



# Science Alive

*Answer Key*  
*(1-5)*

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## Science-1

### **Chapter-1:World of plants**

A. 1) b; 2) b; 3) a; 4) b; 5) b.

B. 1) trees; 2) climbers; 3) wheat; 4) mango.

C. 1) b; 2) d; 3) e; 4) c; 5) a.

D. 1) Herbs are small plants with thin, green and soft stems. 2) Heena and rose are shrubs. 3) A plant grows from the seed. 4) Plants need air, water and sunlight to grow.

E. 1) Stem; 2) root; 3) leaves; 4) fruits; 5) flowers. F. 1) NEEM; 2) PEEPAL; 3) MANGO; 4) BANYAN.

### **Chapter-2: Uses of plants**

A. 1) b; 2) a

B. 1) fruit; 2) vegetables; 3) foodgrain; 4) fruit; 5) vegetable.

C. 1) (i) carrot; (ii) potato, 2) (i) apple; (ii) banana, 3) (i) gram; (ii) peas.

D. 1) We get most of our food from plants. 2) Do yourself. 3) sunflower, mustard and coconut are oilseed plants.

E. 1) CARROT; 2) MANGO; 3) CHILLI. F. 1) APPLE; 2) PINEAPPLE; 3) TOMATO; 4) TURNIP.

### **Chapter-3: The animal world**

A. 1) c; 2) c; 3) c.

B. 1) Cow, buffalo; 2) duck, ostrich; 3) octopus, dolphin; 4) housefly, butterfly.

C. 1) fish; 2) monkey; 3) insect; 4) bird.

D. 1) Animals which live in the jungle are called wild animals. 2) Frog, tortoise and crocodile can live both on land and water. 3) Birds fly with the help of wings.

E. 1) CROW; 2) FISH; 3) GOD.

### **Chapter-4: Food and shelter for animals**

A. 1) c; 2) b; 3) b; 4) c.

B. 1) Cow, goat; 2) tiger, jackal; 3) cat, bear.

C. 1) F; 2) F; 3) T; 4) F.

D. 1) c; 2) d; 3) a; 4) b; 5) a.

E. 1) Tiger eat the flesh of other animals. 2) The home of hens is called the coop. 3) A hive is the home of bees. F. 1) SHED; 2) COOP; 3) TREE; 4) BURROW; 5) HIVE; 6) DEN.

### **Chapter-5: My body**

A. 1) b; 2) b; 3) b.

B. 1) hands; 2) feet; 3) four, thumb; 4) playing.

C. 1) d; 2) e; 3) a; 4) b; 5) c.

D. 1) eyes, ears, nose, tongue and skin are our sense organs. 2) We can run and jump by our legs. 3) Our tongue helps us to taste. 4) Our skin helps us to sense hotness or coldness of things. E. 1) EAR; 2) HAND; 3) HAIR.

### **Chapter-6: Our needs**

A. 1) c; 2) c; 3) c; 4) b.

B. 1) food; 2) strong; 3) woolen; 4) kitchen.

C. 1) We need food to stay alive. 2) Clothes are used to cover and protect our body. 3) We need a house to live in. 4) We get leather from the skin of some animals. 5) A house becomes home when a family lives in it.

D. 1) WOOL; 2) LEATHER; 3) COTTON. E. 1) c; 2) a; 3) b.

### **Chapter-7: Keeping fit**

A. 1) b; 2) c; 3) b.

B. 1) G; 2) G; 3) B; 4) G

C. 1) We need a good health to do our works in time and live a comfortable life. 2) Exercise make our body healthy and strong. 3) It saves us from harmful insects and germs. 4) Germs and insects cause many diseases. 5) Sleep and rest keep our body fit and healthy.

D. 1) b; 2) d; 3) a; 4) c. E. Do yourself. F. Do yourself.

### **Chapter-8: Air around us**

A. 1) c; 2) b; 3) a; 4) a.

B. 1) feel; 2) Wind; 3) Air; 4) breath; 5) weight.

C. 1) d; 2) a; 3) b; 4) c.

D. 1) We need air to breath. 2) We cannot see the air but can feel it. 3) Moving air is called wind. 4) We use air to fill footballs and swimming tubes.

### **Chapter-9: Safety first**

A. 1) b; 2) c; 3) c; 4) a.

B. 1) d; 2) c; 3) e; 4) b; 5) a.

C. 1) open; 2) empty; 3) queue; 4) window.

D. 1) First look right, then left and right again. 2) Always use air filled tube for swimming. 3) One should walk on the left side of the road. 4) Always provide first aid if someone gets injured.

### **Chapter-10: Water**

A. 1) b; 2) b; 3) c; 4) b.

B. 1) T; 2) F; 3) T; 4) T; 5) T.

C. 1) We need water to - (a) drink; (b) cook food; (c) bathe. 2) Three source of water are - rain; river and lake. 3) Drinking impure water can make us sick. 4) We use wells, tube wells and handpumps to get the underground water.

D. 1) d; 2) a; 3) c; 4) b. E. 1) RIVER; 2) WELL; 3) OCEAN; 4) SEA; 5) RAIN; 6) TANK.

### **Chapter-11: Weather and seasons**

A. 1) c; 2) b; 3) a; 4) a.

B. 1) F; 2) F; 3) T; 4) F; 5) T.

C. 1) We wear woolen clothes in winters. 2) We wear cotton clothes in summers. 3) A rainbow is formed when it rain. 4) Going out during storms can be harmful. D. 1)

b; 2) d; 3) a; 4) c. E. 1) d; 2) a; 3) c; 4) b.  
F. 1) WINTER; 2) SUMMER; 3) RAINY.

### **Chapter-12: Up in the sky**

A. 1) c; 2) c; 3) b.

B. 1) c; 2) d; 3) b; 4) a.

C. 1) The sun give us heat and light. 2) The sun sets in the west. 3) It is called the full moon. 4) We see stars at night.

D. 1) Sun; 2) stars; 3) kite; 4) areoplane.

E. Do yourself. F. 1) c; 2) a; 3) d; 4) b.

### **Chapter-13: Going into space**

A. 1) c; 2) c; 3) c.

B. 1) One can travel to th moon in a space shuttle. 2) A person who goes into the space is called an astronaut. 3) He was the first man to go into space. 4) He was the first person to go to the moon. 5) Rakesh sharma was the first Indian to go in to the space.

C. 1) F; 2) F; 3) F; 4) F.

D. 1) c; 2) d; 3) a; 4) b; 5) c.

## Science-2

### **Chapter-1: Plants around us**

A. 1) a; 2) a; 3) a; 4) c.

B. 1) hard; 2) many; 3) climber; 4) soft; 5) leaves.

C. 1) c; 2) d; 3) e; 4) b; 5) a.

D. 1) Neem and banyan are trees. 2) Important parts of a plant are - root, stem, leaves, flower and seed. 3) Seeds grow into new plants. 4) Watermelon and pumpkin are creepers, pea and grapevine are climbers.

### **Chapter-2: Things we get from plants**

A. 1) b; 2) a; 3) c; 4) a.

B. 1) fleshy and juicy; 2) flavour; 3) raw; 4) grains; 5) tulsi.

C. 1) apple, orange; 2) almonds, cashew; 3) clove, cardamon; 4) mustard, groundnut.

D. 1) cereal; 2) spice; 3) sugar; 4) wood; 5) gum.

E. 1) Plants give us food, medicines, wood and other useful things. 2) Coffee comes from the seeds of coffee plants. Tea comes from the leaves of tea plant. 3) Shoes, balls and raincoats are made from rubber.

F. 1) Rubber; 2) Rose; 3) mustard; 4) jute; 5) tomato; 6) cotton. G. 1) Spinach; 2) cotton; 3) mustard; 4) bamboo.

F) Fruits

Nuts

Vegetables

Food grains

pineapple

walnut

beans

wheat

apple

cashew

cauliflower

corn

grapes

coconut

spinach

rice

### **Chapter-3 : Useful animals**

A. 1; 3) c; 4) c.

B. Cow, goat; 2) hen, dush; 3) buffalo, camel; 4) camel, horse; 5) cat, dog.

C. 1) Animals which are kept in or near the house are called domesticated animals. for Ex: goat, hen, cow, etc. 2) Silkworms give us silk.

D. 1) b; 2) a; 3) c; 4) c; 5) d.

E. 1) leather; 2) honey; 3) wool; 4) milk; 5) meat; 6) silk; 7) egg.

F. 1) The cow gives us milk. Its dung is used as manure. 2) The horse pulls tonga. It also carries things for us.

### **Chapter-4 : Wild animals**

A. 1) a; 2) a; 3) a; 4) c.

B. 1) nest; 2) burrow; 3) den; 4) shed.

C. 1) Camel; 2) jackal.

D. 1) Wild animal live in the forest. 2) Mangoes and snake live in holes. 3) Animals like - deer, zebra etc. eat grass and plants only. They are called herbivores. 4) Animals like - lion, cheetah etc, eat flesh of other animals only. They are called carnivores. 5) Some animals like - bear, dog etc, eat plants and flesh both . They are called omnivores. 6) Hyena and jackal are scavengers.

E. 1) dog; 2) hippo; 3) tiger; 4) zebra; 5) vulture; 6) dolphin; 7) pig; 8) crocodile.

### **Chapter-5 : Bones and muscles**

A. 1) c; 2) b; 3) c; 4) a.

B. 1) together; 2) heart; 3) fit; 4) hard; 5) bones.

C. 1) T; 2) T; 3) F; 4) T; 5) F.

D. 1) Muscles are responsible for all of our body movements. They help the bones to move. 2) They give shape and support to our body. They also protect internal organs. 3) Our body has 206 bones and more than 600 muscles. 4) Posture is the way in which we keep our body when we sit, stand or walk. 5) The place where two bones join is called a joint.

E. 1) SKELETON; 2) MUSCLES; 3) EXERCISE; 4) SWIMMING.

### **Chapter-6 : Food for us**

A. 1) c; 2) a; 3) c; 4) a; 5) c.

B. 1) Proteins; 2) dinner; 3) food; 4) health; 5) morning.

C. 1) c; 2) a; 3) d; 4) b.

D. 1) Food gives us energy to work and play. 2) Rice, bread, and sugar are energy giving foods. 3) Pulses , milk and fish help in the growth of our body. 4) The diet which contains enough and correct quantities of all the food components, is called balance diet. 5) Junk food such as pizzas, burger, etc. Harms our teeth and stomach. So, we should avoid it.

E. 1) (a) apple; (b) banana; (c) carrot. 2) (a) potato; (b) rice; (c) sugar. F. 1) energy; 2) protine; 3) vitamins; 4) milk.

### **Chapter-7 : Houses and clothes for you**

A. 1) b; 2) b; 3) a; 4) b.

B. 1) heat, cold; 2) cement; 3) temporary; 4) straw; 5) flat.

C. 1) c; 2) d; 3) e; 4) a; 5) b.

D. 1) We need a house to live in. 2) a house made of bricks, cement, strong wood and iron rods is called a pucca house. 3) People make sloped roofs so that rain water may flow away easily. 4) Houses are made of different materials like straw, mud, wood, leaves, bamboo, bricks, tiles and stones. 5) A good house should have separate rooms for cooking, receiving guests, sleeping and studying. Every room in house should be well ventilated. Proper sunlight keeps the room dry and free from germs. 6) We wear cotton clothes in summer. 7) we wear woolen clothes in winters.

### **Chapter-8 : Safety rules**

A. 1) c; 2) b; 3) c; 4) a.

B. 1) footpath; 2) kites; 3) queue; 4) careful; 5) safe.

C. 1) We should walk on left side of the road on the footpath. 2) If someone gets hurt we should provide the injured the first aid. 3) We should use a swimming tube. 4) We should not play with sharp objects. We should not touch electric wires, switches or plays.

D. 1) F; 2) T; 3) T; 4) F; 5) F.

### **Chapter-9 : Air**

A. 1) b; 2) b; 3) a; 4) a.

B. 1) sick; 2) parks; 3) plants; 4) things; 5) air.

C. 1) T; 2) T; 3) F; 4) T; 5) T.

D. 1) We get fresh air in the parks and gardens. 2) The air contains many gases, water vapour, smoke, dust and germs. 3) We need air to breathe. 4) Wind helps gliders to move, boat to sail and windmills to run. 5) A very strong wind is called a storm. It can also uproot trees.

### **Chapter-10 : Water**

A. 1) c; 2) a; 3) c.

B. 1) Safe; 2) solid; 3) germs; 4) growing.

C. 1) Rain, ponds, river are sources of water. 2) Solid (ice), liquid (water) and gas (water vapour) are three forms of water. 3) Water is used for drinking, cooking, cleaning, washing, bathing and putting out fire. 4) when the sun heats up, then the water changed into vapour. 5) The sun heats up the water in ponds, lake and seas. This water change into water vapour.

D. 1) RIVER; 2) DRINK; 3) GERMS; 4) RAIN; 5) TAPE. 1) water; 2) water; 3) steam; 4) ice.

### **Chapter-11 : Sun, Light and shadow**

A. 1) c; 2) a; 3) c.

B. (i) d; (ii) a; (iii) b; (iv) e; (v) c.

C. 1) Shadow is made when an object blocks light. Shadow is a dark shape produced by an object when it comes between light and a surface.2) The sun helps us by giving heat and light.3) Our shadow will form in the side if the sun is in our front side.

D. 1) long; 2) short; 3) long.

### **Chapter-12: Rocks and minerals**

A. 1) c; 2) c; 3) b; 4) b.

B. 1) d; 2) c; 3) a; 4) b.

C. Marble; 2) Diamond; 3) Graphite; 4) mica.

D.1) The hard material of the earth's crust forms rocks 2) Coal is mainly used for cooking, in factories and for running steam engines.3) Granite is the hardest rock.

E. 1) granite, quartz; 2) white marble; 3) sand stone, granite.

F. 1) Talc; 2) mica; 3) diamond; 4) quartz. G. 1) mica; 2) quartz; 3) china clay; 4) talc; 5) graphite.

### **Chapter-13: Going to the moon**

A. 1) a; 2) a; 3) b.

B. 1) Neil armstrong; 2) air; 3) life; 4) kalpana chawla.

C. 1) The moon has no life because it has no air and water.2) A person who is trained to live in the space and to operate spacecraft.3) Rakesh sharma and kalpana chawla are two Indian astronauts who went into the space.

## **Science-3**

### **Chapter-1: Living and non-living things.**

A. 1) a; 2) b; 3) c; 4) c; 5) c.

B. 1) T; 2) F; 3) T; 4) F; 5) T.

C. 1) eggs; 2) food; 3) non-living; 4) grow; 5) gills.

D. 1) Things that have life in them are called living things.2) The main features of living things - (a) Living things have life. (b) living things can move. (c) living things can breath. (d) living things need food and water. (e) living things can feel. (f) all living things grow. (g) all living things can reproduce.3) Things that do not have life are called non-living things; for example- chair, table, book, etc.4) The difference between living and non-living things. living things are same as in Ans. no. 2. (a) non-living things can't breath. (b) living things can't move. (c) non-living things can't have life. (d) non-living doesn't need food and water. (e) all non-living things can't feel.5) Dahlia produce new plant through its root. Pea produce new plant through its seed. Cactus produce new plant through its stem.

### **Chapter-2: Parts of a plant**

A. 1) a; 2) c; 3) b; 4) c; 5) c.

B. 1) tap, fibrous; 2) leaf; 3) fruit; 4) seed. C. 1) carrot; 2) potato; 3) spinach; 4) mango; 5) tomato. D. 1) Root system - root is the underground part of a plant.

Root fixes the plant in the soil. It also absorbs water and minerals from the soil. Shoot system - The part of a plant that grows above the soil is called shoot. It consists of stem, leaves, flower, fruits and seeds. 2) The stem also carries out many functions. (a) It carries water and minerals from the roots to upper parts of the plant. (b) It carries food prepared by the leaves to other parts of the plant. (c) The stem of some plants like potato and ginger store food in them. These stems are called underground stems. 3) Plants make their food by absorbing water and minerals from the soil and carbon-di-oxide from the air. They make their food in the sunlight. 4) Plants give out excess water through stomach.

### Chapter-3: Food for animals

A. 1) a; 2) a; 3) c.

B. 1) F; 2) T; 3) T; 4) F; 5) F.

C. 1) live; 2) carnivorous; 3) swallow; 4) mosquitoes; 5) suckers.

D. 1) Herbivores eat plants only. 2) Cows and buffaloes etc. first swallow grass without chewing it. After sometime, they grinding teeth. This is called chewing the cud. 3) Flesh - eating animals like- lion , tiger, etc. are called carnivores animals. 4) Flesh eating animals like lions, tiger, foxes, bears, and dogs have sharp, pointed or curved teeth to tear flesh. They also have strong gripping teeth at the back to chew the flesh and crack bones. 5) Plants make their own food. Animals depend on plants for food. Some herbivores are eaten by carnivores. This forms a chain called the food chain. 6) A snake swallows its food as a whole.

E. 1) chameleon; 2) elephant; 3) butterfly; 4) buffalo.

F. (a) O; (b) O; (c) C; (d) C; (e) C; (f) C; (g) H; (h) H; (i) H; (j) H; (k) H; (l) H.

### Chapter-4: Birds feathers, Beaks and claws

A. 1) b; 2) c; 3) c; 4) c; 5) a; 6) a.

B. 1) conical; 2) webbed; 3) fight; 4) hooked; 5) perching.

C. 1) T; 2) T; 3) F; 4) F; 5) F.

D. 1) A bird cannot fly simply by flapping its wing up and down. In fact, the wings make two types of movements. These movements are called upstroke and downstroke. 2) Body of a bird is covered with four of feathers. (a) Body feathers cover the entire body of a bird. They give a proper shape to the bird's body. (b) Down feathers are small and fluffy. They are found under the flight feathers. They help the bird warm. (c) Flight feather are usually found in the wings and the tail. They are long and flat. They help the bird in flying. (d) A bird used tail feathers as steering. Some male birds have long or brightly coloured tail feathers. 3) Birds use their beaks for eating, defence , feeding young ones, gathering food materials, building nests, preening, scratching and attacking. It is also used for drinking, holding, piercing and tearing food. 4) Birds of prey like eagle , hawks and owls have sharp, curved or hooked beaks for tearing flesh. 5) Eagle , hawks and owls have large curved claws called talons.

E. 1) Parrot, parrot; 2) eagle, eagle; 3) duck, duck; 4) pheasant, pheasant.

### **Chapter-5: Bird's home ,nest and caring**

A. 1) c; 2) a; 3) b.

B. 1) Bulbul; 2) beaks; 3) pebbles; 4) nest; 5) guard

C. 1) d; 2) c; 3) e; 4) b; 5) a.

D. 1) A nest is a bird's home. Birds built nests to lay egg in them.2) The tailor bird stitches leaves together with its needle-like beaks. It uses thread and wool to sew the leaves.3) The cup nest is a cup-shaped nest that can be made up of grass, moss and lichen. This type of nest is made by many song birds like sparrow, bulbul and humming bird.4) Once the birds lay eggs, they have to be kept warm. This is mostly done by the mother bird who sits on the egg most of the time till they hatch.

E. 1) Weaver bird; 2) penguin; 3) tailor bird.

### **Chapter-6: Our body**

A. 1) c; 2) a; 3) a; 4) a; 5) b.

B. 1) F; 2) T; 3) F; 4) F; 5) T.

C. 1) Machine; 2) five; 3) blood ; 4) excretory; 5) reproductive.

D. 1) Each body part is made up of tiny structures called cells.2) The heart works as a pump and circulates blood to various parts of our body through arteries.3) Muscles along with the bones allow us to move the parts of the body.4) In the mouth, the teeth chew and grind the food into smaller pieces. The saliva mixes with food to form small soft balls. Then it goes down into the stomach via the foodpipe. Stomach is a muscular bag. When food enters the stomach it contracts and expands. Here the food is mixed with digestive juices. These juices help in the digestion of food. Then the food goes to the small intestine . Here, the food is completely digested. The blood takes up the important nutrients from the food and carries them to different parts of the body. The undigested food goes to the large intestine. Finally it is pushed out of the body through the anus.5) We have five sense of organs-eyes, ears, nose, tongue and skin. Eyes help us to see; Ears help us to hear; Nose helps us to smell; Tongue help us to taste; Skin help us to feel.

E. 1) lungs; 2) heart; 3) brain; 4) kidney.

F. 1) LUNGS; 2) HEART; 3) NERVES; 4) BRAIN; 5) MOUTH; 6) TEETH; 7) SKIN.

### **Chapter-7: Safety and first aid**

A. 1) c; 2) b; 3) a.

B. 1) Zebra crossing; 2) left; 3) traffic signals; 4) electric shock; 5) doctor.

C. 1) Accidents can happen anywhere and any time. They mostly occurs due to our carelessness. Accidents can be prevented by following safety rules.2) Always walk on the footpath; Cross the road at the zebra crossing; Look on the both side of the road before crossing and cross it when there is no vehicle.3) If my friend cuts out his finger, I will clean the wound using the antiseptic, a bandage over the wound.4) If a person gets injured, he or she should be given first aid. The

immediate help given to an injured person is called first aid.5) Do not jump on the desks or tables. Do not throw chalk or duster at your classmates.

### **Chapter-8: Housing**

A. 1) b; 2) a; 3) a; 4) a.

B. 1) heat, cold; 2) curtains; 3) air, light; 4) insects.

C. 1) T; 2) T; 3) F; 4) T.

D. 1) We all need a house to live in. It protects us from rain, storm, heat, cold, thieves and wild animals. 2) In Assam people witness flood every year. They built houses on stilts, a few feet above the ground to keep them dry. Stilt houses have sloping roofs to let rain water fall off easily. 3) Features of a good house are- 1) A good house should have a bathroom and a toilet. 2) Every room in the house will be well ventilated. 3) It should have a proper drainage system with covered drains. 4) Ways to keep your house clean- (a) Kitchen waste and other garbage should be collected in covered dustbin and removed regularly. (b) The floors of house should be swept, mopped and disinfected regularly. 5) Duster settles down on the things in the house, so it is necessary to clean the dust regularly. 6) Houses in the hills have sloping roofs because such roofs let rain water and snow fall off easily. 7) The useful steps to be taken to keep a house clean are: Kitchen waste should be collected in covered dustbin and removed regularly. The floors of the house should be swept, mopped and disinfected regularly. Sinks, washbasins and bathrooms must be washed and disinfected regularly. All the items should be kept in proper places after their use.

E. 1) HOUSEBOAT; 2) CARAVAN; 3) TENT; 4) IGLOO.

### **Chapter-9: Water**

A. 1) c; 2) a; 3) b.

B. 1) gaseous; 2) solids; 3) freezing; 4) three; 5) water vapour.

C. 1) T; 2) T; 3) F; 4) T.

D. 1) ice-cubes, ice-cream; 2) water, milk; 3) water vapour, oxygen. E. 1) We need water for drinking, cooking, bathing, washing etc. 2) The three forms of water are- (i) liquid (water) (ii) solid (ice) (iii) gas (water vapour). 3) When a solid changes into a liquid, it is called melting. 4) The water changes into ice through freezing. 5) When the sun rays heat water the water evaporates and rises up in the sky to form clouds.

F. 1) G; 2) L; 3) S.

### **Chapter-10: Soils and rocks**

A. 1) b; 2) c; 3) a.

B. 1) Sandy soil; 2) Clayey soil; 3) humus; 4) loamy soil; 5) Top soil.

C. 1) T; 2) F; 3) F; 4) F; 5) T.

D. 1) Soil is formed by breaking down of rocks. 2) Soil is made of particles of different sizes. It also contains minerals. Soil contains dead and decayed plant and animal matter called humus. 3) Soil differs in the size of its grains and the

minerals it contains. Different types of soil have different minerals present in them. Sandy soil contains big particles of sand. Sand particles have large spaces between them. Clay is the smallest of all soil particles. It is very smooth when dry and sticky when wet. Loamy soil is a mixture of sand and clay. It also contains silt.4) Soil has many layers. These layers are named as top soil, sub soil, weathered parent material and bed rock.5) Ants, earthworms, beetles, moles, roots are the organisms live in the soil.6) Rocks are useful to us in many ways. Rocks such as marble, granite, sandstone, etc. are used to make buildings. Rocks like diamond, ruby and emeralds are used in jewellery. Some substance can be taken out of rocks and used by us. These substances are called minerals. Quartz, diamond, graphite etc. are minerals.

E. 1) BED ROCK; 2) SUBSOIL; 3) DIAMOND; 4) SANDSTONE. F. 1) diamond; 2) top soil; 3) clayey soil.

### **Chapter-11 : Heavenly bodies**

A. 1) a; 2) b; 3) a; 4) c.

B. 1) Mercury; 2) reflects; 3) earth, sun; 4) eight; 5) Sunita williams.

C. 1) F; 2) F; 3) T; 4) T; 5) F.

D. 1) e; 2) f; 3) d; 4) a; 5) c; 6) b.

E. 1) The moon appears to change its shape. The changes in the moon's shape are called phases of the moon. 2) The Earth completes one rotation in 24 hours that equals to one day and one night. When the earth rotates on its axis, its half part faces the sun. The other half that does not face and is away from the sun. The part does not facing the sun has night.

3) The Sun and eight planets make the solar system. The eight planets are mercury, venus, earth, mars, jupiter, saturn, uranus and neptune. 4) People who travel into space are called astronauts. 5) The eight planets are ,mercury, venus, earth, mars, jupiter, saturn, uranus and neptune. 6) Rakesh sharma was the first Indian astronaut. Kalpana chawla was the first woman astronaut. Then Sumita williams went to space.

F. 1) MOON; 2) SUN; 3) ORION; 4) SATELLITE.

### **Chapter-12: Light, sound and force**

A. 1) a; 2) c; 3) a.

B. 1) candle; 2) ears; 3) unpleasant; 4) pleasant; 5) noise.

C. 1) d; 2) c; 3) b; 4) a.

D. 1) The object that gives out light on its own are known as luminous objects. 2) Tubelight and candle are two objects that give us light. 3) A shadow is formed when an opaque comes in the path of light. 4) Candles, bulbs, torches, lamps, tubelights etc. are man-made sources of light. 5) Audible, ultrasonic and infrasonic are three types of sound.

E. 1) FORCE; 2) PULL; 3) PUSH; 4) SOUND; 5) SHADOW; 6) LARYNX; 7) NOISE; 8) MUSIC.

## Science-4

### Chapter-1 : Food and digestion

A. 1) b; 2) b; 3) c; 4) c; 5) c; 6) a.

B. 1) (i) potato, (ii) rice, (iii) honey; 2) (i) oil, (ii) butter, (iii) ghee; 3) (i) milk, (ii) fish, (iii) meat; 4) (i) watermelon, (ii) apple, (iii) broccoli; 5) (i) pulses, (ii) cheese, (iii) meat.

C. 1) d; 2) f; 3) e; 4) b; 5) a; 6) c.

D. 1) carbohydrates, fats; 2) vitamins; 3) proteins; 4) sugar; 5) boiling.

E. 1) T; 2) T; 3) T; 4) F; 5) T.

F. 1) Food gives us energy to work and play. 2) Our food contains nutrients like carbohydrates, fats, proteins, vitamins and minerals. 3) Watermelon, apple and orange are three sources. 4) A diet which gives us all the essential nutrients is called a balance diet. 5) (a) Storing the food at a low temperature. (b) Storing in airtight containers.

G. 1) The different food-items contain nutrients like carbohydrates, fats, proteins, vitamins and minerals. Some of these nutrients give us energy, some help us to grow and some help us to fight disease. 2) The process of breaking down of food into a simpler form is called digestion. Digested food is absorbed by the walls of small intestine. 3) We eat or drink through our mouth. When we eat solid food, we first cut and chew it without teeth. In the mouth, a digestive liquid, saliva mixes with it. This makes a paste of the food. 4) From the stomach, the food is pushed into the long coiled tube called the small intestine. More digestive juices are added to the food in the small intestine. These juices mix with the food and change into simple liquid form. The wall of the small intestine absorb the nutrients and water from the food, which then reach into the blood. 5) The vitamins and minerals keeps us healthy. Our need very small quantity of them. They help our body to fight disease. Fresh fruits and vegetables, milk, fish, meat and egg give us vitamins. The food items rich in vitamins are of many types. Main vitamins are A, B, C, D, E and K. Vitamin D is made by our body with the help of sunlight. 6) Food is valuable. If not preserved well, it may begin to spoil. The process treating food in a way to preserve its healthy values for a long time is called preservation. 7) Cooked or uncooked food can be preserved in different ways. Some of these methods are as follows- 1) Storing the food at a low temperature. The food stored at low temperature is not easily spoiled. 2) Storing in air-tight containers- The food can be preserved in air-tight containers. These containers keep away moisture and help in preserving food for a longer time. 3) Boiling- Boiling is a common method of preserving food. It destroys germs which spoil food.

H. Carbohydrates	Fats	Proteins	Vitamins and Minerals
1) Potato	butter	fish	green veg.
2) Sugarcane	cheese	egg	fruits

I. 1) POTATO; 2) SALIVA; 3) FOOD; 4) CARBOHYDRATES; 5) VITAMINS

### Chapter-2: Teeth

A. 1) a; 2) c; 3) c; 4) c; 5) b.

B. 1) c; 2) d; 3) b; 4) a.

C. 1) adult; 2) enamel; 3) pulp; 4) root; 5) calcium, vitamin C.

D. 1) T; 2) F; 3) T; 4) F; 5) T; 6) T.

E. 1) (i) Incisors or cutting teeth, (ii) Canines or tearing teeth, (iii) Premolars or cracking teeth, (iv) Molars or grinding teeth. 2) Root, enamel, dentine and pulp are parts of a tooth. 3) Teeth that erupt in a child after birth are called temporary teeth. 4) Calcium and vitamin C are important for healthy teeth and gums. Foods like milk and cheese are rich sources of calcium. 5) The soft material inside the dentine is called pulp. F. 1) Our teeth are an important part of our mouth. They give proper shape to our face. Teeth also help us to speak clearly. There are many words which we cannot speak without teeth. Teeth enable us to bite and chew food. 2) There are four kinds of teeth. (i) Incisors or cutting teeth: The four chisel-shaped teeth at the front of the mouth are incisors. We use them to bite our food. (ii) Canines or tearing teeth: These are used for tearing the food. There are four canines. These are present on either side of the cutting teeth in each jaw. These are very sharp and pointed. (iii) Premolars or cracking teeth: There are four premolars in each jaw. These are the broad teeth next to the canines. They act like nutcrackers. They are meant for crushing food. (iv) Molars or grinding teeth: There are six molars in each jaw. They are broader than the premolars and have broad upper surface to grind food. Complete set of molars can be seen in the adults only. 3. When the tooth is badly damaged. It begins to move. The gums cannot hold it tightly and it may fall. It is called the tooth decay. 4. Tips for preventing tooth decay: (i) We must brush our teeth at least twice a day, every morning and before going to bed. Make sure that you move your brush both upwards and downwards. (ii) We should wash our mouth after every meal. 5. The portion of tooth inside the gum (which we cannot see) is called the root. The teeth are hard, strong, bony structure fixed firmly in the upper and lower jaws. The outer layer of the tooth is very hard. This is called enamel. The next inside layer is called dentine. It is like a bone. The soft materials inside the dentine layer is called pulp. This is soft has blood vessels and nerves in it. The nerves are connected to the gum through a hole in the root.

### Chapter-3 : Safety first

A. 1) b; 2) b; 3) b; 4) b.

B. 1) b; 2) c; 3) d; 4) e; 5) a.

C. 1) suffering; 2) antiseptic; 3) wet; 4) go; 5) first aid.

D. 1) T; 2) F; 3) F; 4) F; 5) T.

E. 1) An immediate aid provided before the doctor or medical team arrives. This help is known as the first-aid. 2) In school, accidents can happen when

children run, push and fight with each other.3) Rules of the road safety: (a) Walk on the footpath. (b) Cross the road at zebra crossing; (c) Follow the signals of the traffic light. Rules of safety at home: (i) Keep the floors at home clean and dry; (ii) Do not leave toys and other things lying on the floor. (iii) Use a step-ladder or a stool to reach something placed high.4) A zebra crossing is marked by white stripes painted across the road.5) First aid is needed when one suffers minor cuts and a person faints during the summers.

F. 1) In case of minor wound wash the wound with soap and water. Apply an antiseptic like Savlon or Dettol on it. In case there is profuse bleeding apply ice on the wound to stop the bleeding. Cover the wound with a band-aid.2) A person can slip and fall on a wet floor. To avoid such accidents, we should- (i) Keep the floors at home clean and dry. Take care that bathroom and the kitchen floors are not slippery.3) To prevent poisoning, the following rules should be remembered- (i) Keep all medicines and household chemicals beyond the reach of small children. (ii) Read the label carefully before using any bottle. (iii) Wash all the vegetables and fruits before eating them. They may have been sprayed with harmful insecticides and pesticides. (iv) Do not give or take medicine in the dark. (v) In case of any kind of poisoning, try to induce vomiting in the victim.4. The traffic light has three colours- Red, green and yellow: The red light says 'STOP'. The yellow light says 'WAIT'. The green light says 'GO'.5. A zebra crossing is marked by white stripes painted across the road.6. Do yourself.

#### **Chapter-4: Clothing**

A. 1) c; 2) b; 3) a; 4) a.

B. 1) colourful; 2) insects; 3) raincoat; 4) synthetic, natural; 5) Naphthalene, neem.

C. 1) T; 2) T; 3) F; 4) F; 5) T; 6) T; 7) T.

D. 1) Natural fibers are those which are made from natural materials.2) Nylon, acrylic, rayon and polyester are some synthetic fibers.3) The national dress of an Indian woman is the saree and that of a Japanese woman is the kimono.4) Clothes protect our body from dust, heat, cold, rain and insect bites.5) In the winter season, we like to wear thick and warm clothes. They protect us from the cold.

E. 1) India is a land having different types of climate, different types of clothes are worn in different states. People living in different regions wear different types of clothes, depending on the climate and the tradition of the region.2) Clothes should be stored properly to save them from damage by rats and insects. We should store our clothes in a clean and dry cupboard. We should fold and place them neatly inside the cupboard. Silk and woollen clothes need special care because these are damaged by insects. While storing, naphthalene balls or neem leaves should be placed between the layers of clothes.3) Natural fibers: These are those fibers which are made from natural materials. There are many types of natural fibers. We get fibers like cotton, jute, and linen from plants. We get fibers like wool, silk and

fur from animals. Synthetic fibers: These fibers are prepared by different chemical processes. Many man-made synthetic fibers have replaced the natural fibers. They are being widely used in making clothes. There are many types of synthetic fibers like rayon, polyester, nylon, etc. These are stretchable, water proof and wrinkle-free. They dry very quickly and are non-porous. 4) We should take good care of our clothes to make them look better and last longer. The clothes should be regularly washed. Cotton clothes are washed with soap and water. We should not strike them hard on the stone as a washerman does. After washing we should squeeze our clothes properly and dry them. We should iron clothes and keep in an almirah. 5) People wear special clothes for specific work, such clothes are called the occupational dresses. Doctors and nurses wear white coats. A postman wears khaki uniform.

### **Chapter-5: Solids, liquids and gases**

A. 1) b; 2) a; 3) b; 4) c; 5) a.

B. 2) molecules; 2) solvent; 3) space; 4) closely; 5) solute.

C. 1) F; 2) F; 3) T; 4) F; 5) T.

D. 1) Anything that has mass and occupies space is called matter. 2) Solid, liquid and gas are three forms of matter. 3) Sugar and salt dissolve in water. 4) Matter is made up of small particles called molecules. 5) Water is a liquid that we drink. 6) We use oxygen for breathing.

E. 1) The force of attraction between the molecules of a liquid is less as compared to solids. That is why, liquids can move about freely as well as can flow. Liquids can flow from higher level to lower level. 2) The three states of water are inter changeable. Put water in the freezer of a refrigerator. It changes into ice. Now, Take out a few pieces of ice cube from your refrigerator and put them into a bowl. What happens after some time? The ice cubes change into water. 3) When sugar is dissolved in water the volume of the solution does not change because sugar molecules fill the empty spaces between the molecules of water. These do not take up any extra space. This shows that there are empty spaces in molecules of water. 4) Evaporation is the method by which soluble material can be separated from water. 5) The molecules in gases are much more spread out than in liquids. They move out freely.

F. 1) matter; 2) molecules; 3) miscible, liquids. G. 1) sugar, ice cube, salt; 2) coconut, water, oxygen; 3) water vapour, perfume, oxygen. H. Do yourself. I. Do yourself. J. Do yourself

### **Chapter-6: Plants and their food**

A. 1) a; 2) b; 3) c; 4) c.

B. 1) chlorophyll; 2) decaying; 3) photosynthesis; 4) Stomata; 5) sugar.

C. 1) T; 2) T; 3) F; 4) T.

D. 1) mushroom, moulds; 2) fruits, leaf; 3) leaf, chlorophyll; 4) potato, sugarcane; 5) mango, peepal. E. 1) The photosynthesis (photo-synthesis) is the process of

preparation of food by green leaves of plants.2) The green leaves need water, carbon dioxide and water to produce food.3) Some extra food is stored in the form of sugar or changed into starch.4) Leaves use chlorophyll to make food.5) Plants store their food in their fruits, leaves, stem or roots.F. 1) Test for Starch : The solution turns blue black. This test can detect small quantity of starch. No other substance gives blue black colour with iodine solution. How can you show that starch remains present in the leaves?(i) Take a green leaf from a plant.(ii) First of all green colour of the leaf is to be removed because it is not possible to perform the test on a green leaf. Any change in colour will not be seen against the green colour. In order to bleach the green colour of the leaf, boil it in water and then in alcohol. It dissolves the chlorophyll.(iii) Wash the bleached leaf in cold water. Place it on a glass plate and pour a few drops of iodine solution over it. The leaf becomes blue black in colour. This shows that leaf contains starch.02) Moulds and mushrooms are non-green plants. They do not have chlorophyll. They cannot make their food. They get their food from dead and decaying plants and animals.3) The green leaf is bleached to remove green colour of the leaf. It is because any change in colour will not be seen against the green colour.

### **Chapter-7 : Living and surviving**

A. 1) b; 2) c; 3) b; 4) c; 5) b.

B. 1) cactus, palm; 2) water melon, luckweed, 3) pine, fir; 4) hydrilla, vallisneria; 5) venus flytrap, pitcher.

C. 1) b; 2) d; 3) f; 4) a; 5) c; 6) e.

D. 1) T; 2) T; 3) F; 4) T; 5) T; 6) F.

E. 1) Plants that grow in water are called the aquatic plants. For example- duckweed, lotus.2) Pine, fir and deodar are three examples of hilly plants.3) Wheat, jowar, bajra, sugarcane and bamboo belong to the grass family and provide us food.4) There are some plants which trap and eat insects. These are called insectivorous plants. Common examples are venus flytrap and pitcher plant.5) The plants which grow on land are called the terrestrial plants.6) The family of plants which give us cereals is grass family.

F. 1) The clayey soil does not provide air to the roots for breathing. So, some breathing roots come above the ground. These roots help the plants in breathing.2) These plants are lotus plants fixed to the bottom of the pond. The stem of the lotus is hollow and light which keeps the leaves and the flowers a float. The leaves are broad and have stomata only on the upper side.3) Cereal plants belong to the grass family of useful to us in many ways. They provide food for humans and animals. Cereals such as rice, wheat, jowar, bajra, sugarcane and bamboo belong to the grass family.4) Bamboo is a useful plant which is used to make huts, baskets, chairs, mats, toys, brooms, etc.5) The venus flytrap has two halves of leaves. When an insect sits inside, the two halves get closed and insect is trapped.

## Chapter-8: Animals and their habits

A. b; 2) a; 3) a; 4) a. B. 1) T; 2) F; 3) T; 4) F; 5) F. C. 1) Snake; 2) frog; 3) Monkey; 4) Earthworm; 5) Crow. D. 1) These animals live on land. 2) The boat like shape of aquatics helps them to swim easily. 3) Amphibians, on land, breathe with their lungs. 4) Aerial animals spend most of the time in the air. E. 1) All the living beings are adapted for their food, habitat and surrounding. On the basis of their habitats, the animals are classified as follows- (a) Terrestrial animals; (b) Aquatic animals; (c) Amphibian animals; (d) Aerial animals; (e) Arboreal animals. 2) The animals living on land are called Terrestrial animals or Terrestrials. They can be further classified into two categories- (i) Terrestrials, with moving organs: The terrestrial animals, such as cow, elephant, deer, dog etc. who have moving organs, belong to this category. (ii) Terrestrials, without moving organs: The terrestrials who either have no moving organs at all or have undeveloped moving organs belong to this category. 3) The aquatics have boat-like shape. It helps them in swimming. Their membranous fins make them swim easily. 4) The animals, as frog, tortoise, crocodile etc, who can live on the land and water both, are called the amphibians. Such animals have legs to move on the land and the feet with membranous fingers to swim in the water. Amphibians, on land, breathe with their lungs. while in water they breathe with their skin. 5) Aerial animals have hollow bones filled with air. It makes their body light. They have developed wings help them in flying.

## Chapter-9: Adaptation in animals

A. 1) a; 2) b; 3) a; 4) a. B. 1) adaptation; 2) desert; 3) fur 4) amphibians; 5) leaf-insects. C. 1) T; 2) T; 3) F; 4) T; 5) F. D. 1) The camel is called the ship of desert. 2) The animals which live in too much cold regions, have have thick skin with thick and long hair. 3) The aquatics breathe in the oxygen dissolved in the water through their gills. 4) The carnivores have sharp canine teeth to tear up the flesh. 5) The shape and colour of the leaf-insects resemble with of the leaf. E. 1) (The animals who live in desert or hot regions have thick but less hairy skin. This type of skin protects them from heat of deserts. These animals have thick cushion-like padded soles under their feet to walk on the hot sandy surface of the deserts. They can store water in the folds of their stomach. 2) The animals which live in too much cold regions, have thick skin with thick and long hair. Skin of some animals living in such regions is soft and smooth having fibre- like hairs. Such skin is called fur. The air filled in their hair does not allow the heat of their body to escape. It protects them from the cold. When it is too cold, they consume the fat present under their skin. 3) Amphibians are not well adapted for too much cold or too much heat. So, when the temperature is very low they go deep under the soil and have a long sleep. It protects them from the environmental cold. This process of sleeping is called Hibernation. During summer seasons, when temperature is high they live in moist places or go deep into the mud and remain

inactive. This process is called Aestivation. 4) Animals which depend on other animals for their food belong to the class 'parasite'. Leeches, tapeworms, bugs, mosquitoes etc. are parasites. 5) In nature, some animals are able to change their colour, behaviour and remodel their body structure to protect themselves from the enemies. Like frog, chameleon and leaf-insects are adapted for their protection. 6) Some plants and animals have disappeared from the nature because they could not adapt their body structure, their feeding and protection behaviours according to the changes of the environmental conditions. Dinosaurs and Archaeopteryx disappeared from the world surface forever.

### **Chapter-10: Reproduction in animals**

A. 1) a; 2) c; 3) c; 4) b; 5) b; 6) a.

B. 1) fish, turtle; 2) bat, bird; 3) elephant, snake; 4) monkey, chameleon; 5) frog, tad.

C. d; 2) e; 3) a; 4) b; 5) c.

D. T; 2) T; 3) F; 4) F; 5) T. E. 1) The process by which the animals adjust themselves to their surrounding atmosphere to survive and to fulfil their needs is called adaptation. 2) Polar bear and yak live only in cold regions. 3) The animals which spend most of their time on trees are called arboreal animals. 4) Herbivores have long and strong legs to travel long distances in search of food. 5) The animals which reproduce by giving birth to young, once of their own kind are called mammals. F. 1) Animals which can fly have a light body because of hollow bones and feathers. They have boat-shaped body which helps them to float in the air easily. 2) Amphibians are not well adapted for too much cold or too much heat. So, when the temperature is very low they go deep under the soil and have a long sleep. It protects them from the environmental cold. This process of sleeping is called Hibernation. 3) Thick and less hairy skin of camels protect them from the heat of sun. 4) The skin of animals act as a protecting organ. It helps them to protect from various climatic conditions. It also protects the loss of too much water from the body. Animals like polar bear, yak, silver fox and Himalayan rabbit that live in the cold regions unusually have thick furs on their skin. The camel stores food and water in his hump on the back. Its a thick and less hairy skin protects it from the heat of sun. Some animals like lizard, snake and some birds have scales or feathers on their skin. These protect their skin from drying. Zebras, tigers and leopards have stripes or spot on their body which help them to merge or mix with their surroundings. This is called camouflage. 5) There are certain types of small animals that live on or inside the body of other animals. They are called parasites. Mosquitoes, leeches, hookworms and bugs are parasites.

### **Chapter-11 : Force, work and Energy**

A. 1) b; 2) b; 3) b; 4) b; 5) a.

B. 1) Energy; 2) friction; 3) solar energy; 4) electrical energy, light and heat; 5)

movements; 6) opposite.

C. 1) d; 2) c; 3) e; 4) a; 5) b.

D. 1) T; 2) F; 3) F; 4) T; 5) F.

E. 1) Muscular energy; 2) wind energy; 3) water energy; 4) solar energy.

F. 1) Different sources of energy are- (a) Muscular energy (b) electrical energy (c) mechanical energy (d) heat energy (e) atomic energy (f) wind energy (g) water energy. 2) A force is a push or pull upon an object resulting from the object's interaction with another objects. 3) When we cannot do some work with our hands, we use some tool to do it. These are called simple machines. A pair of scissors used to cut cloth is a simple machine. 4) When a force moves an objects over some distance work is said to be done. 5) Energy is the ability to do work.

G. 1) When the force is applied on a moving objects in the same direction as the direction of motion of the object, producing an acceleration in the body, increasing its velocity. 2) The force by which the earth pulls an object towards itself is called the gravitational force. When a ball thrown up it falls to the ground. Fruits from a tree always fall to the ground. This force towards is called the gravitational force. 3) There are three ways in which we use force. (a) to move the body, (b) to stop the body and (c) to change the direction of a moving body. Force can be used to push or pull something. We apply force to push the pedals of a bicycle to make it move. 4) The simple machines help us in the following way- (i) The machines make work easier, (ii) The machines increase the speed of doing work, (iii) The machines can change the direction of force, Some examples of simple machines are the lever, the pulley, the wheel, and axle, the inclined plane, the screw and the wedge. 5) Work done can be calculated by the following formula- Work done = Force applied on an object X Distance covered by the object.

H. 1) scissors; 2) lid opener; 3) car jack.

### **Chapter-12: Beyond the Earth**

A. 1) c; 2) c; 3) c; 4) a; 5) c; 6) b.

B. 1) d; 2) c; 3) a; 4) e; 5) b.

C. 1) Jupiter; 2) Venus; 3) Telescope; 4) Saturn; 4) Mercury.

D. 1) rotation; 2) the moon; 3) orbit; 4) revolution; 5) constellation.

E. 1) There are some bright bodies which move 2) The earth spins around its own axis. This movements is called the rotation. 3) The earth takes to complete 365 days and 6 hours to complete one revolution. 4) A group of stars that seem to form a shape is called the constellation. People have given constellations names according to their shape. Some of these are the Great bear, Orion (the name of a hunter) and scorpius ( the scorpion). Seven stars of the great bear are very bright. 5) Heavenly bodies which have light of their own are called stars. The sun also has its own light so it is called a star.

F. 1) A heavenly body that revolves around a planet is called the satellite. The

moon is the earth's satellite. 2) Mercury, venus, earth, mars, jupiter, saturn, uranus, neptune are the planets of our solar system. 3) Stars : They have light of their own. stars do not move round to any bright body. Planets : They do not have lights of their own. Planets move around the sun in their fixed orbits. 4) When an objects turns around an internal axis (like the earth turns around its axis) it is called a rotation. When an objetc circles an external axis (like earth circles the sun) it is called a revolution.

### **Chapter-13 : Air, water and weather**

A. 1) a; 2) c; 3) a; 4) b; 5) b; 6) c; 7) b.

B. 1) evaporation; 2) filter; 3) condensation; 4) cool; 5) slowly; 6) faster.

C. 1) T; 2) T; 3) F; 4) F; 5) T; 6) T.

D. 1) Weather is the state of atmosphere. 2) The change of water into the water vapour is called the evaporation. 3) The change of water vapour into water by cooling is called the condensation. 4) Wind, temperature and surface area are three factors which affect evaporation. 5) Insoluble and soluble are two types of impurities in water.

E. 1) To seprate insoluble impurities, allow the water to stand for some time. The heavy impurities settle at the bottom. This process of settling down of heavy insoluble impurities is called the sendimentation. The claen water can be poured into vessel. This is called the decantation. 2) In the extreme winter the earth becomes very cold. The surface water or dew drops freeze and become frost. Frost is simply the frozen dew. It cause damage to crops. 3) Hail : When raindrops pass through a very cold region of the atmosphere, they become freeze and hail. The falling ice-balls are called hail stones. When the water vapour freezes in thye air, clouds of small ice-crystals are formed. These are called snow. It is very light. It looks like pieces of cotton or white wool. 4) Sedimentation, decantation, filtration and boiling are theways to purify water. Let us know about them-(i) To seprate insoluble impurities, allow the water to stand for some time. The heavy impurities settle at the bottom. This process of settling down of heavy insoluble impurities is called the sendimentation. The claen water can be poured into vessel. This is called the decantation. (ii) Filtration : In this metood, the insoluble impurities are removed by using a filter paper. We can also use a gravel in the place of filter paper. (iii) Boiling : The water can be made safe for drinking by the process of boiling. At high tempertaure, the germs are killed. The water becomes free from germs and bacteria. 5) Land breeze : at the night, the reverse happens. The land quickly loses it's warmth. This means the air over the water is warmer, less dense and begins to rise. Low pressure is created over the water. Cold and dense air over the land begins to move to the water surface to replace the warmer rising air. The cool breeze from the land called the land breeze.

F. 1) d; 2) a; 3) e; 4) b; 5) c.

G. 1) SEDIMENTATION; 2) EVAPORATION; 3) INSOLUBLE; 4) CONDENSATION. H.

Do yourself;  
I. Do yourself.

### **Chapter-14 : Rocks, soil and minerals**

A. 1) a; 2) a; 3) b; 4) a.

B. 1) plants; 2) hard rocks; 3) humans; 4) loamy soil; 5) earthworms. 6) nutrients.

C. 1) T; 2) T; 3) T; 4) F; 5) F; 6) F.

D. (i) Subsoil : The layer of the soil below the top most layer is comparatively thick and hard. This layer is called subsoil. (ii) Clay : clay is a soft soil. It is found in the beds and on the sides of rivers and ponds. Being sticky, the water cannot pass through it easily. (iii) Loamy soil : Loamy soil is a thin soil. It has the characteristics of both the clay and sand type soils. It contains humus in ample quantity. So, it is the most fertile soil. Loamy soil is the best soil for cultivation. (iv) The remains of the dead animals and the putrefied plants (trees) on mixing in the soil make humus. Humus is an organic substance present in the soil. Proper quantity of humus mixed in the soil makes the soil fertile.

E. 1) The remains of the dead animals and the putrefied plants (trees) on mixing in the soil make humus. 2) Subsoil contains some pebbles and sand also. The subsoil is of brown or red colour. 3) Loamy soil is the best soil for the cultivation. 4) Mainly, the fertilizers are two types- (i) Natural fertilizers : Natural fertilizers contain remains of the dead plants and faeces of the living beings. (ii) Chemical fertilizers : These fertilizers are prepared in the factories with the chemicals.

F. 1) Many - many million years ago, the top most layer of our earth was made up of hard rocks. Slowly and gradually due to the various changes that took place in the atmosphere these rocks by breaking changed into smaller particles. So, the soil is formed by the breaking and spreading of the rocks. The process of formation of the soil took millions of years to complete. The soil also contains the remains of dead animals and the plants and trees which make it fertile. 2) Top most layer and sub soil are the layers of the soil. The rocks lie below the subsoil. Topmost soil contains humus, minerals, air and water in ample quantity. It is the most fertile and best suited layer for the growth of plants and trees. 3) Clay or silt, sand, loamy soil and water borne soil are the types of soil. Loamy soil is the best suited for plants as it contains humus in ample quantity. 4) Many micro-organisms and small insects, such as ants, termites, grasshoppers and crickets live in the soil. 5) Earthworms is the most important living organism of the soil. Earth worms consume the soil and make the land porous allowing the air and water pass through the soil easily. Earthworms are capable in mixing the upper soil and subsoil. Thus, the soil becomes more fertile. The faeces of the earthworms also make the soil fertile. due to this, the earth worms are called the friends of farmers. 6) Mainly, the fertilizers are two types-(i) Natural fertilizers : It contain remains of the dead plants and faeces of the living beings. (ii) Chemical fertilizers : These fertilizers are prepared in the factories with the chemicals.

## Chapter-15 : Soil erosion and Conservation

A. 1) c; 2) a; 3) c.

B. 1) soil erosion; 2) soil conservation; 3) soil; 4) water; 5) contour farming.

C. 1) The soil carried away to distant places by the wind. Hence, the wind is also responsible for the soil erosion. 2) Ways and means to protect the soil from being blown or washed away is called soil conservation. 3) The roots of grass, trees and plants are helpful in keeping the soil particles bound together. Their roots do not allow the soil to flow away easily. Trees are also helpful in restricting the speed of the water and the wind. 4) To restrict the soil erosion, for cultivation terrace-type beds are prepared on the slopes of the hills. In this situation, soil of the upper bed gets accumulated in the lower bed. It restricts the soil plants in terrace type beds is called contour farming.

D. 1) T; 2) F; 3) T; 4) T; 5) F.

E. 1) The natural forces, such as water and air go on affecting continuously the soil. The upper fertile layer of the soil is carried away by these forces. 2) In the summer, soil of the upper layer of the earth becomes dry due to the excessive heat of the sun. 3) Soil is the base of whole of the living world.

F. 1) The process of carrying away the soil by the natural forces is called erosion of the soil. It makes the soil less fertile. 2) There are following three main factors of the soil erosion : (i) Soil erosion by water: At the time of heavy rains, the water gushes downwards to lower places. This water takes away a large part of the top soil with itself. When the river water passing through the hills and plains flows towards the sea, it also takes away a large part of the fertile soil. (ii) Soil erosion by wind : In the summer, soil of the upper layer of the earth becomes dry due to the excessive heat of the sun. In hot weather, at the time of storm or heavy wind, this dry soil flows away in the direction of the wind. 3) All the living beings on the earth get their food from the plants, and to grow plants soil to be fertile is almost necessary. So, soil is the base of whole the living world. Hence, we should protect the soil from erosion. Ways and means to protect the soil from being blown or washed away is called soil conservation. 4) By growing trees : The roots of grass, trees and plants are helpful in keeping the soil particles bound together. Their roots do not allow the soil to flow away easily. Trees and plants are also helpful in restricting the speed of the water and the wind. When a plant is pulled out with the roots, it does not come up easily. When it is forcefully pulled out, some soil wrapped with the roots also comes up. It shows that the soil erosion can be restricted by plant. So, to restrict soil erosion, growing of plants and trees at different places around the field is very necessary. 5) Due to the slope, on the hills, the water flows downwards with great speed. It makes too much soil erosion on the hills. To restrict the soil erosion, for cultivation terrace-type beds are prepared on the slopes of the hills. In the situation, soil of the upper bed gets accumulated in the lower bed. It restricts the soil. In such regions, growing of the plants in terrace type beds is called Contour farming.

## Chapter-16: A clean world

A. 1) c; 2) c; 3) c.

B. 1) air pollution; 2) poisonous; 3) smoke; 4) disturbance of peace.

C. 1) F; 2) F; 3) F; 4) T.

D. 1) Land, water and air are the internal parts of our environment. 2) The dirtying of air, water or land by human activities is called the pollution. 3) (a) Domestic sewage released into the rivers and water bodies. (b) Use of various chemicals in agriculture. 4) The harmful substances which pollute air, water and land are called pollutants. 5) Paper and metal cans can be recycled.

E. 1) Addition of unhealthy things to the air is called the air pollution. As the number of vehicles and industrial units increase, the air pollution increases. It happens because of burning of fuels like coal, petrol, or diesel in vehicles and factories. The smoke from these vehicles and factories is released into the air making it dirty and unfit for breathing. Gases like carbon dioxide and methane from industrial units also mix with the air and pollute it. A large number of dust and sand gets mixed with the moving air. This also pollutes the air. 2) The presence of loud, disturbing and unpleasant noise in the atmosphere is called sound or noise pollution. Vehicles make a lot of noise around us specially when they blow horn. Playing radio and watching television with loud sound also causes sound pollution. Vehicles are also a source of noise pollution. The sound of engines and horns causes noise pollution. Loud music is played during the religious and marriage processions. This is the source of noise pollution. The machines in the factories produce a lot of noise while functioning. This also causes the sound pollution.

F. 1) dust; 2) smoke; 3) sewage; 4) pesticides.

## Science-5

### Chapter-1

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

B. 1. germination 2. summer 3. cotyledons 4. rabi 5. monocot

C. 1. cotton, madar 2. lotus, coconut 3. mango, apple 4. balsam, pansy

D. 1. Outer covering of a seed is called seed coat.

2. Seeds of some plants like wheat and rice have one seed leaf and are called monocot seed.

3. The development of a seed into a seedling is called germination.

4. Different parts of a seed are— seed coat, cotyledons and embryo.

E. 1. All living things depend on plants, directly or indirectly for food. We also get hundreds of other useful things from plants. Most important of all is that they give us oxygen, the gas which is vital for all living things. That is why, plants are also called the lungs of the earth.

2. The essential conditions for seeds to germinate are—

(i) Water      (ii) Air      (iii) Sunlight      (iv) Proper temperature

3. Different parts of a seed are– seed coat, cotyledons and embryo.
4. Dispersal is carried out by the wind, water, animals and by the explosion of fruits. The special structures of certain seeds and fruits help these in dispersal.
5. Farmers in our country grow different seasons. Crops like wheat and gram grown from November to April (winter) are called Rabi crops. Crops from June to October (summer) are called Kharief crops.

## Chapter-2

- A. 1. (b) 2. (c) 3. (c) 4. (a) 5. (c) 6. (b)
- B. 1. blood red, 2. roughage, 3. outdoor, 4. Vitamin-A, 5. insecticides
- C. 1. F 2. T 3. F 4. T 5. T
- D. 1. tuberculosis; 2. diphtheria, whooping cough and tetanus; 3. measles; 4. tetanus; 5. polio
- E. 1. The communicable diseases can spread in many ways. Some common ways by which these diseases spread from one person to another are:  
Through direct contact, Through Air we breathe, Through Food and water  
Through insects.
2. Communicable diseases can be prevented or controlled by the following measures:
- (i) Killing the germs : The best way to prevent communicable diseases is to kill the germs.
  - (ii) Caring for the patient : You can protect yourself from diseases and take good care of the patient.
  - (iii) Vaccination : Vaccination against diseases is also an effective way to prevent diseases.
3. In vaccination, a small dose of the killed microbes of particular disease is injected into the body of a healthy person. The cells of the healthy person produce antibodies (a chemical) to fight against these microbes. These antibodies protect the person against that particular disease.
4. Germs in milk are killed by pasteurization. The milk is boiled at a high temperature for at least half an hour and then cooled down quickly. It kills harmful bacteria.
5. To prevent the spread of germs from a sick person, isolate the patient from other members of the family. Only the persons looking after the patient should go near him.  
Patient's articles such as towel, comb, bed-sheets, clothes and handkerchief should be kept separate and disinfected properly.
6. Typhoid and cholera are bacterial infectious diseases which spread through water.

## Chapter-3

- A. 1. (c) 2. (c) 3. (c) 4. (a) 5. (c) 6. (c)

- B. 1. carelessness 2. antiseptic 3. emergency care 4. water 5. air and dust particles
- C. 1.T2.F3.F4.F5.T
- D. 1. I will follow following steps for this :
- Keep the patient up right in a comfortable position with his head held back.
  - Press the bleeding side of the nose firmly.
  - Apply wet cloth on the nose and on the head of patient.
  - Ask the patient to breathe through his mouth and not blow through his nose.
  - If the bleeding is heavy consult the doctor.
2. First of all I will switch off the main power supply. After that I will throw sand or mud on the fire, it may extinguish the fire.
3. In case of minor burns, I will follow these steps :
- Apply cold water or ice-cubes on the burnt organ. Cooling of the burn gives relief from pain.
  - Apply a paste of baking soda and water for relief.
4. Dog bites should be treated seriously as they can be dangerous and fatal if the dog is suffering from rabies.
- Wash the wound with soap and keep it under the running water for some time.
  - Apply some antiseptic and cover the wound with a bandage.
  - Consult the doctor immediately.
  - Take anti-rabies injections if the doctor recommends.
5. Minor cuts and wounds need the following first aid -
- Wash your hands thoroughly before giving first aid to the injured person because the germs from your dirty hands may infect the wound.
  - Now wash away all dirt around the wound.
  - Clean the affected area with cotton wool soaked in an antiseptic lotion.
  - If the wound is small, such as a cut on the finger, clean the wound under the running water.
  - Cover the wound with clean cotton dressing to stop bleeding. If you do not have cotton dressing, use clean handkerchief or a piece of cloth.
6. Do not throw water on it. Water will flare up the fire. This is because petrol being lighter than water floats above it and keeps burning. Put out the fire by throwing lots of sand or mud on it.
7. A splint is a support to the broken bone. Any easily available article like sheets of newspaper, magazines, a piece of cardboard or a pillow can also be used as a splint. It is used give support to fractured bone. It prevents movement and help the broken bone to heal.

#### Chapter-4

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

- B. 1. space, weight 2. atoms 3. molecule 4. solid, liquid, gas
- C. 1. F 2. T 3. T 4. T 5. F
- D. 1. water, milk, oil 2. oxygen, carbon-dioxide, hydrogen 3. rock, ice, wood
- E. 1. Physical change : A change in which a matter changes its state without forming a new substance is called the physical change.  
 A physical change is a temporary change which can be reversed.  
 Melting of wax is a physical change.  
 Chemical Change : A change in which a matter changes its state giving rise to a new substance that is entirely different from the original one is called the chemical change.  
 Chemical changes are permanent and cannot be reversed.  
 Burning of paper is a chemical change.
2. Molecule : A molecule is the smallest particle of a substance that shows all the properties of a substance.  
 Atoms : An atom is the smallest particle of a substance that cannot be broken down further by any chemical means.
3. Solids
- Solids have a definite shape and a definite volume.
  - If you touch a solid, you will find it hard or firm.
  - You cannot put a solid into space smaller than itself.
  - Wood, stone, gold, iron, coal, book etc are some examples of solid.
- Liquids
- Liquids have no definite shape but they have a definite volume.
  - They take the shape of container in which they are kept.
  - A liquid poured into a glass takes the shape of that glass.
  - Water, milk, oil, diesel and petrol are some examples of liquid.
- F. 1. In solids, there is less space between molecules. They are joined strongly and cannot move. This is why, solids have a definite shape and a definite volume.  
 2. In liquids, molecules are less tightly packed. The force of attraction is less between the molecules. They have space among them. They can move around each other. This is why, liquids have no shape and they can flow.  
 3. Liquid : Liquids have no definite shape but they have a definite volume. They take the shape of container in which they are kept.  
 Gas : Gases do not have a definite shape or volume. They fill any space into which they are put.  
 4. A change in which a matter changes its state without forming a new substance is called the physical change. A physical change is a temporary change which can be reversed.

Melting of ice, tearing a paper and inflating a balloon are examples of physical change.

5. A change in which a matter changes its state giving rise to a new substance that is entirely different from the original one is called the chemical change.

Burning a paper and rusting of iron are examples of chemical change.

6. When a solid dissolves in a liquid, it forms a solution. In this case, sugar is a solute and water is a solvent.

Solute + Solvent = Solution

## Chapter-5

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

- B. 1. Pumice 2. igneous 3. lava 4. metamorphic 5. geologists

- C. 1. Suhagpur (Madhya Pradesh), Dhanbad (Jharkhand)

2. Ankleshwar (Gujarat), Digboi (Assam)

3. Steel and Brass

4. Sandstone, Limestone

5. Slate, Marble

- D. 1. Slate 2. Marble 3. Coal 4. Conglomerate

- E. 1. Sedimentary rocks are formed by the accumulation of sediments. These sediments are generally the broken rock particles brought down by streams and rivers in the form of mud, pebbles, gravel and sand. They are deposited on the beds of rivers and oceans.

2. Petroleum is a thick black liquid found under the earth. It has several names like rock oil, fossil oil, black gold, and liquid sunlight. The petroleum is believed to be formed from the remains of dead land and sea animals. These got buried under the earth millions of years ago and gradually turned into petroleum by the action of heat and pressure.

Petroleum occurs deep down under the earth. It is obtained by drilling a hole in to the earth's crust and sinking pipes into it. It is then pumped out from the well and then used to make petrol, diesel, kerosene and many other products.

3. The minerals from which useful metals can be extracted are called **metallic** ores. We get the metals like iron, aluminium, copper and zinc from the ores namely haematite, bauxite, pyrite and calamine respectively.

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5. Four uses of petroleum :

(i) Petroleum is used as fuel in different forms.

(ii) It is used for making lubricating oil, printing ink and medicines.

(iii) Paraffin wax obtained from it is used to make candles, waterproof cartons and polish.

(iv) Petroleum based solvents are used for dry cleaning our woolen and silk clothes.

6. Minerals such as mica, feldspar, magnesium and quartz are present in igneous rocks.

## Chapter-6

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

B. 1. rabbit, rat 2. giraffe, goat 3. lion, wolf 4. siberian crane, arctic tern 5. mosquito, cockroach 6. bug, ant

C. 1. gills 2. body surface 3. lungs 4. lungs 5. skin 6. body surface

D. 1. A baby frog or tadpole lives in water and breathes through gills like a fish, but an adult frog breathes through lungs on land.

2. The fore-limbs of a bird are in the form of wings which help it to fly. The wings have feathers and are attached to the breastbone of the bird with the help of strong muscles. These muscles enable the bird to flap its wings and to fly.

3. Some animals travel relatively short distances to find food or more favorable living or breeding conditions. Most animals that migrate do so to find food or more livable conditions. Some animals migrate to breed.

Birds like Siberian cranes, Flamingoes and Storks migrate to warm places like India and Africa to spend the winter.

4. Insects breathe with the help of a series of tiny holes on their body. These are called **spiracles**. The spiracles lead to air-tubes which form a network that reaches every tissue of the body. These body tissues take oxygen and give out carbon dioxide which is pumped out.

Aquatic animals like fishes, prawns, crabs, tadpoles, etc. breathe through gills. Gills have a rich supply of blood. Oxygen from water through the gills and carbon dioxide comes out.

5. Reptiles like snake do not have limbs. They have scales or plates on the underside of the body that are attached to ribs. The strong and flexible muscles of the snake contract and expand and thus help it to move forward.

## Chapter-7

- A. 1. (a) 2. (c) 3. (a) 4. (a) 5. (a)
- B. 1. cardiac 2. 206 3. brain 4. spinal cord 5. tendons
- C. 1. (c) 2. (a) 3. (d) 4. (b)
- D. 1. The skeleton of the body gives form, shape and support to our body. We can stand, sit, walk and move because of our bones. Bones enclose the internal organs and protect them.
2. There are 12 pairs of long, thin and bow-shaped bones called ribs. They form a cage and enclose the heart and the lungs.

### 3. Voluntary muscles

Some muscles like the muscles that are attached to our skeleton are under our control, so we call them **voluntary muscles**.

### Involuntary Muscles

The muscles which are not under our control are called **involuntary muscles**. These muscles continue working on their own automatically. For example, muscles of food pipe, and muscles of blood vessels.

4. Bones cannot move by themselves. They are attached to the muscles which help in all movements of the body. There are about 650 different muscles in the body. These are attached to the bones by strong fibres called **tendons**. These fibres become stronger with regular exercise.

## Chapter-8

- A. 1. (c) 2. (b) 3. (a) 4. (a) 5. (b) 6. (c)
- B. 1. cerebrum 2. pupil 3. cerebellum 4. skin 5. reflex
- C. 1. T 2. F 3. F 4. T 5. T
- D. 1. tongue 2. skull 3. nerves 4. pinna 5. taste buds
- E. 1. The nervous system is made up of the brain, spinal cord and nerves. Our nervous system controls all the other systems of our body.
2. Nerves are long thread-like structures that carry messages from the brain to the other parts of the body and vice versa.
3. Thousands of nerves arise from the spinal cord to all parts of the body. They carry messages from the brain to the different parts of the body and vice versa. The spinal cord also controls all our reflex actions.
4. Eyelids and eyelashes protect our eyes. They keep out dust and dirt.
5. We hear sounds through our ears. When sounds are made they set up movements in the air called as **sound waves**. The outer ear, also called the pinna, acts like a funnel. It collects the sound waves and sends them to the eardrum in the middle ear. From there, a system of bones sends the sound waves to the inner ear.

## Chapter-9

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

B. 1. mechanical 2. fossil fuel 3. first class lever 4. third class lever 5. direction  
6. second class lever

C. 1. An inclined plane is a simple machine used to move objects to a higher place. A ramp is an example of inclined plane. Other examples of inclined plane are ladder slide, roads up a hill, etc.

Inclined plane makes work to load objects easy. It is also easy to move a heavy load down the inclined plane, as less force is needed.

2. A screw is a simple machine used to hold things together tightly. It acts like an inclined plane. If you look at a screw, you will see that it has a thread constantly curving upwards around a central shaft.

3. A wheel and axle is a simple machine with a wheel that turns on the axle. The distance around the wheel is greater than the distance around the axle, when work is easier to do. Sewing machine, bicycle, grinding machines have wheel and axle.

4. The wedge is really a small inclined plane. The blade of an axe is a wedge. When the axe is swung into the wood, the force is transferred to the blade. The blade moves forward through the wood when forced it.

The wedge is ideal for separating two objects that are held together by a great force.

5. It is one of the most important forms of energy. It is useful to us in many ways. The sun is the most important source of this energy. The heat energy is obtained by burning of fuel, such as- wood, gas, coal and oil.

6. A screw jack is used to lift a car for lorry or changing its tyres. The screw is turned by applying effort to the end of a long handle. Each time handle makes one revolution, the screw turns clockwise, here the screw moves up just a little. While the handle moves over a longer distance i.e is the work gets divided into small bits thereby, helping a person to lift a very heavy vehicle.

7. With the help of wind mills wind energy can be used to generate electricity, to operate flour mills, to draw underground water, etc. Therefore, it is considered by experts as more environment friendly than other energies.

D. 1. wind turbine 2. turbine 3. gravitational force

### Chapter-10

A. 1. (b) 2. (b) 3. (a) 4. (d)

B. 1. atmosphere 2. soil 3. oxygen 4. exhaled 5. impurities 6. distilled

C. 1. (c) 2. (d) 3. (a) 4. (e) 5. (b)

D. 1. atmosphere 2. troposphere 3. oxygen 4. nitrogen 5. distillation 6. boiling

E. 1. oxygen, nitrogen, hydrogen, argon

2. Atmosphere is a mixture of gases in several layers. It extends from the

earth's surface to about 800 kms. above the earth.

3. We need water to drink when we are thirsty. We cannot stay for long without drinking water.

Plants too cannot live long without water.

4. The water in wells and rivers is impure due to

A. Insoluble impurities which can be seen.

B. Soluble Impurities which cannot be seen.

C. Disease-causing germs.

5. Drinking water needs to be purified before use by the methods of boiling, distillation and chlorination.

- F. 1. Air is a mixture of many gases. It contains- nitrogen, oxygen, some other gases (carbon) dioxide, hydrogen, argon, methane in a very small amount, water vapor, smoke and dust.

The air we breathe contains various gases. Clean air consists of about 78 percent nitrogen, 21 percent oxygen, and less than 1 per cent of argon, carbon dioxide and other gases. It also contains water vapours.

2. Air has weight. We can perform a simple experiment to show that air has weight.

Take two footballs. Fill them up with air. Put both of them on either side of a weighing scale. Note that both the footballs weigh the same. Now, prick a sharp pin in one of the footballs. Now, observe that the end with inflated football go down as it is heavier than the other. This proves that air has weight.

3. This is the second layer, many jet aircrafts fly in this layer. It is about 30 kms. thick. It is a clear, cloudless layer. Stars glow as the sky is always black. The upper part of the stratosphere is the ozone layer. This ozone layer is like huge shield that blocks most of the sun harmful ultraviolet rays.

#### 4. Sedimentation

The process of removing insoluble impurities from water by letting the impurities settle at the base is called sedimentation.

#### Decantation

The process of pouring the sedimented water into the clean beaker without disturbing the sediment is called decantation (as described in the above activity).

5. **Chlorination** : In this method, the tablets of chlorine are added to the container in which the water is to be stored. Chlorine kills the germs and makes the water pure for household use.

### Chapter-11

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

B. 1. earth 2. Aryabhata 3. Yuri Gagarin 4. smooth 5. gravitational pull 6.

communication satellites

C. 1. Sputnik-I 2. Aryabhata 3. Rakesh Sharma 4. Yuri Gagarin 5. Laika

D. 1. Yuri Gagarin was the first person who went to space.

2. The first woman to travel into space was a Soviet cosmonaut named Valentina Tereshkova.

3. The first man-made satellite was Sputnik-I launched by Soviet Union (Now Russia).

4. Rakesh Sharma was the first Indian astronaut.

E. 1. Moon is the second brightest heavenly body in the sky. But unlike the sun, it does not give off light of its own. It shines because the sunlight falls on its surface. So, it only reflects the light of the sun. It is smaller than the sun though it appears to be of the same size. This is so because the moon is closer to us than the sun.

2. There is no air or water on the moon. No life can exist there. The moon's gravity is one-sixth of the gravity of the earth. On the moon you can easily lift objects that would be too heavy for you to lift on earth. There is no layer of atmosphere surrounding the moon's surface, so there is no protection from the strong rays of the sun. The side of the moon facing the sun is too cold to support life.

3. The tides are the regular rise and fall of the water of the ocean. They are related to the sun and the moon. The moon is close to the earth than the sun. It, therefore, has greater pull on the water than that of the sun. The moon's gravitational pull attracts the water of the ocean. It causes the water to rise towards the moon. This is called high tide. In high tide the water of the ocean rise on the seashore.

4. When the earth comes in between the sun and the moon, the earth casts its shadow on the moon. It cuts off the light of the sun from reaching the moon and hence the moon cannot be seen. When it happens, we say a lunar eclipse has taken place.

When the moon is completely in the dark shadow of the earth, it is a total lunar eclipse. When the moon is only partly hidden by the dark shadow of the earth, it is a partial lunar eclipse.

A lunar eclipse occurs only on a full moon day.

5. Artificial satellites are man-made objects which revolve around the earth just as the moon does. The earth's only natural satellite is the moon. Like the moon, artificial satellites reflect the sun's light and can be seen clearly in the night sky. The space age began in 1957 when the first man-made satellite, Sputnik-1, was launched to orbit in the space by Russian scientists. Since then thousands of satellites have been sent into the space.

6. When the moon blocks the light of the sun. It is called the total solar

eclipse. But when it partially hides the sun, it is called partial solar eclipse. In the same way when the moon is completely in the dark shadow of the earth, it is a total lunar eclipse. When the moon is only partly hidden by the dark shadow of the earth, it is a partial lunar eclipse.

7. Space satellites are designed for scientific research and give us important information about the atmosphere surrounding the earth. Satellites which send messages from one country to another are called communication satellites.

Space satellites take pictures of movement of clouds and help in forecasting the weather.

Satellites are also used by astronomers to collect information about conditions in the space, and about other planets and stars.

## Chapter-12

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

B. 1. F 2. T 3. T 4. T 5. F

C. 1. An earthquake is a sudden shaking of the ground caused by movements or vibrations deep inside the earth.

2. Magma is composed of molten rock and is stored in the Earth's crust. Lava is magma that reaches the surface of earth.

3. Tidal wave is commonly known as tsunami. The word tsunami comes from the Japanese word meaning 'harbors'.

4. The intensity of earthquake can be measured on a richter scale with the help of an instrument called the seismograph.

5. Mount Vesuvius, Mount Fuji and Mount Erebus are some active volcanoes.

D. 1. Natural disasters are very big accidents caused by some natural forces. A severe damage to life and property is caused due to these natural calamities. Man has no control over them. Earthquakes, floods, drought, storms and volcanic eruptions are all natural calamities.

2. Earthquakes are caused due to the movement of the plates below the upper surface of the earth's crust. The crust of the earth is about 30 kilometers deep. There are many plates or layers in the earth's crust. These plates keep on moving in different direction. When the two plates collide, the earth's crust is shaken causing an earthquake.

3. Volcano is an opening in the earth's crust that allows magma to reach the earth's surface. The magma that reaches the earth's surface is called lava and passage through which it travels is called vent. Volcanoes are usually found in the form of conical mountains. In nature, there are three types of volcanoes. Active volcanoes, dormant volcanoes and extinct volcanoes.

4. When there is no rainfall in a place for a very long time then that place

experiences drought. Due to no rains the crops in the field dry and perish. Rivers, ponds, lakes and other water bodies get dried.

Droughts usually occur in an area where there are very few natural sources of water and also the average rainfall in that place is also very low.

### Chapter-13

A. 1. (d) 2. (b) 3. (b) 4. (b) 5. (b) 6. (c)

B. 1. (e) 2. (c) 3. (d) 4. (a) 5. (b)

C. 1. Gases like carbon dioxide, nitrous oxide, methane and water vapour are greenhouse gases.

2. A greenhouse is a glasshouse where we grow plants, especially during the winter. In a greenhouse, the climate is controlled.

3. 'Pollution' means the process of making the environment dirty and unpleasant especially by means of poisonous chemicals.

4. Smoke causes lung and respiratory problems to us.

5. Green house gases in the atmosphere trap the heat of the sun and there is a rise in temperature on the earth. This is called global warming.

D. 1. There are lots of living and non-living things around us. These living things and non-living things together form our surroundings. The surrounding in which we live in is called the environment.

Human activities have made some changes in the atmosphere too. Factories are set up everyday to meet increasing demands. The number of vehicles on the roads is increasing day by day. The amount of smoke produced also keeps increasing. Thus, air, water and land are getting more and more polluted.

2. Now that we know how pollution poses a threat to our environment and health. We must restrict the use of vehicles and electricity.

Factories should be situated away from the residential areas.

Factories should have high chimneys so that the polluted air is expelled at a greater height from us.

Use of alternate fuels like CNG for vehicles and LPG, solar cooker, biogas, electric heater for cooking purpose can greatly reduce air pollution.

3. Used tyres can be cut into shapes of swing seats, climbing frames 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 playground surfaces, pencil pouches and diary covers.

4. Metal objects thrown away by people can be reused. People buy pipes, rods and other objects from scrap-dealers for reuse as they are cheaper. Craftsmen buy and melt pieces of scrap 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 can for reuse.