

### Exercises

#### Section-I

##### A. Oral Questions :

- Ans. 1. Seed coat is a thick covering of seed that protects the baby plant.  
2. The soil is made more fertile by adding manure or fertilizer into it.

##### B. Tick (✓) the correct answer :

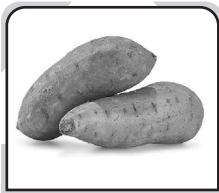
- Ans. 1. (c) Sand  
2. (c) both (a) and (b)  
3. (b) air  
4. (a) irrigation

##### C. Give two examples for the following :

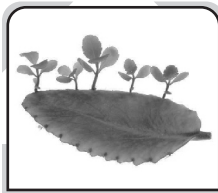
- Ans. 1. Seeds dispersed by explosion : **Pea, Poppy**  
2. Seeds dispersed by animals : **Spear gram, Cockleburr**  
3. Kharif crops : **Rice, Jowar**  
4. Rabi crops : **Radish, Carrots**  
5. Plants that can be grown by stem cuttings : **Rose, Money plant**

##### D. Write the types of vegetative propagation for each of the following plant :

Ans.



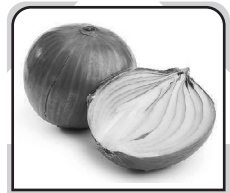
Roots



Leaves



Stem



Stem



Stem



Stem



Roots



Roots

#### Section-II

##### A. Fill in the blanks :

- Ans. 1. Most plants reproduce from **seeds**.  
2. The lotus fruit is **spongy** and so it floats easily.  
3. Seeds which have two cotyledons are called **dicotyledon** seeds.  
4. Crops grown in winter season are called **rabi crops**.  
5. In Bryophyllum, new plants arise from the **leaves**.  
6. Watering the fields through holes in pipes is called **drip** irrigation.

**B. Write 'True' or 'False' :**

**Ans.** 1. False      2. True      3. False      4. False      5. True.

**C. Match the following :**

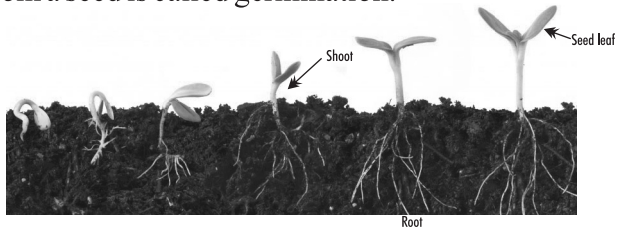
**Ans.**

1. Cotyledons	→	a. Explosion
2. Kharif crop	→	b. Found in ferns
3. Underground stem	→	c. Seed leaves
4. Pea pod	→	d. Grows in summer season
5. Spores	→	e. Wind dispersal
6. Dandelion	→	f. Water dispersal
7. Coconut	→	g. Potato

**D. Answer the following questions :**

**Ans.** 1. The different parts of a seed are micropyle and seed coat.  
2. The growing of a plant from a seed is called germination.

Most plants grow from seeds. But all the seeds do not grow into plants. Only ripe and healthy seeds which get all the favourable conditions grow into new plants.



A seed needs good soil which is rich in nutrients. It needs air, warmth and water. Air is needed by the seed to breathe. Warmth makes the seed active. Water softens the food inside. Water also softens the seed coat so that the baby plant can break open the seed coat and come out.

3. The carrying away of fruits and seeds to distant places from their mother plants is known as dispersal. Seeds germinate when they get suitable conditions of soil, air, water and temperature. If all the seeds fall on the ground near the parent plant, they will not get enough food, water and sunlight to grow.

So, seeds have to be spread out in a large enough area so that at least some of the seeds will get suitable conditions and grow up into adult plants.

4. Animals and human beings eat fruits of different plants and throw away the seeds which germinate when they get favourable conditions.

Some seeds have stiff hair, spines or hooks which stick to the bodies of animals with thick fur and even our clothes. These then get carried away to far away places. Birds often swallow the seeds of fruits they eat that pass out unharmed in their droppings and germinate.

5. In India, crops that are grown in the summer season are called kharif crops. Rice and jowar are kharif crops. Crops that are grown in winter are called rabi crops. Wheat and gram are rabi crops.

6. Proper storage of crops after harvesting is very essential. This would keep the crops free of moisture and protect it from rotting. It would also keep the crops safe from small animals and birds that eat away the grains and thus cause a lot of damage.

A farmer store the harvested crop properly. He dried the grain and then store.

**Things To Do**

**Ans.** Do yourself.



### Exercises

#### Section-I

##### A. Oral Questions :

- Ans. 1. Through the spiracles the insects breathe.  
 2. Frog and earthworm.  
 3. A snake use its muscles and scales to move.

##### B. Tick (✓) the correct answer :

- Ans. 1. (c) Snake  
 2. (c) spiracles  
 3. (c) both (a) and (b)  
 4. (c) body surface

##### C. Give two examples of the following :

- Ans. 1. Rodents : **Rabbit, Rat**  
 2. Herbivores : **Cow, Goat**  
 3. Carnivores : **Lion, Wolf**  
 4. Migratory birds : **Arctic tern, Hawk**  
 5. Insects with wings : **Butterfly, Bee**

##### D. Name the organ that helps the following animals to move :

- Ans. 1. Fish : **fins and a tail**  
 2. Turtles : **Limbs**  
 3. Snakes : **muscles and scales**  
 4. Crocodiles : **Limbs**  
 5. Birds : **wings**  
 6. Insects : **Legs and wings**

#### Section-II

##### A. Fill in the blanks :

- Ans. 1. Animals which eat plants, are called **herbivores**.  
 2. Frogs breathe through the **moist skin** in water.  
 3. The movement of animals from one place to another is called **migration**.  
 4. Human beings use **lower** limbs to walk.  
 5. The **fore** limbs of birds are modified into wings.  
 6. **Ostrich** and **kiwi** are flightless birds.

##### B. Write 'True' or 'False' :

- Ans. 1. False      2. False      3. True      4. False      5. True.

##### C. Match the following :

- Ans. 1. Crocodile → (a) Shell  
 2. Tortoise → (b) Feathers  
 3. Polar bear → (c) Scales  
 4. Lion → (d) Hair  
 5. Sparrow → (e) Fur

##### D. Answer the following questions :

- Ans. 1. Herbivores are plant-eating animals like cow, buffalo, goat, horse and deer.

They have sharp front teeth (incisors) for cutting and biting grass or leaves. They have strong, broad teeth in the back (molars) for grinding food.

Carnivores are flesh-eating animals like lion, tiger and wolf. Carnivorous animals have sharp, pointed front teeth to tear flesh. Animals like snake and frog swallow their food.

Omnivores are those that eat both plants and flesh of other animals. Examples of omnivores are dog, cat, bear, crow and humans.

2. Some animals have body coverings, that match their surroundings. This is called camouflage. Camouflage is one of the most amazing techniques of survival in animals. Animals have developed the ability to mimic plants, like in the case of leaf insect, stick insect and even moths that blend with the bark of the tree where they sleep during day time.
3. Animals migrate because the conditions in their habitat become adverse to support life. Either the weather becomes too cold or too hot, or the available food becomes scarce. Many times animals also migrate because of natural calamities like earthquakes, droughts or floods. Some animals like caribou, elk, migrate in search of food.
4. **Scales :** Fish have overlapping scales that do not let water enter the body. Reptiles such as crocodiles, snakes, and lizards also have scales for protection.  
**Shell :** A very hard, outer covering is called a shell. It protects the soft bodies of animals such as snails, tortoises and oysters.
5. Humans have two pairs of limbs. The upper limbs are called arms and the lower limbs are called legs. Each limb ends in five fingers and toes. They use the legs for standing, walking and running. Since they use only the legs for movement, they have an upright posture. They use their arms for holding and working with objects.
6. Fish which live in water breathe through gills. Gills are situated on either side of the head. They have a rich supply of blood vessels. When the fish take water into their mouth, oxygen dissolved in water is absorbed by the blood vessels present in the gills and carbon dioxide is given out.

### Things To Do

**Ans.** Do yourself.

## 3 Bones and Muscles

Unit-III : The Human Body and Health



### Exercises

#### Section-I

#### A. Oral Questions :

**Ans.** 1. The last two pairs of lower ribs, at the bottom of the ribcage, which are not

attached to the breast bone and called floating ribs.

2. Cheekbone, breast bone and wrist bones.

**B. Tick (✓) the correct answer :**

- Ans.**
- |                 |                       |
|-----------------|-----------------------|
| 1. (c) Backbone | 2. (a) shoulder       |
| 3. (c) 206      | 4. (c) bone to muscle |

**C. Write the number of :**

- |                                 |   |                 |
|---------------------------------|---|-----------------|
| 1. Bones in a human body        | : | <b>206</b>      |
| 2. Muscles in a human body      | : | <b>650</b>      |
| 3. Bones in a human face        | : | <b>8</b>        |
| 4. Ribs that form the ribcage   | : | <b>12 pairs</b> |
| 5. Floating ribs in the ribcage | : | <b>2 pairs</b>  |

**D. Name the type of joint present in the following parts :**

- Ans.**
- |             |   |                              |            |   |                      |
|-------------|---|------------------------------|------------|---|----------------------|
| 1. Shoulder | : | <b>Ball and socket joint</b> | 2. Knee    | : | <b>Hinge joint</b>   |
| 3. Neck     | : | <b>Pivot joint</b>           | 4. Wrist   | : | <b>Gliding joint</b> |
| 5. Ankle    | : | <b>Gliding joint</b>         | 6. Hip     | : | <b>Hip joint</b>     |
| 7. Toes     | : | <b>Hinge joint</b>           | 8. Fingers | : | <b>Hinge joint</b>   |

### Section-II

**A. Fill in the blanks :**

- Ans.**
- Bones are **hard and tough** from outside and **soft and spongy** from inside.
  - The **skull** is the bony part which protects the brain.
  - The bones are held together by strong, stretchy tissues called **ligaments**.
  - Voluntary** muscles are those muscles in the body which are under our control.

**B. Matching the following :**

- Ans.**
- |                        |   |                      |
|------------------------|---|----------------------|
| 1. Involuntary Muscles | → | (a) Brain            |
| 2. Voluntary Muscles   | → | (b) Leg              |
| 3. Femur               | → | (c) Arm              |
| 4. Humerus             | → | (d) Run, walk, write |
| 5. Skull               | → | (e) Cardiac muscles  |

**C. Define the following terms :**

- Ans.**
- The human body is made up of several organs that work together as one unit called organ system.
  - Our body is made up of 206 bones of different shapes and sizes. These bones form a framework in our body called the skeleton.
  - The inside of a bone contains a jelly-like material called the bone marrow, which makes the blood cells in our body.
  - Thirty three small bones, called vertebrae, together make up the long backbone or the vertebral column. It is also called the spine.
  - The last two pairs of lower ribs, at the bottom of the ribcage, which are not attached to the breast bone are called floating ribs.
  - Joints are the places where two bones are joined together.
  - A muscle is joined to a bone by tough band of tissues called tendons.

8. Our heart is made up of special muscles called the cardiac muscles.

**D. Answer the following questions :**

- Ans.**
1. The human body is like a machine that is made of many specialised parts. These specialised parts that constitute the human body are called organs. The human body is made up of several organs that work together as one unit called organ system. Each of these systems plays a vital part in maintaining health and well being of the entire body. The food that we eat and the oxygen that we breathe in provide these organ systems the energy to work.
  2. Muscles are fleshy bundles of thin and tough elastic like materials in the body.
  3. The skeleton gives shape and support to the body. Without the skeleton, our body would collapse. It also protects the internal organs like the brain, heart and lungs.
  4. Joints are the places where two bones are joined together. The different kinds of joints are hinge joint, ball and socket joint, pivot joint, gliding joint.
  5. Voluntary muscles are those muscles in the body which are under our control. We can run, walk, bend, stretch, kick, write, etc. with the help of voluntary muscles.  
Involuntary muscles are those muscles which are not under our control. For example, we cannot control the movement of our stomach. It is controlled by muscles that work on their own. Hence, these are involuntary muscles.

**Things To Do**

**Ans.** Do yourself.

## 4 The Nervous System



### Exercises

**Section-I**

**A. Oral Questions :**

- Ans.**
1. The brain, the spinal cord and the nerves are formed the nervous system.
  2. Some of our actions are automatic. These automatic actions are called reflex actions.

**B. Tick (✓) the correct answer :**

- Ans.**
- |                     |                     |
|---------------------|---------------------|
| 1. (b) Cerebrum     | 2. (b) Motor nerves |
| 3. (a) Mixed nerves | 4. (c) Ear          |

**C. Name the following :**

- Ans.**
1. The organ which is the main control centre of the body : **The nervous system**
  2. The part of brain which controls thinking, learning and talking : **Cerebrum**

3. The part of brain which controls the voluntary muscles : **Cerebellum**
4. The nerves which carry message from a body part of the brain : **Sensory nerves**
5. Nerves which carry messages from the brain to the muscles : **Motor nerves**

## Section-II

### A. Match the following :

- Ans.**
- |                   |   |                                    |
|-------------------|---|------------------------------------|
| 1. Cerebrum       | → | (a) Brain stem                     |
| 2. Cerebellum     | → | (b) Eardrum                        |
| 3. Medulla        | → | (c) Automatic action               |
| 4. Eyes           | → | (d) Memory, thoughts, intelligence |
| 5. Ears           | → | (e) Feel cold or hot               |
| 6. Tongue         | → | (f) Sour, sweet, salty, bitter     |
| 7. Reflex actions | → | (g) Optic nerve                    |
| 8. Skin           | → | (h) Small brain                    |

### B. Fill in the blanks :

- Ans.**
1. The **tongue** is the sense organ of taste.
  2. The **skin** helps us to feel heat, cold, pain, pressure and touch.
  3. The middle ear has the **eardrum**.
  4. **Medulla** is the lower portion of the brain.
  5. The **brain** is the master organ of the body.

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

- Ans.** 1. True      2. False      3. False      4. True      5. True.

### D. Answer the following questions :

- Ans.** 1. The brain has three main parts :
- Cerebrum
  - Cerebellum
  - Medulla

#### **Cerebrum**

It controls our memory, thoughts, intelligence and learning. It also controls the sense organs.

#### **Cerebellum**

It controls the action of the muscles and helps us to keep the balance.

#### **Medulla**

The medulla controls the involuntary actions such as breathing and circulation.

2. Our sense organs are eyes, ears, nose, tongue and skin. These help us to know about the surroundings. These are organs of sight, hearing, smell, taste, and touch.
3. The ears are very sensitive organs. We should take care of them.
  - Never clean them with a hairpin, matchstick or a pencil. It may injure the eardrum.
  - Always use a cotton ear bud to clean your ears.
  - Keep away from loud noises.

4. The different taste zones of the tongue are bitter, sour, salt, sweat and papillas.
5. The skin covers the whole body. It protects the inside body from dirt, germs and from getting hurt. The skin helps us to feel heat, cold, pain, pressure and touch. The pores on the skin allow the waste to come out of the body in the form of sweat. We should clean our skin with soap and water.

### Things To Do

Ans. Do yourself.

## 5 Food, Health and Diseases



### Exercises

#### Section-I

#### A. Oral Questions :

- Ans.
1. The diseases which spread from one person to another are called communicable or infectious diseases.
  2. Water is essential for our body to perform many chemical reactions.

#### B. Tick (✓) the correct answer :

- Ans.
- |                 |                         |
|-----------------|-------------------------|
| 1. (c) proteins | 2. (a) Carbohydrates    |
| 3. (c) Scurvy   | 4. (c) both (a) and (b) |

#### C. Give three sources of each of the following :

- Ans.
- |                  |                            |
|------------------|----------------------------|
| 1. Vitamins      | : Fruits, vegetables, eggs |
| 2. Minerals      | : Fruits, milk, eggs       |
| 3. Fats          | : Oil, milk, butter        |
| 4. Carbohydrates | : Bread, rice, sugar       |

#### Section-II

#### A. Fill in the blanks :

- Ans.
1. **Food** is one of the basic needs of all human beings.
  2. Proteins help us to **grow**.
  3. Oil, milk, butter and ghee are good sources of **fats**.
  4. The part of food that is not digested by our body is known as **roughage**.
  5. Water should be **boiled** before drinking.

#### B. Write 'True' or 'False' :

- Ans.
- |         |          |          |         |          |
|---------|----------|----------|---------|----------|
| 1. True | 2. False | 3. False | 4. True | 5. False |
|---------|----------|----------|---------|----------|

#### C. Answer the following questions :

- Ans.
1. Everyday we eat a large variety of foods. These foods are classified into different groups according to their composition. They have different nutritional values and they are equally essential for our health. The food groups are :  
**Carbohydrates**—bread, rice, wheat, sugar, potato, honey, corn, jeans, and jelly.



**Proteins**—Pulses, milk, cheese, chicken, fish, eggs, soyabean and peas.

**Fats**—Oil, milk, butter, cheese, ghee, cream, meat, and dry fruits.

**Vitamins**—Fruits, vegetables, eggs and fish.

**Minerals, Iron and Calcium**—Fruits, vegetables, milk, eggs and fish.

2. Health is a state of social, physical and mental well-being. Good health means being well and strong.
3. For good health we need :
  - a balanced diet.
  - fresh air to breathe.
  - clean place to live in.
  - enough exercise and rest.
  - clean water to drink.
4. Disease is a condition that does not allow the body to work properly. AIDS and Malaria are two communicable diseases.
5. The diseases which are caused due to the lack of nutrients are called deficiency diseases. Night Blindness, Beri-Beri, Scurvy, Rickets, Goitre and Anaemia are some deficiency diseases.

### Things To Do

Ans. Do yourself.

## 6 First Aid



### Exercises

#### Section-I

##### A. Oral Questions :

- Ans. 1. Kerosene stove, LPG gas and electrical equipments or wire are causes of fire.
2. In case of a snake bite, immediately tie a tourniquet above the bite to stop the poison from going to the heart. Take the patient immediately to the hospital.

##### B. Tick (✓) the correct answer :

- Ans. 1. (b) electrical fire 2. (c) rabies  
3. (c) both (a) and (b) 4. (c) fracture

##### C. Identify and name the following :

Ans.



Animal bite



Burns



Fire fighting



Nose bleeding

##### D. Write two examples for each of the following :

- Ans. 1. Things that cause fire if carelessly handled : **gas stove, electrical equipment**
2. Things used to give first aid in case of burns : **pour lots of water, apply**

**antiseptic cream**

3. Two animals whose bite can cause rabies : **dog, monkey**

**Section-II**

**A. Fill in the blanks :**

- Ans.** 1. **Burns** are caused by fire, hot objects and steam.  
2. A fire **extinguisher** is used to put out a fire.  
3. Bleeding from the **nose** occurs quite frequently in children on hot summer days.  
4. After lighting a fire, make sure that the **matchstick** is completely extinguished.  
5. **Water** should never be thrown on an electric fire.

**B. Write 'True' or 'False' :**

- Ans.** 1. False      2. False      3. True      4. False      5. False

**C. Give reasons for the following :**

- Ans.** 1. Because a fracture is very painful.  
2. Because pricking blisters may result in the formation of wounds.  
3. Because they catch fire easily.  
4. Because there is a danger of electric shock.  
5. Because these cut off the air supply.

**D. Answer the following questions :**

- Ans.** 1. When an accident occurs to a person, a doctor or medical aid may not be readily available. The hospital may be far away from the accident spot. So an immediate aid is provided before the doctor or medical team arrives. This help is known to first aid.  
2. First aid has three main aims :  
(a) To save life.  
(b) To keep the injured or sick person comfortable till proper medical help arrives.  
(c) To prevent worsening of the condition of the injured.  
3. A tourniquet is a wide strip of cloth that is wrapped tightly around the wound two or three times and knotted.  
4. • To support the broken limb, apply a splint.  
• In case of the broken arm, use a triangular piece of cloth to make a sling for supporting the broken bone.  
• Keep the victim still till the doctor comes.  
5. • In case of an accident  
• keep calm.  
• find out the type and cause of injury.  
• give first aid quickly.  
• use only sterilized things.  
• call the doctor if needed.

**Things To Do**

- Ans.** Do yourself.



### Exercises

#### Section-I

##### A. Oral Questions :

- Ans. 1. Matter is made up of very tiny particles called molecules.  
2. **Physical change**—The change from solid to liquid water.  
**Chemical change**—Burn a piece of paper.

##### B. Tick (✓) the correct answer :

- Ans. 1. (b) Book  
2. (a) Solid  
3. (b) liquid  
4. (c) fixed

#### Section-II

##### A. Fill in the blanks :

- Ans. 1. When matter is **liquid** or **gas** the spaces between the molecules change.  
2. A substance has only one type of **molecule**.  
3. The substance which gets dissolved is called **solute**.  
4. When we burn **incense stick** or **wood**, they change to ash.  
5. The change from solid ice to liquid water is a **physical** change.

##### B. Write 'True' or 'False' :

- Ans. 1. False    2. True    3. True    4. False    5. False.

##### C. Answer the following questions :

- Ans. 1. Particles in a liquid are loosely bound. There is some space between them. Therefore, it is possible for a particle in a liquid to move in different directions. So, liquids can change their shape but their volume remains fixed. Particles in gases are held together by very weak forces. There is a lot of space between the particles of gas. Thus, they can move away from each other very easily. That is why gases can change their shape.
2. Particles in a liquid are loosely bound. There is some space between them. Therefore, it is possible for a particle in a liquid to move in different directions. So, liquids can change their shape but their volume remains fixed.
3. Solubility of a substance is its property to dissolve in some other substance to form a mixture of uniform nature.
4. Water is a very good solvent. Most of the substances readily dissolve in water, that is why it is also known as 'the universal solvent'.
5. The most common examples of solids that dissolve in water are salt and sugar. Most of the liquids dissolve easily in water. Carbonated drinks are the best example to show solubility of gases in water.
6. A change in which the substance remains the same and no new substance is formed is called a physical change.  
The change from solid ice to liquid water is only a change of state. The

substance remains the same in both. The molecules of ice and the molecules of water are the same. It is only a physical change.

A change in which a substance changes into a new substance with different properties is called a chemical change.

Burn a piece of paper. The product you get is ash. Ash is a new substance. Its molecules are different from that of paper. Its properties are also different from those of paper.

### Things To Do

Ans. Do yourself.

## 8 Energy



### Exercises

#### Section-I

##### A. Oral Questions :

- Ans.
- Four different forms of energy are : Mechanical Energy, Chemical energy, Muscular energy, Water energy.
  - Solar energy is used in solar cookers to cook food. Light from the sun can be changed into electricity through special kind of cells. Some calculators and transistors have been made to operate with the help of solar energy.

##### B. Tick (✓) the correct answer :

- Ans.
- (c) Sun
  - (c) chemical energy
  - (b) Heat energy

#### Section-II

##### A. Fill in the blanks :

- Ans.
- Fossil fuels are **non-renewable** sources of energy.
  - Sun, water and wind are the examples of **renewable** sources.
  - The central part of an atom is called **nucleus**.
  - Energy is measured in **Joules**.
  - A steam engine burns coal to produce **heat**.

##### D. Answer the following questions :

- Ans.
- Energy is the ability to do work.
  - Food stored inside the body is a form of chemical energy. This chemical energy is changed into muscular energy to do work.
  - The energy of wind or moving air is used in windmills to pump out water or for grinding. If windmills are connected with a turbine, small amount of electricity is produced.
  - Matter is made of tiny molecules and molecules are made of even tinier particles called atoms. The central part of an atom is called nucleus. The breaking of a nucleus or the joining of two nuclei produces a lot of energy. The nuclear energy is released in the form of rays and is called radiation.
  - We must learn to preserve the available sources of energy. We should use fossil fuels economically. We should not waste electricity and fuels.

We must find alternative sources of energy. We must make use of renewable sources of energy like the Sun, water, wind and biomass. The use of renewable sources of energy will not only reduce our dependence on fossil fuels but also help in reducing pollution.

### Things To Do

Ans. Do yourself.

# 9 Simple Machines



## Exercises

### Section-I

#### A. Oral Questions :

- Ans. 1. The three categories into which levers are divided are : First-class levers, Second-class levers and Third-class levers.  
 2. Two types of simple machines are lever and wheel.

#### B. Tick (✓) the correct answer :

- Ans. 1. (b) Inclined plane 2. (a) fulcrum  
 3. (a) cutting 4. (c) Screw-jack

#### C. Identify the following types of simple machines :



Wedge First-class levers First-class levers Screw Third-class levers

### Section-II

#### A. Fill in the blanks :

- Ans. 1. A **machine** is a device by which work can be done by applying less effort.  
 2. In **second-class** levers, load lies in between fulcrum and effort.  
 3. An inclined plane is a **slope**.  
 4. **Winding edge** has two inclined planes joined back to back with a sharp edge.

#### B. Match the following :

- |                 |   |                         |
|-----------------|---|-------------------------|
| 1. Axe          | → | (a) Third-class levers  |
| 2. Slope        | → | (b) First-class levers  |
| 3. Hammer       | → | (c) Second-class levers |
| 4. Wheel barrow | → | (d) Wedge               |
| 5. Tongs        | → | (e) Inclined plane      |

#### C. Answer the following questions :

- Ans. 1. A machine is a device that helps to make our work easier to perform. It does this by transferring a force from one place to another, changing the direction of a force, increasing the magnitude of a force or increasing the distance or speed of a force. Washing machine, car, mixer grinder and refrigerator are some of the few machines.

### 2. First-class Levers (Load-Fulcrum-Effort)

In this case, the load and effort are on the either side of the fulcrum. For example, scissors, see-saw.

### Second-class Levers (Fulcrum-Load-Effort)

In this case, the load lies in between the fulcrum and effort. For example, wheel barrow, bottle opener, etc.

3. An inclined plane is a slope. It is used to roll heavy drums up or down and to pull heavy loads to great heights.
4. Screws or bolts are used to join and hold two pieces of wood or metal. A screw looks like a nail with grooves cut in it. It has a winding edge. This winding edge is actually an inclined plane.
5. A simple pulley consists of a grooved wheel with a rope passing through it. The wheel is able to rotate about a fixed axle (that acts as the fulcrum). The load is tied to one end of the rope and the effort is applied from the other end. Such a pulley makes our work easier by simple changing the direction of force. Such a pulley is used to pull water from the well and hoist a flag.

#### Things To Do

Ans. Do yourself.

## 10 Air

Unit-VI : Our Environment



### Exercises

#### Section-I

##### A. Oral Questions :

- Ans. 1. The composition of gases present in the air : 78% nitrogen, 21% oxygen and the remaining 1% is argon, carbondioxide and other gases. Air contains a very small amount of carbondioxide i.e. 0.03%.
2. Stratosphere contains ozone gas.

##### B. Tick (✓) the correct answer :

- Ans. 1. (b) Oxygen    2. (b) ozone

#### Section-II

##### A. Fill in the blanks :

- Ans. 1. Air is all around us.
2. Atmosphere is made up of different layers.
3. Air occupies space.
4. Air is needed for burning.

##### B. Write 'True' or 'False' :

- Ans. 1. False          2. False          3. False          4. False.

##### C. Answer the following questions :

- Ans. 1. The Earth is surrounded by a blanket of air called the atmosphere.
2. The atmosphere is divided into five layers. These are :

- (i) Troposphere (ii) Stratosphere (iii) Mesosphere (iv) Thermosphere (v) Exosphere
3. Tie a piece of string to the middle of a stick. Blow two balloons and tie one to each end of the stick. Now burst one of the balloons. The end with the full blown balloon will come down as it contains more air. Hence, air has weight.
  4. Air is everywhere, but we cannot see it. We can feel the air when it blows. Air occupies space. An empty cup or a glass is not really empty. It is filled with air.  
Perform a experiment to see that air occupies space. Take a balloon. Blow it with your mouth. You will notice that the balloon becomes bigger. This shows that air occupies space.

### Things To Do

Ans. Do yourself.

## 11 Natural Resources



### Exercises

#### Section-I

##### A. Oral Questions :

- Ans. 1. Tunnels are dug underground to reach the deposits of coal. Such areas of coal deposits are called coal mines.  
2. Diamond, emerald, ruby, sapphire.

##### B. Tick (✓) the correct answer :

- Ans. 1. (a) Water      2. (b) electricity      3. (c) Plants      4. (b) ores

#### Section-II

##### A. Fill in the blanks :

- Ans. 1. **Plants** contains oxygen which we need for life.  
2. **Fertile** soil is used for growing crops.  
3. Water stored in **dams** can be used to produce electricity.  
4. Rocks are made up of **minerals**.

##### B. Match the following :

- Ans. 1. Pumice → (a) Sedimentary rock  
2. Limestone → (b) Metamorphic rock  
3. Slate → (c) Fossil fuel  
4. Coal → (d) Precious stone  
5. Diamond → (e) Igneous rock

##### C. Answer the following questions :

- Ans. 1. Some properties are given to us by nature. These are called natural resources. For example, sun, moon, river, trees, air, water, land, minerals, etc.  
2. Air is required for burning, air pressure helps in sucking soft drinks, air is also used for drying wet clothes and foodgrains. We use water for

drinking, cooking, washing, cleaning and other purposes. It also houses many aquatic animals and plants. Water can also be used as a means of transport. Water stored in dams can be used to produce electricity.

3. The rocks are of three types :

#### **Igneous Rocks**

These rocks are formed from the solidification of molten mass called magma. These rocks mainly contain mica, quartz and feldspar as minerals. The examples of such rocks include granite and pumice.

#### **Sedimentary Rocks**

These rocks are made up of layers of sediment. They were formed millions of years ago. Such rocks include sandstone, limestone, shale and dolomite.

#### **Metamorphic Rocks**

The intense heat and pressure inside the Earth changes the igneous and sedimentary rocks into metamorphic rocks. The examples of such rocks include slate, marble, gneiss, quartzite and china clay.

4. Fossil fuels are fuel formed from the remains of dead plants and animals. For example, Coal, petroleum, etc.

5. Coal is obtained from coal mines and petroleum is obtained by drilling holes underground.

#### **Things To Do**

**Ans.** Do yourself.

## 12 Pollution



### Exercises

#### Section-I

#### **A. Oral Questions :**

**Ans.** 1. The four kinds of pollution are : Air pollution, water pollution, land pollution and noise pollution.

2. Exposure to loud noise over a long period of time can lead to hearing loss. It also leads to wildlife disturbances.

#### **B. Tick (✓) the correct answer :**

**Ans.** 1. (a) air pollution 2. (a) Cholera

3. (c) Polythene bag 4. (c) Soil

#### **C. Actions in the pictures below cause pollution. Identify the kind of pollution in each :**

**Ans.**



Land pollution



Water pollution



Noise pollution



Air pollution.



**D. Give two examples for each of the following :**

- Ans.** 1. Types of pollution : **Air pollution, Water pollution**  
2. Biodegradable wastes : **Fruits peels, Plants wastes**  
3. Non-biodegradable wastes : **Tin cans, Plastic bags**  
4. Causes of air pollution : **Smoke from the factories, Forest fires**  
5. Causes of noise pollution : **Loudspeaker, Bursting crackers**

**Section-II**

**A. Fill in the blanks :**

- Ans.** 1. Remains of plants and animals can be **decomposed**.  
2. Compost can be used as a **manure** to enrich soil.  
3. **Cholera** is a water-borne disease.  
4. Plastic bags are **non-biodegradable** things.  
5. **Acid** pollution causes acid rain.

**B. Write 'True' or 'False' :**

- Ans.** 1. True      2. False      3. True      4. True      5. False.

**C. Match the following :**

- Ans.** 1. Air pollution → (a) Coal and oil  
2. Water pollution → (b) Dumping of solid waste  
3. Land pollution → (c) Noise from vehicles  
4. Noise pollution → (d) Smoke from factories  
5. Acid pollution → (e) Domestic and industrial wastes in water

**D. Answer the following questions :**

- Ans.** 1. The addition of harmful substances to the environment is called pollution. All living things, both plants and animals, are dependent on each other through the food chain. Living things also depend on non-living things. Human beings have always been dependent on the environment. This dependence has increased with time. This is because, as population increases, the need for food, water, and housing too increases.
2. Biodegradable things decompose. These include leaves and other plant matter. These turn into compost which in turn can be used as manure to enrich the soil.

On the other hand, the things which cannot be decomposed are called non-biodegradable things. They cannot be broken down naturally. Some of the non-biodegradable things are plastic containers and bags, tin cans, bottles, etc.

**3. Air Pollution**

Air pollution is caused by automobiles, factories and industrial units which give out gases like carbon monoxide, sulphur dioxide, hydrogen sulphide, ammonia and oxides of nitrogen. Smoke from domestic fires, fumes from automobiles, pesticides and dust also pollute the atmosphere. Respiratory diseases are caused due to air pollution.

**Water Pollution**

Toxic chemicals and substances such as arsenic, mercury and lead which

enter water bodies cause water pollution. Arsenic poisoning causes black patches on skin. Death can result from mercury or lead poisoning. Both plant and animal life in water are adversely affected by these pollutants.

4. Ozone layer of the atmosphere prevents the harmful ultraviolet rays from the Sun reaching the Earth.
5. Emission of toxic gases from factories, vehicles and burning of fuels like coal and oil cause acid pollution. Oxides of sulphur and nitrogen on combining with the water in the upper atmosphere turn into acid. In turn, the acid falls to the Earth as acid rain.

Acid rain causes damage to soil, plants, historical monuments and other buildings.

### Things To Do

Ans. Do yourself.

## 13 Natural Disasters

Unit-VII : Natural Phenomena



### Exercises

#### Section-I

#### A. Oral Questions :

- Ans.
1. Earthquakes are recorded by an instrument called seismograph.
  2. A drought leads to a decrease in the amount of water available to plants and animals, causing their death. This leads to less food being available for people and animals. Removal of plant cover can lead to soil erosion.
  3. Some diseases that are spread during floods are cholera and jaundice.

#### B. Tick (✓) the correct answer :

- Ans.
- |                   |                         |
|-------------------|-------------------------|
| 1. (c) drought    | 2. (b) India            |
| 3. (a) seismology | 4. (c) both (a) and (b) |

#### C. Name a safety measure that you must take if the following disasters occur :

- Ans.
1. Earthquake : **Stay away from windows and appliances.**
  2. Tsunami : **Leave the beach or low-lying areas and go to higher ground.**
  3. Cyclone : **One should not go out unless there is an evacuation being organised.**
  4. Floods : **When flood water rise slowly, people should move themselves and some of their property to higher ground, or build barriers to keep the water out of their homes.**
  5. Drought : **During a drought, it is very important that everyone does their best to conserve water.**

## Section-II

### A. Fill in the blanks :

- Ans.** 1. A disaster is a sudden event that causes a lot of **damage**.  
2. A **tsunami** is a result of an earthquake at under sea.  
3. When a drought lasts for a long time, it can lead to a shortage of food called a **famine**.  
4. The layer below the crust consists of hot rocks called the **volcano**.  
5. The hollow top of the volcano that is shaped like a bowl is called **crater**.

### B. Write 'True' or 'False' :

- Ans.** 1. True      2. True      3. False      4. True      5. True.

### D. Answer the following questions :

- Ans.** 1. Natural disaster are natural events that cause damage to the life and property. Natural disasters are caused by extreme conditions of weather or changes that take place inside the Earth. Strong winds, heavy rainfall, extreme temperature, and changes inside the Earth can seriously damage environment, life and property and cause sufferings for a long period.
2. An under sea earthquake is caused waves to spread out in the ocean. As the waves approach a coast, they hit land under the water. This makes the waves much larger. Crest is known as the highest point of a wave.
3. An earthquake means a little ground shaking for a few seconds, and nothing very serious happens. But in the case of severe earthquakes, the tectonic plates that make-up the surface of the Earth, move apart, bump into each other, or slide under each other. This movement tears apart the surface of the Earth.
4. There are three types of volcanoes.  
Active volcanoes are those that have erupted in the last 10,000 years and can erupt again. Mt Etna of Italy is an active volcano.
5. Flood is the overflowing of river water on land. India is the most flood affected nation after Bangladesh. The main causes of floods are excessive rain, change of river course, melting of snow on mountains due to a long summer, landslide, and cyclone. A very high tide and tsunami can also cause floods. Floods sometimes also occur when dams break.
6. The most flood prone states of India are Uttar Pradesh, Bihar, Assam, West Bengal, Gujarat, Odisha, Andhra Pradesh, Madhya Pradesh, Maharashtra, Punjab and Jammu & Kashmir.

### Things To Do

- Ans.** Do yourself.

# 14 Shadows and Eclipses



## Exercises

### Section-I

#### A. Oral Questions :

- Ans.** 1. Ice and oiled paper.

2. Steel and wood.

**B. Tick (✓) the correct answer :**

**Ans.** 1. (a) glass

2. (a) steel.

### Section-II

**A. Fill in the blanks :**

**Ans.** 1. **Shadow** is formed when there is any obstruction in the path of light.

2. Darker shadow is called **umbra**.

3. Lighter shadow is called **penumbra**.

4. Things which do not pass light at all are called **opaque**.

**B. Answer the following questions :**

**Ans.** 1. Certain things produce light. For example, the Sun, the stars, fire, torch, electric bulbs, etc. give out light. These bodies are called luminous bodies.

2. Some objects allow the light to pass through them completely. Such objects are termed as transparent objects. For example, water, glass and clear plastic.

Some objects allow the light to pass through them partially. Such objects are termed as translucent objects. For example, ice, oiled paper, dark glasses, and coloured plastics.

Some objects do not allow light to pass through them. Such objects are termed as opaque objects. For example, steel, wood, rock, wall and cardboard.

3. A shadow is formed whenever there is obstruction in the path of light. The shadow is very long in the morning.

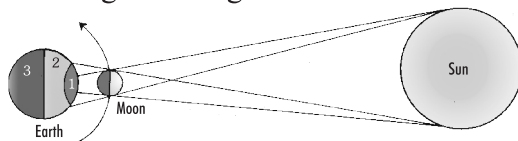
4. An eclipse is the partial or complete hiding of one heavenly body by another by its shadow. The eclipses are of two main kinds :

- Solar eclipse
- Lunar eclipse

5. **Solar Eclipse**

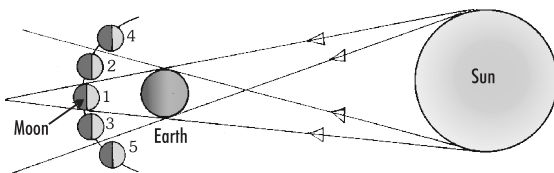
Solar eclipse occurs when the moon comes between the Sun and the Earth. The moon being opaque blocks out the light coming from the Sun.

Total eclipse occurs when whole of the Sun's light is blocked. While when only a part of the Sun's light is blocked out, partial eclipse occurs.



**Lunar Eclipse :**

Lunar eclipse occurs when the Earth lies in between the Sun and the moon. Thus, the shadow of the Earth falls on the moon. Lunar eclipse too can be partial or total.



**Things To Do**

**Ans.** Do yourself.



## Exercises

### Section-I

#### A. Oral Questions :

- Ans. 1. Milky Way is the name of our galaxy.  
2. The three parts of the Earth are the crust, the mantle and the core.  
3. The Sun is our nearest star.

#### B. Tick (✓) the correct answer :

- Ans. 1. (c) Solar system                                      2. (c) iron  
3. (b) artificial satellites                                      4. (c) Andromeda

#### C. Unscramble the given words :

- Ans. 1. SUNURA                                      :    URANUS  
2. RUNATS    :    SATURN  
3. LAROSMETSYS                                      :    SOLARSYSTEM  
4. CURMERY    :    MERCURY  
5. LITESATEL    :    SATELLITE

#### D. Write one word for the following :

- Ans. 1. The outermost layer of the Earth                                      :    The Crust  
2. The layer that forms the centre of the Earth                                      :    The Core  
3. The thin layer of atmosphere around the Sun                                      :    Corona  
4. The natural satellite of the Earth                                      :    The Moon  
5. Deep holes on the surface of the moon                                      :    Craters

### Section-II

#### A. Fill in the blanks :

- Ans. 1. The Sun and the celestial bodies that orbit it form the **solar system**.  
2. The methane gas in the atmosphere of **Uranus** gives it a blue-green colour.  
3. The inner part of the core of the Earth is **the Crust**.  
4. Sun is also called **Medium star**.  
5. Changing shapes of the moon are called **phases**.  
6. The moon revolves around the **Earth** and the Earth revolves around the **Sun**.  
7. **Neil Armstrong** was the first man to step on the moon.

#### B. Write 'True' or 'False' :

- Ans. 1. True                      2. False                      3. False                      4. False                      5. False.

#### C. Match the following :

- Ans. 1. Craters → (a) Venus  
2. Corona → (b) Earth  
3. Red planet → (c) Mars  
4. Blue Planet → (d) Sun  
5. Morning Star → (e) Moon
-

**D. Answer the following questions :**

**Ans.** 1. The Sun and the celestial bodies that revolve around it form the solar system.

2. The surface of the moon is covered with craters, mountains, and valleys. Craters are deep holes that have been made when solid bodies called meteorites crashed into the moon's surface. Lava that flowed from these craters covered the earlier craters and made them look smooth and dark.

3. Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune.

4. **Structure of the Earth**

The structure can be divided into three parts.

- The crust
- The mantle
- The core

**The Crust**

It is the outermost layer of the Earth on which we live. The high mountains, deep valleys, plains, and the deep oceans make the crust. Plants, animals, and people live on the crust. The crust is the thinnest layer. At its thickest the crust is about 31 kilometres thick. Silicon, aluminium, calcium, sodium and potassium are found in the crust.

**The Mantle**

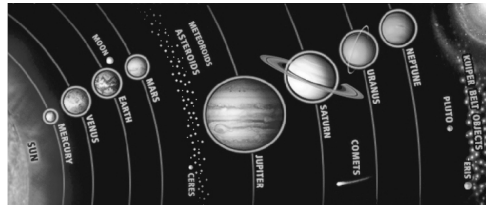
Rocky mantle lies beneath the crust. The upper part of the mantle is hard and it merges with the crust. The lower part of the mantle is hot and molten like honey. When a volcano erupts, magma comes out from this layer. It is about 2900 kilometres thick. Silicon, oxygen, magnesium, iron, aluminium, and calcium can be found in the mantle.

**The Core**

The core is the centre of the Earth. It is about 6,900 kilometres across. The core is very hot. It has two parts—the outer core and the inner core. The outer core is in the liquid state which contains iron and nickel. The inner core is like a solid ball made of iron.

5. A comet is a large lump of frozen gases mixed with bits of rocks and dust. When it comes close to the Sun, the solar wind from the Sun blows particles from the comet into a tail which always points away from the Sun. The famous comet is Halley's comet.

6. When viewed from the Earth, the moon looks different at different times. These varying appearances are called phases. Sometimes the moon looks like a full circle. At other times it appears as only a thin slice or looks completely dark. However, the moon's shape does not change it just looks that way from the Earth. The moon reflects light from the Sun. As the moon orbits the Earth, the Sun shines on different parts of the moon. This causes different parts to be visible from the Earth.



**Things To Do**

**Ans.** Do yourself.