

# Sense & Science



**5**  
GRADE



# 1. The World of Plants

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## Exercise

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- A.** 1. (d)      2. (c)      3. (b)      4. (d)      5. (c)  
6. (b)
- B.** 1. germination    2. Air                      3. wind                      4. stem cuttings
- C.** 1. ground nut    2. eyes                      3. erosion                      4. one  
5. rabi
- D.** 1. jowar    2. cotton    3. peas                      4. carrot    5. brinjal
- E.** 1. roots    4. stem    2. seeds                      5. stem    3. leaf  
6. stem
- F.** 1. The outer covering of a seed called seed coat.  
2. Seeds of some plant have one seed leaf, they are called monocot seeds.  
3. Germination is the development of a seed into a seedling.  
4. The process by which seeds travel away are scattered away from the parent plant is called seed dispersal.  
5. Kharif crops are grown from June to October.  
6. Pesticides are chemicals that are sprayed to protect the crops from being harmed by pests.
- G.** 1. Plants are useful to us because they provide us food. Cereals, pulses, vegetables and fruits are obtained from plants. Sugar and oil too come from plants. Plants provide us with tea, coffee, rubber, wood, gum and fibre as well. Plants supply us with life-giving oxygen. They also help to reduce soil erosion.  
2. Seed coat, endosperm and embryo. Labelled diagram-Draw it yourself.  
3. Air, moisture (water) and warmth (sunlight) are the conditions necessary for germination.  
4. **Agents of Dispersal :** Dispersal is carried out by the wind, water, animals and by the explosion of fruits. The special structures of certain seeds and fruits help in their dispersal.  
**Wind :** Seeds of cotton, madar and hiptage are light and have hair or wings, thus enabling them to be easily carried by the wind.  
**Water :** The lotus fruit has a spongy part while the coconut has a fibrous outer covering which enable them to float on water.  
**Animals :** Human beings and animals eat fruits like mangoes and cherries and throw away their seeds. Some seeds have hooks or spines. They stick to the hairy skin of animals and are carried away. Some seeds are swallown by birds and come out unchanged in their droppings.

**Explosion :** Some fruits like peas in a pod, burst open or explode when dry. The force of explosion helps the seeds to scatter.

5. To feed the entire population of a country, plants need to be grown on a large scale. This practice of growing plants on a large scale is called agriculture.

H. Do it yourself.

I.

D	I	S	P	E	R	S	A	L	M
C	O	T	Y	L	E	D	O	N	A
I	R	R	I	G	A	T	I	O	N
K	H	A	R	I	F	O	O	D	U
A	N	B	O	S	H	O	O	T	R
I	O	L	O	S	Y	R	I	C	E
R	W	A	T	E	R	J	U	T	E

J. Do it yourself.

- K. 1. (c)      2. (a)      3. (f)      4. (e)      5. (b)  
6. (d)

L. Do it yourself.

M. Do it yourself.

N. Do it yourself.

O. Do it yourself.

P. Do it yourself.



## 2. Animal World

### Exercise

- A. 1. (c)      2. (d)      3. (d)      4. (d)      5. (d)  
6. (a)
- B. 1. Amoeba      2. gills      3. Birds      4. four limbs  
5. Turtles      6. The emu
- C. 1. surroundings      2. heemoglobin  
3. Migration      4. Lungs      5. Insects
- D. Do it yourself.
- E. Squirrel, Rabbit, Mouse  
Emu, Ostrich, Kiwi  
Snake, Lizard, Turtles
- F. 1. Animals need oxygen to survive.  
2. Animals move to search for food, protect themselves and their babies from being hunted and build resting and breeding places.  
3. A baby frog or a tadpole breathes through its gills while an adult frog breathes through its lungs on land and through its moist skin in water.

4. Herbivores like cows, buffaloes, goats and giraffes have sharp front teeth for biting and strong broad teeth for chewing.
  5. Animals migrate to escape harsh weather, to search for food and to reach their breeding grounds.
- G.**
1. Do it yourself.
  2. Insect breathe through small, paired holes called spiracles. The spiracles lead to air tubes which form a network that reaches every tissue of the body. Air enters the body through this network. The body tissues absorb oxygen and give out carbon dioxide which is expelled from the body. Whereas fish breathe through gills. These special organs are richly supplied with blood vessels. They absorb oxygen from the water and release carbon dioxide from the blood.
  3. Fish have fins for swimming. The two paired fins are used to move forward, the unpaired fin maintains balance while the tail fin helps to change the direction of movement. Penguins use their two forelimbs as flippers to push water and swim. Turtles have four paddle-like limbs to push water back and swim. Frogs have webbed feet to swim.
  4. Insects are six-legged creatures who use their legs for movement. Ants and cockroaches crawl on their legs. A grasshopper uses its long hindlegs to hop and move. Water insects such as water boatmen use their legs as oars for swimming. Some insects have one or two pairs of wings to fly. These wings are made of tiny coloured scales. They move with the help of their chest muscles. Insects such as lice and bedbugs do not have wings. They cannot fly but move by crawling.
  5. Snakes are reptiles which do not have legs. They have scales or plates on the underside of their bodies. These plates are attached to their ribs. When snakes move, these plates act like feet and the ribs act like legs. Besides plates, they also have strong muscles and a flexible backbone used to move forward.
- H.** Do it yourself.                      **I.** Do it yourself.  
**J.** Do it yourself.                      **K.** Do it yourself.  
**L.** Do it yourself.                      **M.** Do it yourself.



### 3. Food for Good Health

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#### Exercise

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- A.** 1. (c)      2. (b)      3. (a)      4. (c)      5. (c)  
**B.** 1. scurvy    2. iodine    3. vitamin B1      4. Rickets  
**C.** 1. Vitamin C scurvy bleeding gums  
2. Vitamin A night blindness patient cannot see in dim light





- (ii) The floor and the walls of the room must be cleaned with a disinfectant.
5. Germs in milk are killed by pasteurization. In this process, the milk is heated at a high temperature for at least half an hour and then cooled down quickly. This kills the harmful bacteria.
- H.** Do it yourself.                      **I.** Do it yourself.  
**J.** Do it yourself.                      **K.** Do it yourself.  
**L.** Do it yourself.                      **M.** Do it yourself.  
**N.** Do it yourself.                      **O.** Do it yourself.



## 4. Human Skeleton

### Exercise

- A.** 1. (d)      2. (c)      3. (d)      4. (b)
- B.** 1. organ system      2. 22      3. vertebrae
- C.** 1. internal    2. spinal    3. thigh    4. ligaments    5. involuntary
- D.** 1. (b)      2. (d)      3. (a)      4. (c)
- E.** 1. The meeting point of two bones is called a joint.  
 2. Hinge joint, Ball and socket joint, Pivot joint, Gliding joint.  
 3. There are 14 bones in the facial region and of these, only the lower jaw is movable. It enables us to eat and talk.  
 4. The long bones of the skeleton are hollow and are filled with a soft, fatty substance called bone marrow.  
 5. Muscles are attached to the bones by strong fibres are called tendons.
- F.** 1. Our skeleton helps to provide support, strength and shape to the body and encloses and protects all the internal organs.  
 2. Muscles produce movement in the body by pulling on the bones. When a muscle contracts, the bones come close to each other. When the knee bends, one muscle contracts and gets shorter, while the other one relaxes. The reverse happens when the leg stretches. Well-developed muscles give a graceful appearance to the body.  
 3. Some muscles like the ones attached to our skeleton are under our control, so they are called voluntary muscles.  
 Muscles which are not under our control are called involuntary muscles. They control actions like the flow of blood, the movement of food in the alimentary canal and the movement of the eye muscles.  
 4. To keep the muscles in good shape, we must exercise, maintain a good posture while we sit or stand or walk.

- G. Do it yourself.                      H. Do it yourself.  
 I. Do it yourself.                      J. Do it yourself.  
 K. Do it yourself.                      L. Do it yourself.



## 5. Nervous System

### Exercise

- A. 1. (b)      2. (d)      3. (b)      4. (a)
- B. 1. medulla 2. oxygen 3. reflex
- C. 1. F      2. T      3. T      4. T      5. F  
 6. T      7. T
- D. 1. sense organs      2. heart      3. tongue      4. feel
- E. 1. The brain requires a continuous supply of blood and oxygen. A person will faint if his heart does not send enough blood to his brain. We must get enough sleep to rest our brain.  
 2. Sensory nerves are the nerves which carry messages from the sense organs to the brain or the spinal cord.  
 3. Our brain is protected by a hard, bony skull. The space between the skull and the brain and also the inside of brain, is filled with a clear fluid. It serves as a cushion against jerks and injuries.  
 4. If we clean our ears with a pointed object like a matchstick or a hairpin as it may injure the eardrum inside.  
 5. Some of our actions are automatic as we do not think before doing them. These are called reflex actions.
- F. 1. The nervous system comprises of the brain, the spinal cord and the nerves.  
 2. The different parts of the brain are cerebrum, cerebellum and medulla.  
 Cerebrum is the largest part of the brain. Its dome-shaped surface is covered with deep ridges and grooves. It controls the working of our eyes, ears, nose and tongue. It also controls our voice. It is the centre of intelligence and helps us to think, learn, remember and recall.  
 Cerebellum lies below the cerebrum. It coordinates the actions of the muscles to make them work together. It helps us to maintain the balance of our body and keeps us in an upright posture. Our body movements become jerky if the cerebellum does not function properly.  
 The bulb-shaped medulla lies beneath the cerebellum. It connects the brain to the spinal cord. It controls involuntary actions like the movements of the lungs and the heart. It is active even when we are asleep.

3. Nerves are long thread-like structures that carry messages between the brain and various body parts.

Functions of Nerves functions of various nerves are :

**Sensory Nerves :** Sensory nerves are the nerves which carry messages from the sense organs to the brain or the spinal cord.

**Motor Nerves :** Motor nerves are the nerves which carry 'orders' from the brain or the spinal cord to the muscles or glands.

**Mixed Nerves :** Mixed nerves are the nerves which carry messages to the brain as well as bring orders from the brain.

4. When a cold blocks our nose, the food does not taste so good.
5. To take care of the skin, we should follow these rules :
- (i) Use soap and water to remove dirt and sweat from the skin.
  - (ii) Dry yourself thoroughly after bathing. Wear clean and comfortable clothes. Clothes should be loose enough for the passage of fresh air when the weather is warm.
  - (iii) A scratch or cut on the skin should be treated with an antiseptic lotion to prevent infection.

G. Do it yourself.

H. Do it yourself.

I. Do it yourself.



## 6. Safety First

### Exercise

- A. 1. (c)      2. (c)      3. (b)      4. (c)
- B. 1. an antiseptic lotion    2. splint    3. fracture    4. splint
- C. 1. tetanus    2. Sprain    3. splint    4. water    5. medicines
- D. 1. A tourniquet is a tight bandage that is used for stopping the flow of blood from a wound.
2. Any easily available article like sheets of newspaper, magazines, a piece of cardboard or a pillow can be used as a splint in case of a fracture.
3. A sling, made from a triangular piece of cloth, can also be used for support.
4. Rabies or hydrophobia is caused by a virus carried by dogs and cats.
5. If a person's clothes catch fire :
- (i) do not let him run around in panic as it will fan the flames.
  - (ii) make him roll on the ground.
  - (iii) cover him with a thick blanket. This may put out the fire by cutting off oxygen supply.

- E. 1. First aid in case of minor wound :**
- (i) Wash your hands before giving first aid as germs from dirty hands may infect the wound.
  - (ii) Wash away all dirt around the wound.
  - (iii) Clean the affected area with cotton wool dipped in antiseptic lotion.
  - (iv) Put a thick pad of sterile gauze or cotton wool on the wound and press it with your thumb and fingers. This will stop the bleeding.
- 2. In case of nose bleeding we should give first aid like :**
- (i) Make the patient sit upright in a comfortable position with his head held back.
  - (ii) Firmly press the bleeding side of the nose.
  - (iii) Keep wet cloth or an ice-pack on the nose and the head of the patient.
  - (iv) Ask the patient to breathe through his mouth. He should not blow his nose.
  - (v) A little bit of bleeding from the nose is harmless but if the bleeding is heavy, call the doctor.
3. A splint is a supportive device used to keep in place any suspected fracture in one's arm or leg. Splint is used to provide support of the fractured link.
4. We should not prick blisters because an open blister becomes an open wound and may get infected.
5. If a fire has been caused by defective wiring or an electric gadget :
- (i) do not throw water on it. This can cause electrocution. Turn off the main switch immediately.
  - (ii) do use the fire by throwing sand.
  - (iii) use a fire extinguisher.
6. First aid should be given for an animal bite :
- (i) Dogs, cats, wolves and bats are known to carry the rabies virus. Wash the wound with soap and water to remove germs, as the rabies or hydrophobia causing virus may be carried in the saliva of an infected animal.
  - (ii) Apply an antiseptic lotion to prevent infection. Wrap the wound with a sterile gauze and take the victim to a doctor.
- F. Do it yourself.**
- G. Do it yourself.**
- H. Do it yourself.**
- I. Do it yourself.**



## 7. Houses Around Us

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### Exercise

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- A. 1. (d)      2. (d)      3. (b)      4. (a)
- B. 1. hot      2. wood      3. *Kachcha*
- C. 1. T      2. F      3. F      4. T      5. T
- D. 1. Three main factors determine the types of houses people build. These factors are :
- (i) the climate of the place,
  - (ii) the materials to be used and
  - (iii) the available budget.
2. Brick, wood, concrete, steel, cement and glass.
3. Before building a house, an architect makes a plan of the house.
4. Three characteristics of a good house are as follows :
- (i) The walls of the house must be strong, well plastered and damp-proof.
  - (ii) The floor of the house must be levelled and made smooth.
  - (iii) Door and windows must be in a direction such that fresh air and sunlight enter every room. They must have wire-netting so that flies and mosquitoes cannot get in.
- E. 1. In places with hot climate, houses are made with thick walls and flat roofs. Thick walls keep the inside of the house cool while flat roofs are used by people for sleeping outdoors.
2. In places where it rains a lot, houses are often built on stilts. These houses on raised platform, built a few feet above the ground, remain safe from floods. Their sloping roofs let the rainwater flow down easily.
3. Houses in hilly areas are made of bamboo and wood while houses in plain areas are made of bricks, steel, glass and concrete.
- F. Do it yourself.      G. Do it yourself.
- H. Do it yourself.      I. Do it yourself.
- J. Do it yourself.      K. Do it yourself.



## 8. Solids, Liquids and Gases

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### Exercise

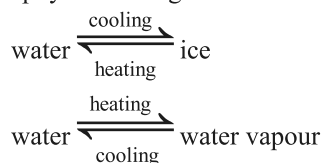
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- A. 1. (c)      2. (c)      3. (a)      4. (c)      5. (d)
- B. 1. Matter      2. Atoms      3. gases      4. miscible

- C. 1. (f)      2. (e)      3. (d)      4. (c)      5. (b)  
6. (a)
- D. 1. Anything that occupies space and has weight is called matter.  
2. All matter is made up of tiny units that cannot be seen by the naked eye. These tiny units are called molecules.  
3. A molecule is made up of still smaller units called atoms.  
4. Solids : Salt, Sugar  
Liquids : Alcohol, Glycerine  
Gases : Oxygen, Nitrogen
- E. 1. In solids, the molecules are packed very closely to each other. They attract each other with great force. So, a solid is hard, rigid and has a definite shape and volume.  
2. In liquids, the molecules are packed less closely. The attraction between the molecules in liquids is less as compared to that in solids and they can move around freely. That is why liquids can flow.  
3. Difference between liquid and gas

S.N.	Liquid	Gas
(i)	Molecules are packed very closely to each other.	Molecules are packed less closely.
(ii)	Definite shape and volume.	Definite volume but no definite shape.

4. The two liquids mix together and appear as one liquid. So, we say that these two liquids have dissolved in each other. Hence, they are said to be miscible.  
5. A physical change is a temporary change which can be reversed. Some examples of physical changes are as follows :



6. In a chemical change, heating or cooling leads to a permanent change in the state of matter. A new substance is formed and the old substance cannot be got back. For example, when a piece of paper is burnt, it changes into ash and rusting of iron.  
7. The three characteristic of a chemical change are as follows :  
(i) They are permanent.  
(ii) They can not be reversed.  
(iii) They result in the formation of new substances.

- F. Do it yourself.                      G. Do it yourself.  
H. Do it yourself.                      I. Do it yourself.  
J. Do it yourself.                      K. Do it yourself.  
L. Do it yourself.



## 9. Force and Energy

### Exercise

- A. 1. (b)                      2. (c)                      3. (a)                      4. (b)
- B. 1. first-class      2. pulley                      3. direction
- C. 1. gravitational      2. direction                      3. single applied  
4. slope                      5. motion
- D. 1. elastic                      2. easy                      3. fixed                      4. renewable  
5. frictional
- E. 1. Different types of forces are muscular force, gravitational force, frictional force, elastic force, mechanical force and buoyant force.  
2. Some tools which make our work easier and faster are called simple machines.  
3. Geothermal energy is a renewable energy source because the water is replenished by rainfall and the heat is continuously produced inside the earth.  
4. Most of the heat energy used by us comes from burning fuels like coal, kerosene and petrol.  
5. Mechanical energy, solar energy, geothermal energy and wind energy.
- F. 1. Levers are simple machines that make work easier.  
Levers are classified according to the position of the fulcrum, the load and the effort.  
When the fulcrum is in between the load and the effort, it is a first-class lever.  
When the load is in between the fulcrum and the effort, it is a second-class lever.  
When the effort is in between the fulcrum and the load, it is a third-class lever.
2. An inclined plane is a slope which makes work easier. When people have to load or unload a truck, they use a wooden plank as an inclined plane. In hospitals and other buildings, inclined planes called ramps are provided next to staircases. These help to push up wheelchairs. In schools, young children love to 'ride' down a slide. It is also an inclined plane.



3. A screw is better than a nail because when we join things together with a screw, they are held together through a longer distance and thus cannot be forced apart easily. On the other hand, when we join things with a nail, they are held together only for a short distance, that is through the length of the nail.
  4. Energy can neither be created nor destroyed. It can only be changed from one form to another. The total energy of an object never decreases or increases and remains the same.
  5. Wind energy is a renewable source of energy produced from wind whereas heat energy is a non-renewable source of energy that is produced from burning of fossil fuels. So, wind energy is more environment friendly.
- G. Do it yourself.                      H. Do it yourself.  
 I. Do it yourself.                        J. Do it yourself.  
 K. Do it yourself.                        L. Do it yourself.



## 10. Air and Water

### Exercise

- A. 1. (c)      2. (b)      3. (d)      4. (d)      5. (a)
- B. 1. troposphere      2. Argon      3. Humidity 4. a higher  
 5. all directions
- C. 1. gravity    2. soil      3. Neon      4. exhaled    5. humid  
 6. lesser    7. solution    8. Distilled
- D. 1. Oxygen, Carbondioxide, Nitrogen and Argon.  
 2. Water vapour is formed because of the evaporation of water from the surface of water bodies like ponds, lakes, rivers and seas due to the sun's heat.  
 3. We should purify drinking water because for healthy life, clean water is necessary for drinking and cooking. Impure water contains many disease-causing germs like the ones of cholera, dysentery and jaundice.  
 4. Sedimentation, filtration and chlorination are involved in the treatment of the town water supply.
- E. 1. Air is the most important component for the survival of life on Earth. We breathe in air. The oxygen present in air is required for respiration of living beings.  
 2. Stratosphere is a very important layer of atmosphere because jet aircrafts fly in this layer. Ozone gas is present in this layer. It absorbs harmful and cancer-causing ultraviolet rays from the sun.

3. **Sedimentation and decantation** : To separate insoluble impurities, let the water stand for some time. Impurities heavier than water will settle at the bottom of the water leaving it clear. This is called sedimentation.
4. Distilled water is the purest form of water. It does not contain any germs or impurities. The impurities that were dissolved in the water are left behind in the heating flask. This water is mainly used in car batteries, scientific experiments and in medicines.

- F. Do it yourself.                      G. Do it yourself.  
H. Do it yourself.                      I. Do it yourself.  
J. Do it yourself.



## 11.                      Soil Erosion and Conservation

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### Exercise

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- A. 1. (a)      2. (d)      3. (c)      4. (b)      5. (a)  
B. 1. soil      2. Bihar      3. floods  
C. 1. hill      2. Natural      3. roots      4. manure  
D. 1. (e)      2. (c)      3. (d)      4. (b)      5. (a)  
E. 1. Soil erosion is the condition of wearing off or carrying away of soil by the action of water or wind.  
2. The protection of soil against erosion is called soil conservation.  
3. Afforestation is the process of planting trees and tree saplings on barren land with the aim of creating a forest.  
4. The three Rs stands for Reduce, Reuse and Recycle.  
F. 1. Soil is the uppermost layer of the earth. All the plants, which provide food to all living things on this planet, grow in this layer only. Thus, soil is the foundation of all life on earth.  
2. The sun heated the rocks, the rain made them cold and the wind blew over them. This went on for millions of years. As a result, the rocks broke into small pieces. These small pieces broke into still further smaller pieces and were carried around by wind and water. They rubbed against each other till they became very tiny particles. Millions of years were taken by these tiny particles to change into loose material called soil.  
3. Water is an agent of soil erosion because forcefull and running water removes the top soil.

4. A river flowing down the hill carries a lot of mud. It slows down as it reaches the plains. It leaves part of the soil on its way. With the passage of time, the soil accumulates and makes the river change its course.
5. Humans are responsible for soil erosion as follows :
  - (i) Due to cutting down trees the roots of the tree that hold the soil together are destroyed hence the soil becomes loose and is easily eroded.
  - (ii) Ploughing of hill slopes and overgrazing by cattle too cause soil erosion.
6. Soil is conserved by growing cover crops in plains, making terraces on hills and building embankments along river banks.

**G.** Do it yourself.

**H.** Do it yourself.

**I.** Do it yourself.

**J.** Do it yourself.

**K.** Do it yourself.

**L.** Do it yourself.



## 12. Rocks and Minerals

### Exercise

- A.** 1. (c)      2. (b)      3. (c)      4. (c)      5. (d)
- B.** 1. platinum      2. Coal      3. black gold
- C.** 1. T      2. F      3. F      4. T      5. F
- D.** 1. Rocks are made of minerals.  
2. Minerals are underground resources provided to us by nature.  
3. Slate is mostly used to make slates and blackboards.  
4. Coal and petroleum are valuable underground resources.  
5. In India, coal mines are located in Dhanbad (Jharkhand), Raniganj (West Bengal).
- E.** 1. Igneous rocks are formed by the cooling and hardening of hot liquid rock materials called magma.  
2. Useful metals can be profitably obtained from metallic minerals called ores. Some such ores as haematite, bauxite, pyrite.  
3. Coal is important to humans because it is used as a fuel :
  - \* for cooking,
  - \* for heating homes and buildings,
  - \* for producing electricity in power plants,
  - \* in steam engines, and
  - \* in blast furnaces in the steel industry.
 Petroleum is important to humans because it is mainly used as fuel in different forms. It is used for making lubricating oil, printing ink and medicines. It is also used for dry-cleaning.

4. Petroleum is also known as black gold because when crude oil is extracted from the land it is black in colour.
5. Limestone is used for making bricks and glass.

**F.** Do it yourself.

**G.** Do it yourself.

**H.** **ACROSS** (→)

2. **GRANITE**

4. **MINERAL**

6. **SHALE**

7. **COAL**

9. **PETROLEUM**

10. **ASSAM**

**DOWN** (↓)

1. **MAGMA**

2. **GRANITE**

3. **MARBLE**

5. **LAVA**

6. **SLATE**

8. **COPPER**

9. **PUMICA**

**I.** Do it yourself.

**J.** Do it yourself.

**K.** Do it yourself.

**L.** Do it yourself.



## 13. The Moon : A Natural Satellite

### Exercise

- A.** 1. (c)    2. (d)    3. (d)    4. (b)    5. (b)
- B.** 1. satellite    2. meteorites    3. moon
- C.** 1. rough    2. Edwin Aldrin    3. lunar    4. gravitational  
5. communication
- D.** 1. Major Yuri Gagarin  
2. Valentina Tereshkova of U.S.S.R. was the first woman to go into space.  
3. Sputnik 1  
4. Rakesh Sharma  
5. Three lunar missions have been launched by India till now.  
6. Neil Armstrong  
7. The space telescope called hubble telescope.
- E.** 1. Moon does not have any light of its own but shines because it reflects the light of the sun falling on it.  
2. The atmosphere of earth protects life on earth by creating pressure allowing for liquid water to exist on the earth's surface, absorbing

ultraviolet solar radiation, warming the surface through heat retention and reducing temperature extremes between day and night.

3. Although the moon's gravity is very weak, it has a noticeable effect on the earth. It pulls the water of the seas and oceans of the earth and cause tides.
4. Just as the earth casts a shadow on the moon, the moon also casts a shadow on the earth. When people in the shadow of the moon cannot see the sun, it is called an eclipse of the sun or a solar eclipse.
5. When the moon is only partly hidden by the dark shadow of earth, it is partial lunar eclipse.
6. Man-made objects which revolve around the earth just as the moon does are called artificial satellites.

#### **Uses of Artificial Satellites**

A rocket is used to launch an artificial satellite into space. Initially, artificial satellites were designed for scientific research and to provide valuable information about the atmosphere surrounding the earth.

Weather satellites take pictures of the movements of clouds and help to forecast weather. They can give us early warnings of dangerous storms or cyclones building over the seas, forest fires, floods or moving glaciers. Satellites which send messages from one country to another are called communication satellites. They send signals of television programmes from one country to another. Astronomers use satellites to take special measurements of the solar system, stars and galaxies.

#### **7. Indian Lunar Missions**

Chandrayaan-1, Chandrayaan-2 and Chandrayaan-3 are India's lunar exploration missions which were developed and launched by the Indian space Research Organisation (ISRO).

Chandrayaan-1, the first Indian lunar probe which included an orbiter and an impactor, was launched by ISRO in October 2008, and operated until August 2009. With this mission, India became the fifth country in the world to reach the lunar surface.

Chandrayaan-2, consisting of a lunar orbiter, the Vikram lander and the Pragyan rover, was launched in July 2019 but the lander crashed while attempting to land in September 2019.

Chandrayaan-3, consisting of Vikram lunar lander and Pragyan lunar rover, was launched on 14 July 2023. The lander touched down near the lunar South Pole on 23 August. With this, India became the fourth country to successfully land on the Moon, and the first to do so near the lunar South Pole.

**F.** Do it yourself.

**H.** Do it yourself.

**J.** Do it yourself.

**G.** Do it yourself.

**I.** Do it yourself.



# 14. Changes in the Environment

## Exercise

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- A.** 1. (b)      2. (b)      3. (c)      4. (d)
- B.** 1. glasshouse      2. Water vapour      3. refrigerators
- C.** 1. (a)      2. (c)      3. (d)      4. (e)      5. (b)
- D.** 1. A greenhouse is a glasshouse where plants are grown especially during winter.
2. Carbon dioxide, nitrous oxide, methane and water vapour are the green-house gases.
3. Carbon dioxide, nitrous oxide, methane and water vapour trap energy from the sun. Since these gases do not let the heat to escape back into space, it warms up the earth. So these gases are called greenhouse gases.
4. Greenhouse gases in the atmosphere trap the heat of the sun and lead to a rise in temperature on the earth. It is called global warming.
- E.** 1. Pollution is the mixing of harmful substances into land, air and water. Pollution can be reduced if :
- (i) tall chimneys, fitted with filters are used in factories to let out smoke and gases.
- (ii) waste is treated and made harmless before being dumped into water bodies.
2. Following steps should be taken by the government to prevent pollution :
- \* Awareness programs should be conducted in schools, offices, etc.
  - \* Discourage citizen to participate in waste management.
  - \* Citizens should be used to segregate waste.
3. Used tyres can be cut into shapes of climbing frames, swing seats and rubber slippers or *chappals*. Rubber tubes are also used to make jewellery items like beads, rings and bracelets. Old truck tyres are recycled to make diary covers, pencil pouches and playground surfaces.
4. Metal objects thrown away by people can be reused. People buy pipes, rods and gates from scrap dealers from reuse as they are cheaper. Left over metal sheets with holes are used to make racks and cages. People buy and melt scrap pieces to make frames, decoration pieces and jewellery. Every new car has some recycled part of an old car. Empty aluminium cans are cleaned, shredded, melted and reshaped into new cans for reuse.

- F. Do it yourself.                      G. Do it yourself.  
H. Do it yourself.                      I. Do it yourself.  
J. Do it yourself.                      K. Do it yourself.  
L. Do it yourself.



## 15. Natural Disasters

### Exercise

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- A. 1. (d)                      2. (c)                      3. (d)                      4. (c)
- B. 1. plates                      2. volcanoes                      3. earthquake                      4. lava
- C. 1. T                      2. T                      3. F                      4. T                      5. F
- D. 1. An earthquake is the sudden shaking of the ground caused by movements or vibrations deep inside the earth.  
2. When lava is below the earth's surface, it is called magma.  
3. Tidal waves travel very fast towards the seashore. These are called tsunamis.  
4. Barren Island
- E. 1. The seismograph consists of a frame, a spring, a stone, a drum, paper and a pen. As the earth trembles, the spring moves the pen over the paper wrapped on the drum. This reading or pattern obtained on the paper is called a seismogram.  
2. Earthquake affect people in many ways, such as loss of life, structures break down, roads crack and communication system collapse.  
3. Volcanoes occur when lava from deep within the earth rushes out through weak spots in the crust. Volcanoes may be active, dormant or extinct.  
4. Tsunami affect humans in many ways, such as loss of life, destruction of houses, ports and seashore.  
5. If a particular region receives no rain or less rain than normal for a long period, it is said to be affected by drought. Besides the lack of rainfall, hot dry winds, very high temperature and evaporation of moisture from the ground also lead to conditions of drought.  
6. People suffer in drought affected areas. The lack of rain and high temperature causes wells, lakes and streams to dry up resulting in a shortage of drinking water and for various other purpose. Crops suffered for this. Animals also do not get drinking water which cause them to die.
- F. Do it yourself.

G.

V	O	L	C	A	N	O	T	E
T	I	D	A	L	W	A	V	A
S	A	R	M	A	G	M	A	R
U	D	O	R	V	C	O	C	T
N	O	U	I	A	R	U	O	H
A	R	G	C	J	U	N	R	Q
M	M	H	H	D	S	T	E	U
I	E	T	T	C	T	E	N	A
A	N	N	E	A	R	T	H	K
S	T	O	R	M	S	N	W	E

H. Do it yourself.

I. Do it yourself.

J. Do it yourself.



## Half-Yearly Model Test Paper

(Based on Lessons 1 to 7)

- A. 1. (c)    2. (b)    3. (c)    4. (c)    5. (a)
- B. 1. internal    2. spinal    3. thigh    4. ligaments    5. involuntary
- C. 1. T    2. F    3. F    4. T    5. T
- D. 1. Houseflies sit on garbage bins. They pick up germs from here. When they sit on food items, the germs get transferred to the food items. When we eat these food items, we get various diseases.
2. Following precautions are necessary to check the spread of malaria :
- (i) Apply mosquito repellent to exposed skin.
  - (ii) Drape mosquito netting over beds.
  - (iii) Put wire screens on windows and doors.
  - (iv) To stop the breeding of mosquitoes, water must not be allowed to collect in puddles and stagnate as mosquitoes lay eggs in such water. To destroy mosquito larvae, the surface of water in tanks and ponds must be sprayed with kerosene oil.
3. Muscles produce movement in the body by pulling on the bones. When a muscle contracts, the bones come close to each other. When the knee bends, one muscle contracts and gets shorter, while the other one relaxes. The reverse happens when the leg stretches. Well-developed muscles give a graceful appearance to the body.
4. Some muscles like the ones attached to our skeleton are under our control, so they are called voluntary muscles. Muscles which are not under our control are called involuntary muscles. They control actions like the flow of blood, the movement of food in the alimentary canal and the movement of the eye muscles.



5. To keep the muscles in good shape, we must exercise, maintain a good posture while we sit or stand or walk.



## Annual Model Test Paper

(Based on Lessons 8 to 15)

- A.** 1. (a)      2. (d)      3. (b)      4. (c)      5. (c)
- B.** 1. gravitational      2. direction      3. Single applied  
4. slope      5. motion
- C.** 1. (a)      2. (c)      3. (d)      4. (e)      5. (b)
- D.** 1. Oxygen, Carbondioxide, Nitrogen and Argon.  
2. Water vapour is formed because of the evaporation of water from the surface of water bodies like ponds, lakes, rivers and seas due to the sun's heat.  
3. We should purify drinking water because for healthy life, clean water is necessary for drinking and cooking. Impure water contains many disease-causing germs like the ones of cholera, dysentery and jaundice.  
4. Tsunami affect humans in many ways, such as loss of life, destruction of houses, ports and seashore.  
5. If a particular region receives no rain or less rain than normal for a long period, it is said to be affected by drought. Besides the lack of rainfall, hot dry winds, very high temperature and evaporation of moisture from the ground also lead to conditions of drought.  
6. The people suffer in drought-affected areas, people often face famine.

