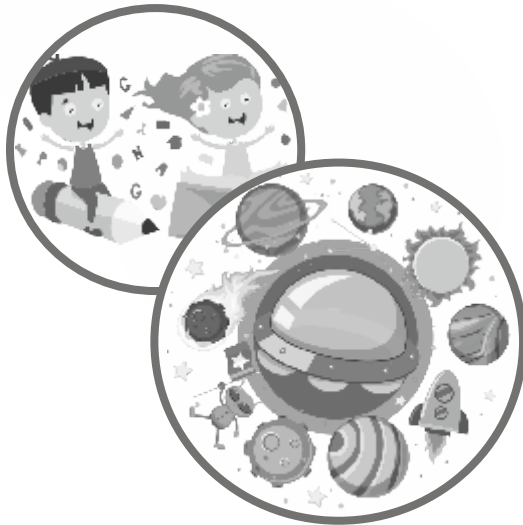


Science Sight

Teacher Manual

4



Class-4
Chapter-1 Food that We Eat
Exercise

- A.** 1. (a) 2. (b) 3. (a) 4. (c)
5. (c)
- B.** 1. T 2. T 3. T 4. F
5. T 6. T 7. T
- C.** 1. Carbohydrates 2. Carbohydrates
3. protein 4. anaemia
5. Vitamins, minerals
- D.** 1. Milk Curd
2. Carrot Apple
3. Ghee Butter
4. Milk Eggs
5. Potato Bread
- E.** 1. Food helps us in many ways:
(i) It gives us energy to do work.
(ii) It helps us to grow.
(iii) It protects us from diseases.
2. The substances that are needed by our body for energy. Good health and growth are called nutrients. Nutrients are of various types - carbohydrates, protein, vitamins and minerals.
3. Roughage helps to remove waste from our body and helps in digestion of food.
4. A diet that contains all the nutrients, roughage and water is called balanced diet.
5. Different method of cooking food are:
(i) Boiling- We should boil the food items like rice, pulses, potatoes etc.
(ii) Frying- Fried food contains more carbohydrates and fats.
(iii) Roasting- Some food are roasted before cooking and eating Eg. chicken, brinjal etc.
(iv) Baking- Baking makes the food tasty.
(v) Steaming- Some food like idli, momos are steamed. Steam does not destroy all the nutrients.
6. If food items are kept for a long period of time and not stored properly. They get spoiled. We can preserve food in following ways:
(i) Boiling (ii) Picking
(iii) Drying (iv) Canning

Observation

Do it yourself.

HOTS

- A.** Food rich in iron should be given to her because iron helps in formation of blood.

- B.** People such as labourer and farmers do physical work and they need more energy so they should eat food which contain a lot of carbohydrates, it is an energy-giving food.

Creativity

Do it yourself.

Chapter-2 Dental Care and Our Digestive System

Exercise

- A.** 1. (a) 2. (c) 3. (c) 4. (b)
5. (c) 6. (b) 7. (c)
- B.** 1. T 2. F 3. F 4. T
5. T 6. F
- C.** 1. Canines 2. Molars 3. four 4. dentine
5. Bacteria
- D.** 1. Temporary teeth are first set of teeth in the growth development of humans. These teeth remain for two or three years.
2. There are four types of teeth.
- (i) Incisor: These are eight in both jaws. Four in upper jaw and four in lower jaw. These teeth are used for cutting the food. They are also called cutting teeth.
- (ii) Canines: There are four canines in both jaws. Two in upper jaw and two in lower jaw. These are sharp teeth and are used for tearing the food. They are also called tearing teeth.
- (iii) Premolars: There are eight premolars in both jaws. These are broad and next to canines. These teeth help to crack and chew food. They are called cracking teeth.
- (iv) Molars: There are twelve molars in both jaws. These teeth are broader, flatter and bigger. They have broader surface to chew and grind the food. They are also called grinding teeth.
3. We should take care of our teeth to keep them free from bacteria and germ free. Following steps should be taken to take care of our teeth.
- (i) We must brush our teeth twice a day.
- (ii) We should wash and rinse our mouth after every meal.
- (iii) We must visit our dentist regularly.
4. Microorganisms that cannot be seen with our naked eyes are called microbes. They are harmful to us as they can cause food poisoning, typhoid, cholera, cold etc.
5. There are four parts of a tooth:
- (i) Crown- The visible part is called crown.
- (ii) Root- Invisible part is called root.
- (iii) Dentine- The largest part of the tooth is dentine.
- (iv) Pulp- It is present inside the dentine. It is the innermost part of the tooth. The pulp is soft and has blood vessel and nerves.

Let's Do

Do it yourself.

Observation

Do it yourself.

Fun Corner

Do it yourself.

HOTS

Sweet substances get stick to our teeth, they may fill up in the spaces between our teeth and cause the growth of bacteria and germs therefore we should brush our teeth after eating sweet substances.

Chapter-3 Clothes that We Wear**Exercise**

- A.** 1. (a) 2. (c) 3. (c) 4. (a) 5. (b)
- B.** 1. F 2. T 3. T 4. F 5. T
- C.** 1. (e) 2. (a) 3. (d) 4. (b) 5. (c)
- D.** 1. Kimono 2. gumboots 3. clothes 4. natural
5. woollen
- E.** 1. Clothes protect us from heat, cold, rain and mosquitoes. They also make us look smart.
2. Two natural fibres are cotton and jute.
Two synthetic fibres are nylon, rayon.
3. Fibres that are obtained from plants and animals are called natural fibres. For example: cotton and jute. Fibres that are man-made are called synthetic fibres. For example: nylon and rayon.
4. Dark coloured clothes absorb heat and light therefore we wear these clothes to keep ourselves warm.
5. We can take care of our clothes in following ways:
(i) We should wash them well with a good soap.
(ii) Clothes should be stored well because certain insects such as moth and fish feed on them.

Let's Do

Do it yourself.

Observation

Do it yourself.

HOTS

- A.** We should wear full sleeves cotton clothes in summers to protect ourselves from insects and mosquito bite.
- B.** People wear uniform because it is easy for them to be identified.

Chapter-4 Solid, Liquid and Gas

Exercise

- A.** 1. (a) 2. (a) 3. (a) 4. (a) 5. (b)
- B.** 1. T 2. F 3. T 4. T 5. F
- C.** 1. weight, space 2. solution 3. molecules
4. shape volume 5. physical
- D.** 1. (e) 2. (d) 3. (b) 4. (a) 5. (f) 6. (c)
- E.** 1. Anything that has weight and occupies space is called matter. Three states of matter are solid, liquid and gas.
2. Solid can be converted into liquid by melting. For eg. ice (solid) melts and becomes water (liquid). This is a physical change as it can be reversed.
- 3.
- | Solid | Liquid | Gas |
|--|--|--|
| <ul style="list-style-type: none">• Molecules are tightly packed.• Solids have a definite shape.• Cannot flow.• Example- ice. | <ul style="list-style-type: none">• Molecules are loosely packed.• Do not have definite shape.• Can flow.• Example- water . | <ul style="list-style-type: none">• Molecules are very loosely packed.• Do not have definite shape.• Can flow.• Example- steam. |
4. The change in which only state of a substance changes and no new substance is formed is called physical change. This change can be reversed.
The change in which one or more new substance are formed is called chemical change. This change is irreversible.
5. When a substance dissolves into a liquid and forms a uniform mixture, the mixture is called solution. Example: salt in water, sugar in water.

Observation

Do it yourself.

Fun Corner

Do it yourself.

HOTS

- A.** A rubber band is solid. It changes its shape because it is being stretched. It takes its original shape when released.
- B.** Volume of the solution remains the same as volume of solvent because solute particle fills up in the spaces between solvent particle.

Chapter-5 Soil

Exercise

- A.** 1. (c) 2. (c) 3. (a) 4. (c) 5. (a)
- B.** 1. T 2. T 3. F 4. T
- C.** 1. Clay 2. dark 3. conservation
4. Overgrazing 5. Loamy
- D.** 1. Breakdown of big pieces of rock by wind and water into smaller pieces to give fine powder is called weathering.

2. Soil is formed when sand mixes with organic matter (dead plants and animals) and minerals. It takes millions of years for the formation of soil.
3. Humus is an organic component of soil formed by the decomposition of leaves and other plant material by soil microorganisms. It helps the plant to retain moisture and helps in nourishing the plant as it grows.
4. Soil gives nutrients to plants and plants give us oxygen. So basically soil is an important resource.
5. Removal of fertile topsoil by the action of rain or wind is called soil erosion. Causes of soil erosion are:
 - (i) Deforestation
 - (ii) Overgrazing
 - (iii) Rains and strong winds
6. Loam contains both sand and clay. It is very good for the growth of plant.

Let's Do

Do it yourself.

Observation

Do it yourself.

HOTS

If there was no soil, there would be nowhere to grow food. There would be no plants (land) and therefore no land animals.

Chapter-6 The Green Plants

Exercise

- A.**
- | | | | |
|--------|--------|--------|--------|
| 1. (a) | 2. (a) | 3. (c) | 4. (c) |
| 5. (c) | | | |
- B.**
- | | | | |
|------|------|------|------|
| 1. T | 2. F | 3. F | 4. T |
|------|------|------|------|
- C.**
- | | | | |
|----------------|----------|------------|-------------|
| 1. chlorophyll | 2. blade | 3. glucose | 4. sunlight |
| 5. food chain | | | |
- D.**
1. Stomata helps in exchange of gases. Leaves absorb carbon dioxide gas present in air through stomata.
 2. The process by which leaves make their food with the help of water and carbon dioxide in the presence of sunlight is called photosynthesis.
 3. Raw material required by plants for photosynthesis are water and carbon dioxide.
 4. Functions of leaf are as follows:
 - (i) It makes food for the plant.
 - (ii) It helps the plant to exchange gases.
 - (iii) We eat the leaves of some plants. Such as spinach, cabbage.
 5. Plants are called producers because they are the source of initial energy in every food chain.

5. Green plants make their food by themselves by the process of photosynthesis.
6. Plants growing on hilly areas have conical shape because this does not allow the snow to stay on their leaves.
7. Insectivorous plants are those which eat insects. For example: pitcher plant, venus flytrap and sundew.

Observation

Do it yourself.

HOTS

- A. Desert plants have thick fleshy stem because these plants store water in their stems.
- B. Water lily has floating leaves because the leaves are broad and flat and stem is hollow and light that keeps the flower afloat.

Fun Corner

Do it yourself.

Creativity

Do it yourself.

Chapter-8 Circulatory System and Excretory System

Exercise

- A. 1. (c) 2. (c) 3. (c) 4. (a) 5. (c)
- B. 1. Heart 2. Kidney 3. Blood vessels 4. Urethra
5. Urinary bladder
- C. 1. (d) 2. (a) 3. (e) 4. (c) 5. (b)
- D. 1. Circulatory system consists of heart, blood vessels and blood.
2. Removal of waste product from the body is called excretion. Excretory system helps in excretion.
3. Blood is a red coloured fluid that moves in the whole body. It transports various substances such as nutrients, water, oxygen, carbon dioxide and waste product from one part of our body to other.
4. Blood vessels are thin tube like structures in which blood flows. They run through our entire body. They are of three types: arteries, veins and capillaries.
5. Heart pumps blood to different parts of our body.

Let's Do

Do it yourself.

Fun Corner

Do it yourself.

Creativity

Do it yourself.

Chapter-9 Reproduction in Animals

Exercise

- A.** 1. (c) 2. (a) 3. (a) 4. (a) 5. (c)
- B.** 1. F 2. F 3. T 4. F
5. T 6. T
- C.** 1. (b) 2. (c) 3. (e) 4. (a) 5. (d)
- D.** 1. mammals 2. yolk 3. sheds, grows
4. jelly 5. insects 6. reproduce
- E.** 1. The process by which living beings produce their young ones is called reproduction. On the basis of reproduction, animals are divided into two groups:
(i) Egg laying animals
(ii) Animals that give birth to their young ones.
2. The process of development of frog in its life cycle is called metamorphosis.
3. Butterfly has four stages in its life-cycle. First the egg hatches into a larva. The larva is called caterpillar. Caterpillar feeds on leaves and grows rapidly. It stops eating after sometime and forms a covering called pupa. Later the pupa bursts and butterfly comes out.
4. Yolk - Yellow substance that provides food to embryo.
Albumen - It hold the yolk in its place and yolk is surrounded by albumen.
Embryo- The white spot on the yolk: developing chick.
Shell- Outer covering of an egg.
5. The black dot becomes a tadpole. Hind legs of the tadpole appear first and then the front legs appear. Slowly the tail disappears and becomes an adult.
6. (i) Mammals have well developed brains.
(ii) Mammals carry their body within their womb.

Let's Do

Do it yourself.

HOTS

- A.** The food for developing baby in mammals come from mother.
- B.** He will see larva which is also called caterpillar.

Chapter-10 Adaptation in Animals

Exercise

- A.** 1. (c) 2. (a) 3. (c) 4. (b) 5. (c)
- B.** 1. T 2. F 3. T 4. T 5. F 6. T
- C.** 1. Camel Dogs
2. Butterfly Parrot
3. Vulture Hyena

4. lice ticks
 5. frog toad
- D.**
1. The process of changing to survive in the surroundings is called adaptation.
 2. Animals which live in desert show following adaptation:
 - (i) They can live without water for many days.
 - (ii) They have broad and padded feet to walk on sand.
 - (iii) They have thick skin to protect them from heat.
 3. Animals that live on land are called terrestrial animals. For example- camel, dog, cat, etc.
 4. Animals like bear remains inactive or sleep for several months to protect themselves from cold. This winter sleep is called hibernation.
 5. The animals that spend most of their time on trees are called arboreal animals. They have following adaptations:
 - (i) They have spines which protect them from slipping.
 - (ii) They also use their tails for holding branches.
 - (iii) They have strong, muscular limbs and sharp claws to climb trees.
 6. Animals which spend most of their time in air are called aerial animals. For example-birds. Their adaptive features are as follows:
 - (i) Their boat shaped body can cut through the air easily.
 - (ii) They have hollow bones which make their bodies light.
 7. Three adaptations various animals have to protect themselves are:
 - (i) Animals like deer, rabbit and rat move very fast escape from predators.
 - (ii) Animals like giraffes, whales, shark and hippos are too big that they have no natural enemies.
 - (iii) Animals like Zebra, tiger, polar bear can merge with their surrounding.
 8. Animals which live on or inside the body of other animals for their food are called parasites. For examples: lice, ticks and fleas.
 9. A frog can live both on land and in water. This is the quality of a frog which help it to survive.

Let's Do

Do it yourself.

Observation

Do it yourself.

Fun Corner

- A.**
1. Bat, Parrot, Sparrow
 2. Octopus, Turtle, Fish
 3. Cow, Deer, Tiger
 4. Monkey, Birds, Squirrel
 5. Frog, Turtle, snail
- B.** Do it yourself.

Chapter- 11 Force, Work and Energy

Exercise

- A. 1. (c) 2. (c) 3. (a) 4. (c) 5. (b)
- B. 1. Magnetic force 2. solar energy
3. Muscular force
- C. 1. F 2. F 3. T 4. T 5. T
- D. 1. (e) 2. (f) 3. (d) 4. (b) 5. (a) 6. (c)
- E. 1. A push or pull of an object is called force. Effects of forces are:
(i) It can move the object
(ii) It can change the direction, speed and shape of objects.
2. Work is said to be done only when a force applied on an object causes it to move through a distance. Eg. If you lift a heavy object, you do work because you exert a force that moves that object.
3. Force of friction is helpful in many ways:
(i) We can write on paper due to friction.
(ii) We can light a matchstick due to friction.
4. Any device which makes our work easy is called machines. Examples of simple machines are: Lever, plane, screw, wheel and axle.
5. Energy is ability to do work. Various types of energy are:
(i) Heat energy (ii) Light energy
(iii) Sound energy (iv) Electrical energy
(v) Potential energy

Let's Do

Do it yourself.

Observation

Do it yourself.

HOTS

Do it yourself.

Chapter- 12

Air, Water and Weather

Exercise

- A. 1. (b) 2. (a) 3. (c) 4. (c) 5. (c)

B.

Land Breeze	Sea Breeze
At night, the land cools faster than the water and the air above the sea is warmer than air above land. So, the air above the sea rises and the cooler air from the land begins to blow towards the sea.	During the day, the land gets heated up by the heat of the sun. The air above the hot land is also heated up. The hot air rises up. The cold air from seas rushes in it cause a cool breeze to blow from the sea to land.

- C. 1. Chlorine 2. Sea 3. Snow
 4. Rainwater 5. Equator 6. Equator
- D. 1. F 2. T 3. F 4. F 5. T
 6. T

- E. 1. Weather is the condition of atmosphere at a particular place at a particular time. It changes from time to time.
 2. Moving air as called wind. The heat of the sun causes winds to blow. When the air gets heated up due to the sun, it becomes lighter and rises up. Cold air from the surroundings comes and takes its place. This movement of air causes winds.

Land Breeze	Sea Breeze
At night, the land cools faster than the water and the air above the sea is warmer than air above land. So, the air above the sea rises and the cooler air from the land begins to blow towards the sea.	During the day, the land gets heated up by the heat of the sun. The air above the hot land is also heated up. The hot air rises up. The cold air from seas rushes in it cause a cool breeze to blow from the see to land.

4. **Sedimentation:** In this method water is first allowed to stand in big containers without being disturbed for few hours. All the insoluble impurities which are heavier than water settle down leaving clean water above.
Decantation: The water which has been allowed to remain undisturbed is poured out very gently without disturbing the settled impurities. This is called decantation.
5. Clouds are formed when water vapour condenses into tiny water drops.
6. **Evaporation:** The process by which water changes to water vapour by heat of sun.
Condensation: The process of change of gas into liquid.
7. The process of evaporation, condensation and precipitation take place continuously (in nature). Water evaporates from sea, lakes, rivers and other water bodies. It then condenses and falls down as rain. This forms the water cycle.
8. Water can be purifies in following ways.
- (i) **Sedimentation:** Setting down of heavy dust particles.
 - (ii) **Decantation:** Pouring the water without disturbing settled impurities.
 - (iii) **Filtration:** Filtering through filter paper or muslin cloth.
 - (iv) **Chlorine:** Using chlorine tablets to kill the germs.
 - (v) **Boiling:** Boiling water for 10 minutes to kill the germs.

Let's Do

Do it yourself.

Observation

Do it yourself.

HOTS

- A. If the axis of the earth had no tilt, there would be no seasons.
- B. Evaporation is more on hot day because heat of the sun evaporates the water.

Creativity

Do it yourself.

Chapter- 13 The Sun, Moon and Stars

Exercise

- A. 1. (a) 2. (c) 3. (b) 4. (a)
5. (c)
- B. 1. T 2. F 3. F 4. F
5. T 6. F
- C. 1. (d) 2. (c) 3. (e) 4. (b)
5. (a)
- D. 1. Autumn 2. orbit 3. venus 4. Jupiter
5. constellation 6. Universe
- E. 1. Pluto 2. Mars 3. Moon 4. Mars
5. Constellation
- F. 1. The sun, the eight planets and their satellites and other heavenly bodies like comets and asteroids form the solar system. The name of the eight planets are:
Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.
2. Rotation of the earth causes day and night.
3. Groups of stars are called constellations. Examples: Great Bear, Orion etc.
4. Earth is tilted at an angle of 23.5 degrees.
5. The Earth has two movements- Rotation and Revolution.
Rotation- The spinning of earth around its own axis.
Revolution- The movement of earth around the sun.

Let's Do

Do it yourself.

Fun Corner

Do it yourself.

HOTS

- A. Plants cannot grow on the moon and venus due to lack of air, water and carbon dioxide.
- B. We cannot live or venus because it is the hottest planet and the plant's active volcanoes would make it difficult to survive

Creativity

Do it yourself.

Chapter- 14 Keeping our Earth green

Exercise

- A.** 1. (c) 2. (c) 3. (b) 4. (c)
- B.** 1. (d) 2. (e) 3. (b) 4. (c) 5. (a)
- C.** 1. 5th June 2. deforestation 3. oxygen 4. clean
- D.** 1. Wildlife refers to animals that live in forest. For eg- tigers, elephant etc.
2. Uses of plants-
(i) Plants give us oxygen to breathe.
(ii) Plants make food for us.
(iii) Wood from plants is used to make furniture.
3. We can save trees:
(i) By planting more and more trees.
(ii) By not wasting the things that we get from plants.
(iii) We should avoid cutting trees.
4. Wildlife is important as:
(i) They provide many useful substances like honey, ivory etc.
(ii) They are a part of food chain.
(iii) Wildlife is an asset for a nation.
5. To save wildlife we should avoid using things made from part of wild animals, avoid cleaning of forests and hunting and killing of wild animals should be banned.

Let's Do

Do it yourself.

Observation

Do it yourself.

Fun Corner

Do it yourself.

HOTS

- A.** Wood from deciduous and evergreen plants are used to make furniture because they are cheaper and easy to make.
- B.** Plants keep the air clean by taking carbon dioxide.

Model Test Paper-1

- A.** 1. (a) 2. (c) 3. (b) 4. (c)
5. (a) 6. (c)
- B.** 1. anaemia 2. proteins 3. canines 4. Molars
5. kimono 6. physical
- C.** 1. T 2. F 3. F 4. F
5. T 6. T

- D.** 1. (d) 2. (f) 3. (e) 4. (a)
 5. (b) 6. (c)
- E.** 1. moulds mushrooms
 2. milk curd
 3. Pine fir
 4. fruits vegetables
 5. Apple carrot
 6. Teak rubber
- F.** 1. Roughage helps in removal of waste material out of our body and helps in digestion of food.
 2. Solid can be converted into liquid by melting. This is a physical change as it can be reversed.
 3. Natural fibres: Cotton, jute
 Synthetic fibres: Rayon, Nylon
 4. Breaking down of rocks into small particles is called weathering.
 5. Leaves have stomata for exchanging gases.
 6. Leaves make their food by the process of photosynthesis.
 7. Protein helps in making our muscles strong. They help to grow and repair tissues. So, growing children need protein. Some protein rich food are : eggs, bean, meat etc.
- G.** 1. If food items are kept for a long time and not stored properly they get spoilt. Food can be preserved by boiling, pickling, drying, canning, deep freezing and refrigerating.
 2. Uses of microbes:
 (i) Microbes change milk into curd.
 (ii) They help in formation of medicines.
 (iii) Bread, buns and some other food are made with the help of microbes.
 (iv) Bacteria also helps in keeping the environment clean.
 3. Do it yourself.
 4. The removal of fertile topsoil by the action of rain and wind is called soil erosion.
 Feature that cause soil erosion are:
 (i) Deforestation
 (ii) Rains and strong winds.

Model Test Paper-2

- A.** 1. (c) 2. (c) 3. (c) 4. (a)
 5. (c) 6. (c)
- B.** 1. Chlorine 2. venus 3. afforestation
 4. yolk 5. insects 6. sea
- C.** 1. T 2. F 3. T 4. F
 5. T 6. T

- D.** 1. Pluto 2. Liver 3. Mars 4. Mars
 5. Urethra 6. moon
- E.** 1. (c) 2. (f) 3. (b) 4. (e)
 5. (d) 6. (a)
- F.** 1. Rotation of the earth about its axis causes day and night.
 2. Clouds are formed by condensation.
 3. Work is done when force applied on an object causes it to move. For example, if we lift a heavy object, we do work because we exert force that moves the object.
 4. Animals that live in desert make their food in stems and they can retain water.
 5. Animals that depends on other for their food are called parasites. For example: lice and ticks.
 6. A butterfly has four stages in its lifecycle. First the egg hatches into a larva. The larva of butterfly in called caterpillar. Caterpillar feeds on leaves and grow rapidly. It stops eating after sometime and forms a covering called pupa. Later the pupa bursts and butterfly comes out.
 7. Force of friction is helpful for us as:
 (i) We can write on paper due to friction.
 (ii) We can light a matchstick due to friction.
- G.** 1. The two movements of the earth are: rotation and revolution.
 Rotation: The spinning of earth around its own axis is called rotation. It takes about 24 hours to complete one rotation, moving from west to east direction. The rotation of the earth causes day and night.
 Revolution: The movement of the earth around the sun is called revolution. It take 365 days and 6 hours to complete one revolution. Revolution causes different seasons in a year.
2. Different methods of purification of water are:
 (i) Boiling: Boiling water upto 10 minutes kill the germs and bacteria present in water.
 (ii) Filtration: Filtration is done using filter paper or muslin cloth, all the impurities are removed.
 (iii) Chlorination: Adding chlorine tablets or gas to water kills the germs in it.
3. Sedimentation: In this method, water is allowed to stand in big container without being disturbed for few hours. All the insoluble impurities which are heavier than water settle down leaving clean water above. This is called sedimentation.
 Decantation: The water which has been allowed to remain undisturbed is poured out very gently without disturbing the settled impurities. Their process is called decantation.
4. Adaptation that animals have to protect themselves are:
 (i) Animals like deer, rabbit and rat move very fast to escape from their predators.
 (ii) Animals like elephants, giraffes, whales, sharks and hippos are too big that they have no natural enemies.
 (iii) Animals like Zebra, tiger, grasshopper, stick insect, polar bear can merge with their surroundings.