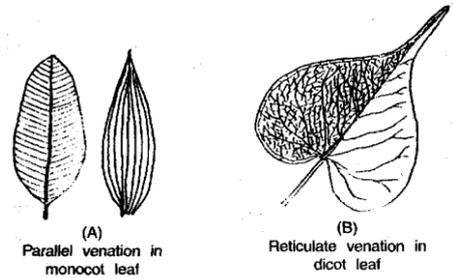
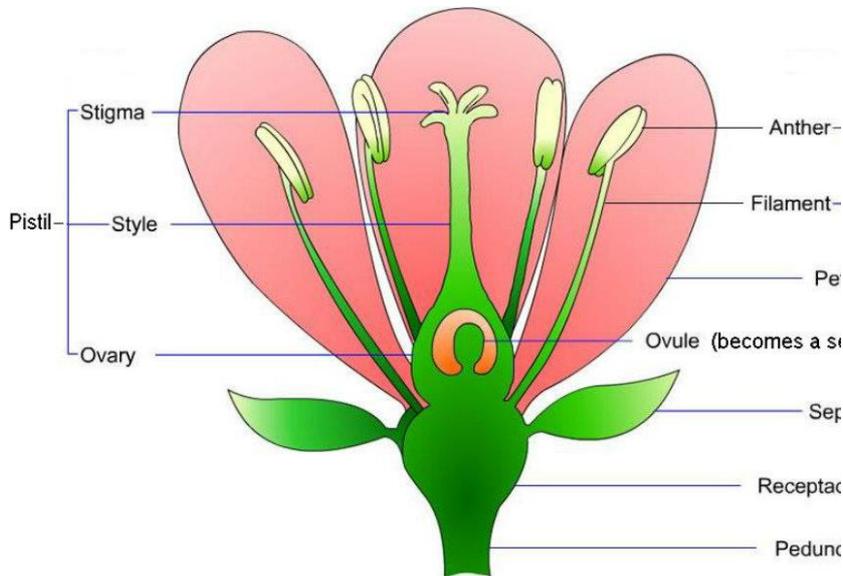


Fig 1.8 - Venation in angiosperm leaves



### Functions of parts of a flower

	Part	Function
1	<b>Petal</b>	Often large and coloured, to attract insects
2	<b>Sepal</b>	Protects the flower while in bud
3	<b>Petiole (stalk)</b>	Supports the flower to make it easily seen by insects, and to be able to withstand wind
4	<b>Nectary</b>	Produces nectar, to attract insects
5	<b>Stamen</b>	The male reproductive part of the flower, made up of anther and filament
6	<b>Anther</b>	Contains pollen sacs, in which pollen grains are formed. Pollen contains male sex cells.
7	<b>Filament</b>	Support the anther
8	<b>Carpel</b>	The female reproductive part of the flower, made up of stigma, style and ovary
9	<b>Stigma</b>	A sticky surface to the ovary, through which pollen tubes grow
10	<b>Style</b>	Links the stigma to the ovary, through which pollen tubes grow
11	<b>Ovary</b>	Contains ovules, which develop into seeds when fertilised.

## Chapter 8

The framework of bones and cartilage which supports the body of an animal is called its skeleton system.

**Human skeleton system is made up of 206 bones and supporting cartilage.**

The human skeleton system consists of the

Skull(29 bones) , backbone(26 bones) , ribs(24 bones), breastbone( 1 bone), bones in arms and legs(120 bones), shoulder and hip bones(6 bones).

## Functions of the skeleton system:

- (i) It forms framework of the body.
- (ii) It helps to protect the delicate organs of the body in their proper positions.
- (iii) It is reservoir of Calcium and other minerals.
- (iv) Production of blood Cell
- (v) Protection of Internal Organs

**Joints:** The place of meeting of two or more bones are called Joints

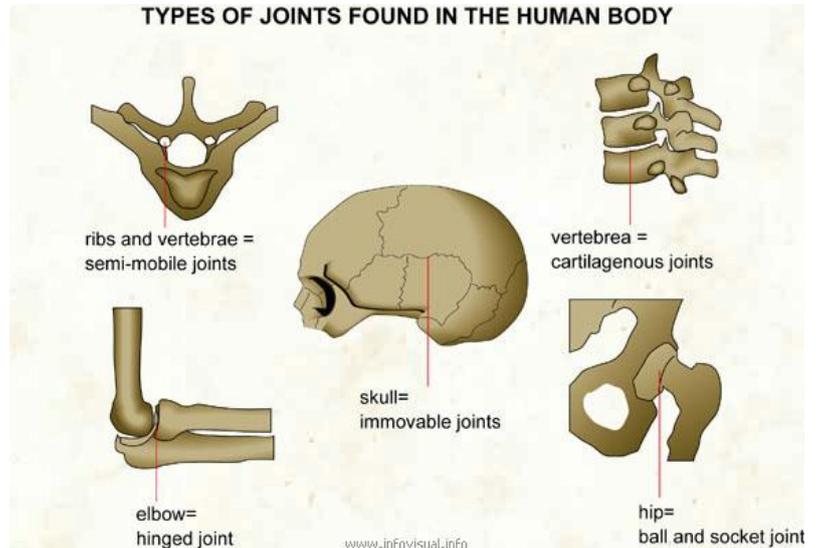
It can be :

- A. Immobile Joint (Joint of Face and Skull)
- B. Movable Joints ( Joints of Shoulder, Elbow, Vertebrae etc)

Movable Joints can be of several Types:

There are four types of movable joints in the body; which are as follows:

- a. **Ball and socket joint:** In this joint the rounded end of one bone fits into the cavity (hollow space) of another bone. It permits movement in all directions. The **joints between shoulder and the upper arm** is an example of ball and socket joint. Similarly, the joint between thigh and hip is an example of ball and socket joint.
- b. **Pivot Joint:** This type of joint allows movements in many planes, viz. up and down, side to side movements. The joint between the **skull and the vertebral column** is an example of pivot joint.
- c. **Hinge joint:** This joint is similar to the hinges in a door. This joint allows movement only in one plane and only up to  $180^{\circ}$ . The **knee joint and elbow joint** are examples of hinge joint.
- d. **Gliding joints:** The movement in this joint happens due to sliding of bones over one another. **Joints between the rings of the backbone** are examples of gliding joint. The **wrist joint** is also an example of gliding joint.



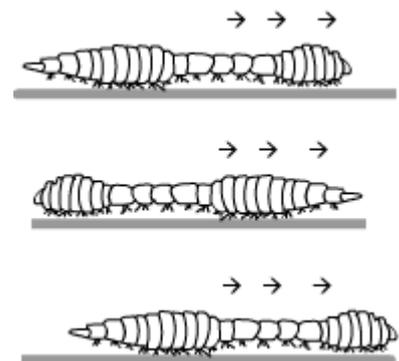
## MOVEMENT IN ANIMALS

**Earthworm:** Earthworm has a **segmented body**. It has a large number of **very small bristles** on the ventral surface of the body. The surface which is close to the base is called ventral surface. These bristles are connected with muscles at their bases. The earthworm **moves by contracting and expanding alternate portions of its body**. When the anterior or front part of the body contracts, the earthworm holds the ground with its bristles; and drags the posterior portion of its body forward. After that, it contracts the posterior portion and holds



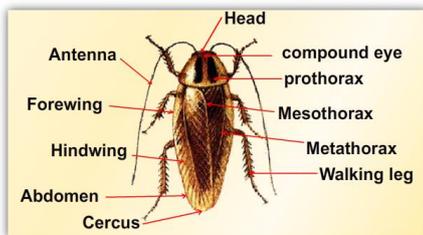
the ground with bristles. Now, the anterior portion of the body expands and moves forward.

**Snail:** The snail has muscular foot which helps in locomotion. The muscular foot is made up of strong muscles.



### Cockroach: A

legs, which help it to pairs of wings; for the movement of

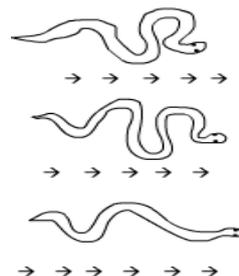


cockroach has three pairs of jointed walk, run and climb. It also has two flying. Large and strong muscles help in legs.

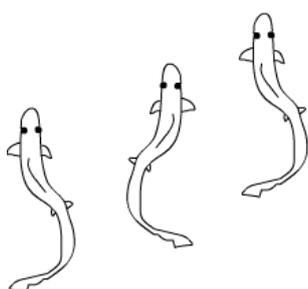
**Birds:** birds can walk on the ground and fly as well. Some birds can also swim in the water. A bird has streamlined body. Its bones are light and strong. They are hollow and have air spaces between them. The hind limbs of birds are modified as claws, which help it to walk and to perch. Birds have special flight muscles and the forelimbs are modified as wings. The wings and tail have long feathers, which help in flying.



**Snake:** The body of snake consists of a large number of vertebrae. The adjoining vertebrae, ribs and skin are interconnected with slender body muscles. When the snake moves, it makes many loops on its sides. The forward push of the loops against the surface makes the snake move forward. Movement of snake is called slithering movement.



**Fish:** Fish swims with the help of fins. They have **two paired fins** and **an unpaired fin**. The body of a fish is streamlined to reduce friction; while moving in water. They have strong muscles, which help in swimming. When a fish swims; its front part curves to one side and the tail part stays in the opposite direction. In the next move, the front part curves to the opposite side and the tail part also changes its position to another side. The **tail fin helps in changing direction**.



## Chapter 9

### LIVING BEINGS:

The characteristics of living things are as follows:

1. All living things need food.
2. They all respire.
3. They exhibit growth.
4. They show response to stimuli.

5. All living things can reproduce their own kinds.
6. They exhibit movement.
7. All living things excrete.

**Adaptation** are specialized features in organism that is either as some physical modification or change in habit to live in the particular environment for better survival.

Examples :

- ✓ **Animals** living in the **grasslands** have to run away with a great speed to escape from their predators. Hence, speed is important for their survival.
- ✓ **Rats and snakes** escape the intense heat of the desert by hiding themselves deep into the burrows in the sand during day. They come out during the night when it is cool outside.
- ✓ **Yaks** have long hair and leopard has thick fur on its body including feet and toes to prevent them from extreme cold.
- ✓ **Dolphins** breathe in air through nostrils or blowholes that are located on the upper part of its head.

### **Cactus is mostly found in the deserts.**

It has the following special features to adapt itself to survive in the desert:

- (i) Leaves are modified into the spines to reduce the rate of loss of water.
- (ii) Stem becomes green and fleshy to take over the function of photosynthesis.
- (iii) Stem is also covered with a thick layer of wax to retain water.
- (iv) Its roots go deeper into the soil for better absorption of water.

### **A camel has following adaptations to survive in a desert environment :**

- (a) It has long legs to escape from the heat of the sand.
- (b) It can live without water for several days.
- (c) It excretes dry dung and small amount of urine.

### **Rabbit has following Adaptation**

- (i) It has long ears to hear the movements of its predators.
- (ii) Its eyes on the side of its head helps it to look in all directions.
- (iii) It has high speed of running which helps it to run away from its predators.

### **Mountain Habitat**

The mountain habitat is very cold and snowfall takes place in winters in some areas.

The trees of the mountain habitat are cone-shaped. The leaves of such trees are needle-shaped. The needle-shape of leaves helps in preventing accumulation of snow on the leaves and thus they are not damaged due to snow.

Animals in the mountain habitat have thick coat of fur. This helps in keeping them warm during very cold winters. The mountain goats have strong hooves which help them in running along the mountain slopes. **Yak and snow leopards** are common examples of animals in the mountain habitat.

### **Grassland**

Many animals live in the grasslands and in forests. The climate is warm and food is available in good amount. But because of heavy population, the competition for food and other resources is tough in the grasslands and forests. Let us take the example of some animals to understand adaptation for grasslands.

**Lion:** A lion is a ferocious hunter.

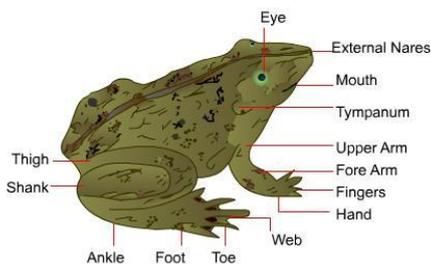
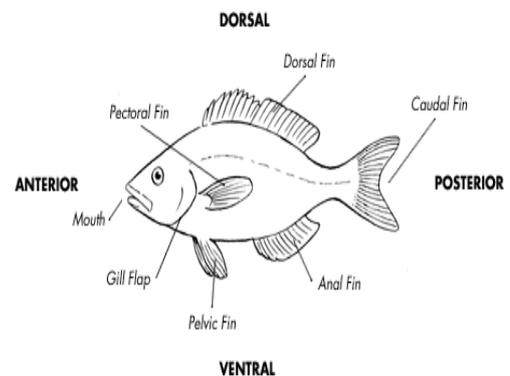
- ✓ It is strong because of muscular body.
- ✓ The sharp claws of lions help them in killing a prey. These claws retract inside when they are running and thus a lion can walk without making a noise.
- ✓ The colour of lion is pale yellow which mixes with the colour of dry grasses and rocks. Thus the body colour of lion helps it in hiding from its prey.

**Tiger:** A tiger is as good a hunter as a lion. The black stripes on the body of tiger look like grasses to its prey.

**Deer:** A deer is a fast runner. It can sprint very fast to save its life from a predator. A deer has very good hearing ability which helps it in hearing the steps of an approaching predator. The eyes of the deer are on the side of its head. The position of a deer's eyes helps it in seeing a predator coming from behind.

## Some Aquatic Animals

**Fish:** The streamlined body of a fish enables it to easily move in water. Fish have gills through which they take in oxygen from water. Octopus can mimic its surrounding and thus hides at the bottom of the sea. It contorts its body to get streamlined shape; while swimming in water. An octopus sprays a cloud of ink to confuse its enemy.



**Frog:** A frog has long hind limbs which help it in jumping on the ground. Its webbed feet help it in swimming in water. The frogs lay eggs in water. The sticky tongue of frog helps it in catching its prey.

**Aquatic Plants:** Aquatic plants are of three types. Some plants have roots attached to the bottom of the pond. Some plants are fully submerged in water, while some plants keep on floating on water.

The **roots of aquatic plants** help them in anchorage.

**Leaves of submerged plants** are ribbon-shaped. In some plants, the leaves are highly fragmented. Such shape of leaves prevents any damage to the leaves from flowing water.

**Leaves of floating plants** are large and flat with waxy coating on them. The leaves of such plants are spongy as well; with lot of air inside. This helps the leaves in floating on water.