



# 1

## The Green Plants



### Exercise

**1. Tick (3) the correct answer :**

1. (c), 2. (b), 3. (b), 4. (c)

**2. Fill in the blanks :**

1. seeds, 2. coat, 3. water, 4. irrigation, 5. natural.

**C. How do the following reproduce?**

- |         |           |             |
|---------|-----------|-------------|
| 1. stem | 2. root   | 3. grafting |
| 4. seed | 5. leaves | 6. spores   |

**D. Answer the following questions :**

- Food, medicine, rubber, furniture.
- (a) Seeds of gram, bean etc have two cotyledons. They are called dicot seeds. Seed of rice, maize etc have one cotyledon. they are called monocot seeds.  
(b) In winter season, crops like wheat, oats and barley are grown. These are rabi crops. Crops which are grown in the summer season are called kharif crops, such as rice, maize etc.
- Do yourself.
- After eating litchi, peach, papaya, orange and other fruits, we throw away their seeds. When these seeds fall on the ground, they germinate. In this way, we help in their dispersal.  
When birds and animals eat fruits, the seeds are not digested but come out as droppings. These seeds germinate in places far away from the parent plant.
- Do yourself.

### Do and Learn



# 2

## Health and Hygiene



### Exercise

**A. Tick (3) the correct answer :**

1. (b), 2. (c), 3. (c), 4. (c), 5. (c), 6. (b)

**B. Fill in the blanks :**

- |              |                        |                   |
|--------------|------------------------|-------------------|
| 1. Proteins, | 2. carbohydrates,      | 3. bones, muscles |
| 4. Goitre,   | 5. dysentery, malaria. |                   |

**C. Write 'True' or 'False' for the following statements :**

1. False, 2. True, 3. False, 4. True, 5. True 6. True



**D. Answer the following questions :**

1. When our meals provide us all the nutrients in the right proportion we call it a balanced diet.
2. They provide proteins.
3. Killing of germs is called pasteurisation.
4. Diseases which do not spread from one person to another are known as non-communicable diseases.
5. Bones become thin and brittle. By Taking fish, oil, eggs and milk products.
6. Outbreak of disease.
7. When food and water are not stored in clean, healthy or hygienic conditions, it becomes impure or infected. When this unhygienic food is consumed by a healthy person, he can become ill or it may lead to serious diseases like cholera, typhoid and jaundice.
8.
  1. By maintaining hygiene
  2. By vaccination
  3. By Active life style



### 3

## Places Where Computers are Used



### Exercise

**A. Tick (3) the correct answer :**

1. (c), 2. (a)

**B. Answer in one word only :**

1. Plants, 2. Bacteria and fungi, 3. Water, 4. Humus
5. **Herbivores :** Cow and goat.  
**Omnivores :** Bear and crow.  
**Decomposes :** Bacteria and fungi.

**C. Fill in the blanks :**

1. ecologist,                      2. non-living,                      3. decomposer,
4. soil,                              5. consumer

**D. Write True or False :**

1. True, 2. True, 3. True, 4. True, 5. True

**E. Define the following :**

1. The study of living things in their natural surrounding is called ecology.
2. The natural surroundings in which a living things live and survive is known as its environment.
3. Bacteria and fungi are known as decomposers. When plants or animals die, bacteria and fungi feed in the dead bodies. They break down the bodies to simple substance which can again be used by plants.

## F. Answer these questions :

1. Animals and plants depend on each other as well as on non-living things around them to survive. Therefore, we say that there is interdependence in nature.
2. Green plants are the only living things that can make their own food and are called producer or food factories of water.
3. When animals die, their bodies decay and mix with the soil. This adds humus to the soil, which makes it fertile for plants.
4. Plants cannot grow if there is no soil. Plants get water and minerals from the soil to make food. Soil provides them with support. Soil provides shelter to animals such as ants, centipedes and earthworms. They also get their food from the soil.
5. **Food chain** : The process of one organism eating the other and itself getting eaten by another organism forms a chain. Since food is involved in this chain, it is termed as food chain.

**Food web** : Many food chains are interconnected under natural conditions and form a network of food chains. Such a network, formed by interconnecting food chains, is called a food web.

## Do and Learn

Do it yourself



# 4

## Safety and First Aid



### Exercise

#### A. Tick (3) the correct answers :

1. (b), 2. (c), 3. (a), 4. (b)

#### B. Fill in the blanks :

1. heat, flame,
2. Nose bleeding,
3. rabies,
4. loss, damage,
5. nylon, synthetic

#### C. Write 'True' or 'False' for the following statements :

1. True, 2. True, 3. False, 4. False, 5. False

#### D. Give reasons for the following :

1. They do not catch fire easily.
2. Petriol is lighter than water. It floats on water.
3. It is easier to breathe.

#### E. Answer the following questions :

1. Don't play with matches and lighters.  
Never wear nylon or synthetic clothes while in kitchen  
In the kitchen, switch off the gas cylinder when not in use.  
In case of electrical fire, do not throw water to put out the fire as it can cause electrocution. Instead use sand or mud.



2. **In case of minor burns :**

Put the burnt area under cold running water till the pain subsides. If dough is available in the refrigerator, then put a thick layer of dough on the affected area. It will help in cooling down the burning sensation.

Apply an antiseptic lotion to avoid infection.

**In case of severe burns :**

Severe burns can form blisters which we should not touch or prick. On pricking blisters, they become open wounds and can catch infections easily.

Apply a layer of antiseptic lotion or a paste of baking soda and water on the blisters and cover them with a sterile cloth dipped in an antiseptic lotion.

Severe burns should only be treated by a doctor.

3.
  - The patient with fractured bone should not be moved.
  - The patient should be calmed and made comfortable and then call the doctor immediately.
  - Tie a splint to give support to the broken bone if the fracture is in arms or legs.
  - The fractured arm can be supported by a sling. Sling is a piece of cloth tied around the neck to support the broken arm.
4.
  - Wash the area with soap and water thoroughly, at least three times to remove the saliva.
  - Clean the affected area with an antiseptic lotion and cover with a clean cloth.
  - See a doctor immediately. The doctor may give anti-rabies injections.
5. An anti-tetanus injection may be required if the cut has been caused due to a rusted piece of iron, such as a nail or any other dirty object.

## Do and Learn

Do yourself.



# 5

## States of Matter



### Exercise

**A. Tick (3) the correct answer :**

1. (b), 2. (b), 3. (c), 4. (b)

**B. Circle the correct answer :**

1. Melting of wax is a (chemical/physical) change.
2. Milk turns into curd is (reversible/irreversible) .
3. Burning of a piece of coal is a (temporary/permanent) change.
4. Molecules of a (solid/liquid) are closely packed.
5. (Liquid) gases) have definite volume no fixed shape.

**C. Fill in the blanks :**

1. Liquid, 2. liquid, 3. condenses, 4. freezes, 5. gas



**D. Write True or False :**

1. False, 2. False, 3. False, 4. True, 5. False, 6. True

**E. Match the following :**

Petrol — inflammable

Water vapour — gas

Melting of butter — solid to liquid

Burning of a paper — chemical change

Melting — physical change

**F. Think and answer :**

1. Liquid have definite volume it can flow from a higher to a lower level. It is not hard and does not diffuse in air. Solid has a definite shape and volume. A solid is generally hard and does not flow. It does not diffuse in air.
2. We can smell the food across the room, because air is present everywhere and it has free-moving particles which help us to smell things around us.

**G. Give reasons, why?**

1. A rubber is a type of matter and tyre is an object because, tyre is an limited part of rubber. A limited part of matte is called an object.
2. Burning of a paper is a chemical change because it is generally irreversible, we cannot get back the substance in its original form. A chemical change is usually a permanent change.

**H. Differentiate between the following :**

1. **Solid :** A solid has a definite shape and volume. The shape of a solid does not change unless force is applied on it. A solid is general hard and does not flow.

**Gas :** A gas has neither a definite shape nor a definite volume. It occupies the complete space in the container in which it is kept. Gases can flow in all directions.

2. **Physical change :** i. Physical changes are reversible change.  
ii. Physical change is a temporary change. **Example :** melting, freezing, boiling, condenses.  
**Chemical change :** i. Chemical changes are irreversible change. ii. Chemical change is a permanent change. **Example :** Burning of a paper.

**I. Answer these questions :**

1. There are three states of matter : Solid, liquid and gas.  
**Solid :** Solids generally have a fixes shape. It is very hard and does not flow. The particles are tightly packed.  
**Liquid :** Liquids has a definite volume but does not have a definite shape. It takes the shape of the container in which it is kept. The particles are not tightly packed.  
**Gas :** A gas has neither a definite shape nor a definite volume. gases take up all the available space. The particles can move freely.
2. When steam is cooled or if heat is removed from steam, the steam turns into water droplets. Heating or cooling brings about changes in matter.
3. Liquid don't have a fixed shape because, the particles are not tightly packed. Particles can move and slide over each other. It is not hard. A liquid can flow from a higher to a lower level.

**Do and Learn**

Do it yourself



**Exercise****A. Tick (3) the correct answer :**

1. (b), 2. (a), 3. (b), 4. (b), 5. (b)

**B. Correct the following sentences :**

1. The molecules in solid, liquid and gas are different.
2. In a solid, the molecules (particles) are not completely free to move.

**C. Write True or False :**

1. False, 2. True, 3. True, 4. True, 5. False

**D. Match the following :**

A particle — tiny piece

A molecule — smallest particles of a substance

A particles of salt — is made up of molecules of salt.

All molecules of a substance — are alike

Molecules of chalk and sand — are different

Kerosene and water — are immiscible

**E. Define :**

1. **Atoms** : Molecules are made up of very tiny particles called atoms.
2. **Compound** : When atoms of different kinds combine, compounds are formed.
3. **Intermolecular-space** : Molecules have a certain amount of space in between them. This is called intermolecular space.
4. **Solute** : The solid which dissolved in the liquid is called solute.
5. **Solvent** : The liquid in which a solid dissolved is called a solvent.
6. **Solution** : A homogenous mixture of a solute in a solvent is called a solution.

**F. Give reasons, why?**

1. Dissolving salt in water doesn't change the level of water because the salt particle occupy the intermolecular spaces between the water molecules.
2. Kerosene oil and mustard oil doesn't dissolve in water because they are immiscible liquids.

**G. Answer these questions :**

1. Substance made up of very tiny particles are called molecules. These particles are so small that we cannot see them with our naked eyes. Molecules of water is ( $H_2O$ ) and molecules of carbon-dioxide is ( $CO_2$ ) are made of different kinds of atoms.
2. Salt and sugar are solids which dissolve in water.
3. The liquids which mix completely or get dissolved in each other are called **miscible**. The liquids which do not dissolve in each other are called **immiscible** liquids.
4. Dissolve two teaspoonfuls of common salt in the beaker half filled with water. Stir with a clean glass rod till the salt dissolves. Take a drop of the solution and taste it.



Now, heat the solution in the beaker over a bunsen burner flame till water evaporates completely. You will be left with the original common salt.

5. If Camphor or Naphthalene is left uncovered in the open, they will dissolve directly in the air. This will happen so because these are made of very tiny particles which are capable of dissolve chemical into air.

### Do and Learn

Do it yourself



## 7

## Rocks and Mineral



### Exercise

#### A. Tick (3) the correct answer :

1. (c), 2. (a), 3. (c), 4. (b)

#### B. Fill in the blanks :

1. minerals, 2. rocks, minerals, 3. Coal, 4. Pumice, 5. Uranium, nuclear, 6. Fossil fuel, 7. Petroleum

#### C. Write True or False :

1. False, 2. False, 3. True, 4. True, 5. False, 6. False

#### D. Define the following :

1. The scientist who study these rocks and minerals are called geologist.
2. The deposited rocks build up in layers, called sediments. This process is called sedimenta-tion.
3. The study of rocks and minerals is called geology.
4. A solar cooker is a device which uses solar energy.

#### E. Give reasons, why?

1. Fossil fuels take millions of years to form through gradual natural process, they will not last forever. If the deposits of fossil fuels are exhausted, they will no longer be available to us. Also, burning of fossil fuels and use alternative source of energy.
2. Fossil fuels are natural substances this is because they are made deep within the Earth from the remains of ancient plants and animals.

#### F. Answer these questions :

1. **Rock** is an naturally occurring agrigrete of minerals.  
**Minerals** : All rocks are made of substances called minerals. Minerals are the building blocks of Earth's rocks.
2. **Igneous rocks** : Igneous rocks form during volcanins eruptions. Hot molten rocks flows out of volcano, they cools and solidifies to form igneous rocks.  
**Metamorphic rock** : Metamorphic rocks are rocks that have changed . They may be formed due to physical and chemical changes. These change happen due to heat and pressure.
3. Rocks and minerals are very useful for our daily life. They provide us with shelter and even food, as well as innumerable objects that make our existence easier or more enjoyable. They make up our television, cars and clothing, computers and even our currency, some rocks give us fuel.



4. Fossil fuels are natural substances made deep within the Earth from the remains of ancient plants and animals. Heat and pressure turn decomposing remains into fuels, which release energy on burning coal, oil and natural gas are the three main fossil fuels. Fossil fuels such as coal, gas and oil are limited. They took millions of years to be formed.
5. **Coal** is a sedimentary rock formed from the remains of plants that got buried deep inside the Earth millions of years ago.  
**Petroleum** is formed from the remains of plants and animals in the sea. These creatures got buried deep under the bottom of the sea and gradually changed into petroleum.

**Do and Learn**

Do it yourself



**8**

**Soil Erosion and Conservation**



**Exercise**

**A. Tick (3) the correct answer :**

1. (b), 2. (c), 3. (a), 4. (c)

**B. Write one word for the following :**

1. soil,                      2. deforestation,                      3. Terrace farming,  
 4. soil conservation,

**C. Fill in the blanks :**

1. soil, 2. metals and minerals, 3. soil erosion, 4. Deforestation, 5. fences

**D. Write True or False :**

1. False, 2. False, 3. True, 4. True, 5. False

**E. Answer these questions :**

1. The process by which soil formation takes place is called weathering. weathering is very slow and gradual process during which parent rock breaks down into fine particles.
2. **Uses of soil are :**
  - ! Forests which grow on soil, bring rain and support various plant and animal activities.
  - ! Micro organisms present in soil make it fertile and help in maintaining the ecosystem.
  - ! Soil is used for making bricks, pots and porcelain.
3. Natural forces like rain, wind and streams not only help in soil formation but they cause soil loss as well as the wind blows and the water flows, they shift soil with them. This carrying away of soil by wind and water is called soil erosion.  
 The causes of soil erosion are-  
 wind and water
4. Soil conservation means to prevent the soil from erosion, we must understand that nature took millions of years to create soil.

**5. Afforestation**

Planting trees in large

**Deforestation**

The cutting down of trees in large



- numbers is called afforestation.                      numbers is called deforestation.  
 It is the most effective way of preventing soil erosion.      It is the major cause of soil erosion.
6. Terrace farming is the step like formation made on hill slopes to reduce the flow of water.

### Do and Learn

Do it yourself



## 9

Heat



### Exercise

**A. Tick (3) the correct answer :**

1. (b), 2. (c)

**B. In each group of words, pick the odd one out. Give the other words a group name which tells what all of them are :**

- Sand** : Both the others can burn.
- Plastic** : Others are good conductor of heat.
- Cooking oil** : Others are fuels.

**C. Give one example of each of the following :**

1. CNG, 2. Paper, 3. Aluminium,

**D. Fill in the blanks :**

- 37°C,
- radiation,
- Radiation,
- Insulator

**E. Write True or False :**

1. False, 2. True, 3. False, 4. True, 5. True.

**F. Match the words in column A with those in column B :**

- |                                    |                                |
|------------------------------------|--------------------------------|
| 1. Carbohydrates — provide energy  | 2. Oxygen — needed for burning |
| 3. Wax — melts easily              | 4. CNG — a fuel which is a gas |
| 5. TB germs — may be found in milk | 6. Cotton cloth — an insulator |
| 7. Aluminium — a conductor.        |                                |

**G. Define the following :**

- Substances which we burn to give us heat are called fuels.
- Substances like paper and cloth burn and catch fire easily are called flammable substances.
- Temperature is a measure of degree of heatness or coldness of a body.

**H. Answer these questions :**

- Heat is a form of energy. Sunlight, electricity and fire are some sources of heat.
- Thermometer is used to measure the temperature of any solid, liquid or gas.  
 Precaution to be taken while using a thermometer.



- i. Always wash the thermometer with an antiseptic solution before and after using it.
- ii. For clinical thermometer ensure that mercury level is below  $35^{\circ}\text{C}$ .
- iii. While reading the thermometer, don't hold it by the bulb.
3. Heat makes substances change because, substances like ghee and coconut oil become solids when they are cooled. They melt on heating. When they are called they become solid again.
4. **Physical change** : i. Physical changes are reversible change.  
ii. Physical change is a temporary change. example : melting, freezing, boiling, condenses.
- Chemical change** : i. Chemical changes are irreversible change. ii. Chemical change is a permanent change. example : Burning of a paper.
5. The heat transfer takes place from an object to its surroundings due to the difference in their temperatures. Heat can be transferred by three methods : Conduction, Convection and Radiation.
6. The materials which allow heat to pass through them easily are called conductors. Conductors get heated quickly. The materials which do not get heated easily. Heat does not pass through them quickly are called insulators.
7. Cotton cloth and air are also good insulators because they does not let your body heat escape.

### Do and Learn

Do it yourself



## 10

## Animal Life



### Exercise

#### A. Tick (3) the correct answer :

1. (c), 2. (a), 3. (a), 4. (c), 5. (b), 6. (a)

#### B. Unscramble the organs of breathing of the following animals :

1. GILLS, 2. BODY SURFACE,
3. LUNGS, 4. SPIRACLES.

#### C. Rewrite the following statements correctly :

1. A whale is a fish and it breathes through lungs.
2. Penguin and ostrich are flightless birds.
3. Herbivores have well developed incisors.
4. Birds have beaks to break and eat their food.

#### D. Give two examples of each :

1. Butterfly, Grasshopper 2. Snake, Lizard
3. Frog, Salamanders 4. Stork, Siberian crane

#### E. Fill in the blanks :

1. numerous, 2. eggs, 3. Amphibians,
4. capillaries, 5. lungs,



**F. Matching the following :**

- |                        |                    |                     |
|------------------------|--------------------|---------------------|
| Lion — Forest          | Fish — Gills       | Snake — Scales      |
| Feathers — Birds       | Ocean — Octopus    | Tortoise — Shell    |
| Crow — Omnivorous Bird | Frog — Webbed Feet | Insects — Spiracles |

**G. Give a short answer :**

1. The natural place of living of an animal is called its habitat.
2. In water, the frog breathes through its moist skin.
3. Animals migrate to escape harsh weather, in search of food and to reach their breeding grounds where they can safely give birth to their young ones.
4. Gills is the breathing organs of a fish or prawns.

**H. Answer these questions :**

1. A fish has a boat shaped body. It swims with the help of fins. It also has a pair of eyes in the head. It breathes with the help of gills. Fish takes water through its mouth.
2. A frog is a amphibians it can lives in the water and on land. All amphibians begins their life in water with gills and tails. As they grow, they develop lungs and legs for their life on land. In water, the frog breathes through its moist skin.
3. Mammals have well developed organs systems and sense organs. Mammals have four well developed limbs. Cows, camels and dog use all their four limbs for walking and running. Human being use only two limbs for walking, they are called hind limbs. They use their hands or forelimbs for holding or catching things.
4. A bird has hollow bones filled with air. These bones make the body lightweight and so, easier to fly. A bird has a streamlined body this helps a bird to cut through the air and fly easily. Birds have wings to fly. Wings are actually their forelimbs.
5. Air reaches inside the body of an insects through tiny holes in their bodies called spiracles.
6. Snake have scales or plates n the underside of the body that are attached to the ribs. The strong and flexible muscle of the snake contract and expand and thus help it to move forward.

**Do and Learn**

Do it yourself



11

Nervous System



**Exercise**

**A. Tick (3) the correct answer :**

1. (b), 2. (a), 3. (c)

**B. Fill in the blanks :**

1. Cerebrum, 2. nerves, 3. Nervous system, 4. Medulla

**C. Write True or False :**

1. False, 2. True, 3. True, 4. False, 5. True

**D. Answer the following questions :**

1. Nervous system consist of the brain, the spinal cord and the nerves.
2. Nerves are made of bundles of fibres. They spread through out the body. They carry messages from different body parts to the brain through the spinal cord. They also carry message from the brain to the body parts through the spinal cord.

There are three kinds of nerves

1. **Sensory Nerves** : This nerves which are connected to the sense organs and bring massages from the sense organs to the brain or the spinal cord are called sensory nerves.
2. **Motor Nerves** : The nerves that carry orders from the brain or the spinal cord to the muscles or glands are called motor nerves.
3. **Mixed Nerves** : The nerves that carry message to the brain as well as bring orders from the brain are called mixed nerves.
3. Some body movements are done automatically without thinking about them. This automatic response of body to an event is called reflex action.
4. The different parts of the brain are-

**Cerebrum** : It is the largest part of the brain. It controls our sense organs. It helps us to think, remember, learn, etc.

**Cerebellum** : It lies below cerebellum. It is responsible for the co-ordination of voluntary muscles. It also help us to keep our balance and maintain the upright posture.

**Medulla** : It is a bulb-shaped structure which lies below cerebellum. It connects the brain to the spinal cord.

**Do and Learn**

Do it yourself



# 12

## The Circulatory System



### Exercise

**A. Tick (3) the correct answer :**

1. (b), 2. (b), 3. (a)

**B. Fill in the blanks :**

1. heart,
2. oxygen,
3. white blood cells,
4. plasma,
5. capillaries

**C. Write the correct word :**

1. Blood,
2. Blood vessels,
3. Plasma,
4. Auricle,
5. Deoxygenated,
6. Echocardiography

**D. Write True or False :**

1. True, 2. False, 3. True, 4. True, 5. True

**E. Match the following :**

Auricle — carry blood from the heart to all parts

Ventricle — receives blood from all parts of the body.

Arteries — pumps the blood out of the heart.

Platelets — help in blood clotting.

Septum — a muscular wall that separates the heart into left and right sides.



**F. Define the following :**

1. Blood is red coloured fluid. It keep circulating in the body in tubes called blood vessels.
2. Blood vessels carry blood to all parts of the body.

**G. Give reasons, why?**

1. Blood is red because due to the presence of hemoglobin in it.
2. We never see blue blood because inside our body it looks blue. When blood is low on oxygen it looks bluish. When it leaves our body it quickly turns red as it takes in oxygen.

**H. Answer these questions :**

1. Arteries, capillaries and veins are three types of blood vessels.
2. **The white blood cells (WBCs)** attack and destroy germs that may enter our body. They help us remain healthy.  
**The red blood cells (RBCs)** carry the oxygen around the body. They give blood its red colour.
3. **Artery :** They transport blood containing oxygen away from the heart to all parts of the body.  
**Vein :** They transport blood containing carbon-dioxide back to the heart from all parts of the body.
4. The human heart has four chambers—upper two chambers are atrium and lower two chambers are ventricles.
5. Functions of blood are the following :
  - a. Blood transport oxygen to the body cells and bring back carbon-dioxide from the cells to the lungs.
  - b. It also carries digested food to the cells.
  - c. It carries harmful waste products from all parts of the body for their removal from the body.

**Do and Learn**

Do it yourself



# 13

## Bones and Muscles



### Exercise

**A. Tick (3) the correct answer :**

1. (c), 2. (b), 3. (a), 4. (b)

**B. Fill in the blanks :**

1. skull, 2. Backbone, 3. twelve, 4. thigh bone, 5. bone marrow

**C. Write true or false :**

1. False, 2. True

**D. Answer these questions :**

1. The skeleton is the framework of the bones which give shape to the body and protects the soft, delicate inner organs such as the heart and lungs.
2. Muscles work by pulling or contracting. Muscles cannot push. Two sets of muscles work at a joint to bring about the movement.



3. Function of ball and socket joint in this joint, ball of a bone moves into the socket of the other bone. The ball and socket joints allow the parts of the body to move in several directions. The examples of this type of joints are hip and shoulder joints.
4. Muscles are found all over the body. They are made of tough elastic tissues.  
The types of muscles are :
  1. Skeletal muscles
  2. Smooth muscles
  3. Cardiac muscles
5. Skull is the hardest part of the body that protects the brain.

### Do and Learn

Do it yourself



# 14

## Simple Machines



### Exercise

**A. Tick (3) the correct answer :**

1. (a), 2. (a), 3. (c)

**B. Give two example of each :**

1. Blade, Axe,
2. Crane, Bulldozer
3. Jack, Bottle lid
4. Seasaw, Scissors

**C. Write what kind of levers are :**

1. First class lever
2. Third class lever
3. Third class lever
4. Second class lever

**D. Fill in the blanks :**

1. Machines,
2. muscular,
3. lever,
4. pulley,
5. inclined,

**E. Match the following :**

Pulley — wheel with a rope on its groove

Wheel and axel — a cycle wheel

Lever — it is of three kinds

Inclined plane — a gentle slope

Nut-cracker — lever of second order

Wedge — a knife

**F. Give reasons, why?**

1. A screw is better than a nail it is because of the groove a screw hold the wood more formly than a nail. The jack used for lifting vehicles and a bottle lid are examples of a screw.



2. Machines work faster than a man it is because man cannot work like a machine. Machines can work continuously and it make our work easier and faster.

**G. Answer these questions :**

1. Simple machines are tools that helps us to make our work easier and faster. A machine can change the amount, speed, or direction of a force for a useful purpose.
2. A lever is a simple machine consisting of a rod free to move about a fixed point.  
**First class levers** have the fulcrum in the middle. The load and the effort are on either side of fulcrum.  
**Second class levers** have the load in the middle. The effort and the fulcrum are on either side of the load.  
**Third class levers** have the effort in the middle. The load and the fulcrum are on either side of the effort.
3. An **inclined plane** is a gentle slope that help us to move a heavy load with less effort. It is much easier to push up or roll up objects on a slope rather than lifting them up.
4. A **wedge** has two inclined planes placed together in the shape of a 'V'. A wedge is used for cutting and splitting things. **Blade, knife, axe, chisel and nail** are examples of wedges.
5. Bicycle wheels and doorknob.
6. A pulley is a simple machine used to lift heavy loads. The advantage of the pulley is that it makes it possible for us to pull down wards to lift an object.

**Do and Learn**

Do it yourself



15

Air and Water



**Exercise**

**A. Tick (3) the correct answer :**

1. (b), 2. (a), 3. (c)

**B. Fill in the blanks :**

1. atmosphere, 2. Troposphere, 3. humidity, 4. filtration

**C. Define :**

1. **Atmosphere** : The thick layer of air that surrounds the Earth is called atmosphere.
2. **Troposphere** : Troposphere is the nearest layer to the Earth surface. Most of the weather changes take place in this layer.
3. **Stratosphere** : The stratosphere lies above the troposphere and is about 35 kms thick. This is layer jet planes usually flies.
4. **Humidity** : The amount of water vapour present in air is called humidity. We can feel the humidity in air before and after the rain.
5. **Chlorination** : Chlorine is a chemical added to water to kill germs. This process of purifying water is called chlorination.



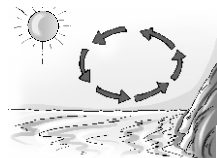
6. **Filtration** : Insoluble impurities can be removed by passing the impure water through a filter paper. A mixture of sand water can be separated by using filtration.

**D. Give reasons, why?**

1. Sound does not travel on the moon because there is no air or substance to carry the sound wave.
2. Mountaineer carry oxygen cylinders with them because as we go higher, the amount of air decreases.
3. Water can enter a tumbler inverted inside a bucket of water. Only when the tumbler is tilted slightly because, air has weight and occupies space. Air exerts pressure.

**E. Answer these questions :**

1. We need oxygen, contained in air, to breath. We cannot stay alive for more than a few minutes without air.
2. The thick layer of air that surrounds the Earth is called atmosphere. It is important because, without air their would be no life on Earth. The atmosphere provide oxygen for breathing to all living things. It provides carbon-dioxide to plants for photosynthesis.
3. Air pressure helps us in many ways. Air has weight, it presses downwards. It can push things. Air is pumped into scooters, trucks, buses and cars tyres. Parachutes, kites, gliders and sailing boats all depends on moving air to move.
4. During the day, due to the heat of the Sun, the land heats up faster than the sea. The air above the hot land also gets heated faster than the air above the sea surface. This warm air is lighter and rises up. The air above the sea is cooler. This cool air from the sea rushes in towards the land to take place of the warm air. This moving air is called the **sea breeze**.
5. We can make water safe for drinking in our house by boiling, filtration or by adding chlorination.



**Do and Learn**

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**16**

**The Earth The Solar System**



**Exercise**

**A. Tick (3) the correct answer :**

1. (a), 2. (c), 3. (b), 4. (b)

**B. Write the correct word :**

1. atmosphere,
2. Solar System,
3. Planets,
4. Pluto



**C. Fill in the blanks :**

1. Earth,
2. astronomers,
3. Solar System,
4. International Astronomical Union

**D. Give reasons, why?**

1. If we shout on the moon nobody can hear us this is because sounds travels in air, and there is no air on the moon.
2. The Earth pulls everything down with the force of **gravity**. That is why anything thrown up, comes down. The Moon also pulls all things towards itself. But since it is much smaller than the Earth, the force of gravity is less. It is only about one-sixth of that on the Earth. This means that if you can jump 1 metre high on the Earth, you can jump 6 metres high on the Moon with the same effort. In fact your weight on the Moon would only be one-sixth of your weight on the Earth!
3. When a big rock crashes on the surface of the moon nobody can hear it because the surface of the moon is covered with a layer of dust. Sounds travels in air, and there is no air on the moon.
4. If we throw a ball up it comes back to the Earth this is because the Earth pulls everything down with the force of gravity.

**E. Differentiate between :**

1. **Solar eclipse** : An eclipse of the Sun is called a solar eclipse.  
**Lunar eclipse** : Lunar eclipse occurs when the shadow of the Earth falls on the moon.
2. **Transparent objects** : Transparent objects are objects through which light can pass totally. They do not form shadow, e.g. plain glass or clean water are transparent.  
**Opaque objects** : Opaque objects are objects through which light cannot pass. They form clear and dark shadow, e.g. wood and metal are opaque.
3. **Natural satellite** : Natural satellite are made by nature. The moon is the only natural satellite of the Earth.  
**Artificial satellite** : Artificial satellites are man-made objects sent into space to orbit heavenly bodies.

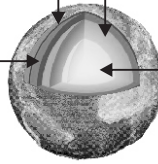
**F. Answer these questions :**

1. Earth is different from all other planets in the Solar System. We have vast quantities of water on our planet, and we have oxygen to breathe. We have soil in which plants grow. There is a blanket of air around the Earth, called the **atmosphere**, that protects it from the harmful ultraviolet rays of the Sun.
2. According to scientists, the Earth is not a uniform solid sphere. It consists of different layers. These layers are called the **crust, mantle and core**.

**The crust** varies in thickness from 5 km under the ocean floor to 70 km under the continents.

**The outer core** is the only liquid layer of the Earth. It is about 2300 km thick. It contains iron and nickel in a molten state. There is also some sulphur present here.

**The mantle** is about 2900 km thick. Its upper part is made of solid rock, whereas the lower part consists of molten rock. The rock in the mantle is mainly composed of iron and magnesium.



**Internal Structure of the Earth**

The inner core is an extremely hot, solid sphere of mostly iron and middle at the centre of the Earth.

3. There is no life on the moon because it has no air or water. There is no atmosphere surrounding the moon. So there are no winds, no clouds and no rain. There is no protection against the strong rays of the Sun on the moon.
4. The regular rise and fall of the level of water in the sea is called a **tide**. Tides are related to the Sun and the moon. The moon is much closer to the Earth than the Sun. It, therefore, has greater pull on water than the Sun. The moon's gravitational pull attracts the water of sea. This causes the water to rise towards the moon. This is called **high tide**. In high tide, the water in the sea rises on the sea shore. Another high tide occurs on the opposite side of the Earth, because of the Earth's movement. In the region between the two high tides, the level of water falls and forms **low tide**.
5. Three Americans, Neil Armstrong, Edwin Aldrin and Michael Collins were the first to visit the Moon in a spacecraft called Apollo 11. Neil Armstrong and Edwin Aldrin stepped on the Moon on 21 July 1969.
6. **Weather satellites** are used to forecast the weather. You may have seen satellite pictures on T.V., of clouds over our country. They give us early warnings of storms and cyclones and help forecast the weather.

### Do and Learn

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