

Exploring Science-CLASS-5

Chapter 1 : Flower - Plants Decoration

A. 1. Reproduction is a process through which plants multiply to produce more of their own kind. In plants, reproduction takes place by seeds, spores and vegetative propagation.

2. i. Stamen is the male part of a flower.

ii. It is made up of filament and anther. iii. It is the pollen-producing part of the flower.

iv. The number of stamens is usually the same as the number of petals.

3. 1. Ovary is one of the parts of pistil.

2. It is situated at the bottom of the flower.

3. It has seeds present inside them that turn into fruits.

4. Pollination is the way through which the pollen from the male part of a flower get to the egg in the female part of a flower to form a seed.

B. 1. Anther produces and contains pollen.

2. Filament is fine hair-like stalk that holds the anther.

3. Style is a tube-like structure that holds up the stigma.

4. Ovule is the part of the ovary that becomes the seed.

5. Bats, bees, birds and butterflies are some common pollinators.

C. 1. Sensitive 2. water vapour and oxygen

3. Anther 4. Style 5. nectar

D. **Bats:** Flowers that are white or pale in colour, large and have strong fruit-like fragrance.

Moths: Flowers that are shaped like landing pads. And

also strong, sweet and scented night-time blooming flowers muted in colour.

Flies : Stinky flowers which are pale, dull or drab in colour.

Beetles : Flowers with lots of pollen, dull white or green in colour and mild in odour.

E. 1. 5 2. 3 3. 3 4. 3 5. 5

D. 1. d 2 a 3. c 4. d

Chapter 2 : Seed Germination and Dispersal

A.1.i. The cotyledon or seed leaf, absorbs the food in the endosperm and transports it to the embryo.

ii. The baby plant is present between the cotyledons.

iii. It develops a new root system and a shoot system that grows into a new plant.

2. 1. Seed dispersal is the process of spreading seeds to different places.

2. Seeds need to be dispersed because if they are not dispersed, many germinating seedlings will grow very close to the parent plant.

3. This will result in competition between the seedlings and their parent plant.

4. The competition is for light, space, water and nutrients which are important for the growth of plant.

5. Seed dispersal also creates colonies and prevents over-crowding.

3. 1. Animals eat fruits and throw away their seeds.

2. Seeds of apple, mango, orange etc. are dispersed in this way.

3. Some seeds have hooks that stick to the fur of animals and get dispersed. **Eg:** Cocklebur seed.

4. Birds swallow some seeds which come out with

their droppings.

5. Squirrels collect nuts and bury them to be used in winters. These seeds grow into new plants under favourable conditions.

6. While eating fruits, some seeds get stuck on the beaks of birds which fall down when birds rub their beaks against the bark of trees.

4. Characteristics of seeds dispersed by wind:

1. Seeds must be light and small so that they may be carried over large distances.

2. Seeds should have hair or wings to help them get carried away by the wind.

Ex: i) Seeds of hibiscus, dandelion and cotton have tufts of hair.

ii) Sycamore seeds are winged.

Characteristics of seeds dispersed by water :

1. Seeds must be spongy or hollow or lighter so that they can be carried by flowing waters over long distances.

Ex: i) The lotus fruit has spongy part which helps to float.

ii) Coconut is hollow on the inside and is covered with hairs outside. This makes it light and hence can be carried by flowing water.

5. 1. After harvesting, cereals like wheat and rice are stored in godowns.

2. This protects them from getting spoilt by moisture or eaten up by rats, birds and insects.

B. 1. Seeds having only one cotyledon are called monocotyledons. **Ex:** Corn, rice and maize seeds.

2. The seed with a small root and small shoot is called seedling.

3. Seed dispersal may be carried by wind, water or animals.

4. Different stages of crop cultivation are -

a) Ploughing the field

b) Sowing the seed

c) Addition of fertilizers

d) Irrigation

e) Crop protection

f) Harvesting and storage

5. Irrigation is the process in which water is supplied to farming field artificially.

6. DDT and Dieldrin are some common pesticides used for crop protection.

C. 1. crops 2. radicle 3. seed 4. seed coat

5. Sowing

D. 1. EMBRYO 2. SEEDS 3. RADICLE

4. GROWTH 5. CROP

E. 1. 3 2. 5 3. 3 4. 5 5. 3

F. 1. b 2. d 3. c 4. a

Chapter 3 : Lifestyle of Animals

A. 1. Animals need food to get energy and stay healthy.

2. i) Plant eating animals like cow, goat, sheep, deer are called herbivores.

ii) Animals like bear and dog eat both plants and flesh of animals. They are called Omnivores.

3. 1. Insects breathe through air tubes or holes.

2. There are large number of holes on the bodies of insects through which they breathe. These are called Spiracles.

3. These spiracles lead into a network of branching tubes called tracheae.

4. Because of the contraction of the body muscles, air is pumped into the tubes and then carried out to all tissues.

5. The tissues take in oxygen from the tubes and give out carbondioxide into the tubes.

4. 1. Amphibians breathe through gills and lungs.

2. Tadpoles breath through gills.

3. But an adult frog breathes through its lungs on land and through its moist skin under water.

5. 1. Migration is defined as the movement of animals from one region to another in response to changes in weather, habitat or availability of food.

2. Animals also migrate because of natural calamities like earth quake, drought or flood.

3. Some birds also migrate twice a year during spring and autumn. Such birds are called migratory birds.

B. 1. i) Rodents: **Ex:** Squirrel

ii) Carnivores : **Ex:** Tiger

iii) Amphibian : **Ex:** Frog

2. Mammals breathe through lungs.

3. Large number of holes on the bodies of insects through which they breathe are called spiracles.

4. Ostrich and kiwi birds cannot fly.

5. Webbed feet in frog helps to swim.

C. 1. Plant eating 2. breathing 3. gills

4. tracheae 5. resident frogs

D. 1. 3 2. 3 3. 5 4. 3 5. 5

E. 1. c 2. b 3. c 4.d 5. b

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

Chapter 4 : The Nervous System

A. 1. i) The brain is the control centre of the nervous system.

ii) It has three major parts - cerebrum, cerebellum and brain stem.

iii) All these parts work together.

2. Our brain can be kept safe and healthy by adopting

the following ways.

1. Eating healthy food that contain potassium and calcium, the two minerals that are important for the nervous system.

2. Getting a lot of play time (excercise).

3. Wearing a helmet when we ride our motorcycle or any other two wheeler.

4. Using our brain by doing challenging activities such as puzzles, reading, making art, etc. that gives a nice work out to our brain.

3. Functions of Skin:

1. The skin is an organ for touching and feeling.

2. It covers our entire body.

3. It absorbs sunlight for producing vitamin-D and heat.

4. It protects our internal organs from germs and dirt.

5. It keeps good things like water and blood inside our body.

6. It helps us feel heat, pain, pressure and cold since there are millions of nerve endings attached to it.

7. It regulates our body temperature by controlling blood flow and sweat.

4. 1. Tongue helps us to taste things.

2. The tongue can taste your different flavours: bitter, sour, salty and sweet.

5. Protection of Eyes:

1. Clean your eyes regularly.

2. Do not read in a moving car or bus.

3. Do not read in very dim or very bright light.

4. Do not watch television for long, you must sit atleast six feet away from it.

5. Do not rub your eyes with dirty hands.

B. 1. The actions that happen automatically without our thinking are called reflex actions.

2. The nervous system is made up of the brain, the spinal cord and thousand of nerves.
3. The nerves that carry message from the brain and spinal cord to the muscles and glands are Motor nerves.
4. The nerves that carry signals from the sense organs to the spinal cord to then to the brain are sensory nerves.

C. 1. Pupil 2. motor 3. Cerebrum 4. nervous system 5. Medulla

D. 1. Pupil 2. optic nerve 3. Iris 4. Cerebrum

5. Medulla

E. 1. MEDULLA 2. BRAIN 3. PUPIL 4. IRIS

5. NERVES

F. 1. 5 2. 3 3. 3 4. 5 5. 3

G. 1. d 2. d 3. a

Chapter 5: The Skeletal System

A.1.1. The place where two bones meet is called joint.

2. Two types of joints namely movable joint and fixed joint are present in our body.

3. The joints which allow the movement of bones are called movable joints.

4. There are four types of movable joints. They are - Hinge joint, gliding joint, ball and socket joint and pivot joint.

5. The joints that are fixed in place and don't move at all are called fixed joints. The bones of skull are joined together with the help of these joints called sutures.

2. Functions of the skeletal system :

1. Muscles are attached to the bones. Muscles and bones work together to move the parts of the body.

2. It provides support and the basic shape to the body. Without a skeleton, the body would be a

shapeless heap of tissues.

3. Bones contain minerals like calcium and phosphorus that make the bones strong.

4. Bones contain bone marrow, a fatty substance which forms blood.

5. It protects the soft organs of the body. The skull protects the brain. The ribs protect the heart and lungs.

3. 1. There are three types of muscle fibres - Smooth muscle fibres, cardiac muscle fibres, skeletal muscle fibres.

2. **Smooth muscle fibres** : Most involuntary muscles have smooth muscle fibres. These muscles do not have bands. Organs of respiratory and circulatory systems have smooth muscles. The smooth muscles work for long period without getting tired.

3. **Cardiac muscle fibres**: The heart is made up of cardiac muscle fibres known as myocardium. They have bands running across the muscles. These muscles work quickly and are powerful. They do not get tired.

4. **Skeletal muscle fibres**: All voluntary muscles attached to the bones are made up of the skeletal muscle fibres which are also called striated muscle fibres. They have dark bands running across the muscles.

4. 1. There are four types of movable joints namely - Hinge joint, gliding joint, ball and socket joint and pivot joint.

2. **Hinge Joint** : Bones move in one direction only because of the hinge joint. Both elbows and knees have hinge joints. Smaller hinge joints are present in fingers and toes.

3. **Gliding Joint**: This joint is found between the small

bones of wrists and ankles. The movements allowed are simple gliding back and forth and sideways.

4. **Ball and Socket Joint** : They have one round end of one bone that fits into a small cup - like area of another bone. This joint allows lot of movement in every direction. Our hips and shoulders have ball and socket joints.

5. **Pivot Joint** : It is located between the first and the second vertebrae of the backbone. The skull has been connected to the first two vertebrae of the vertebral column with the help of a pivot joint. It allows the rotational movement from side to side.

5. 1. The arms are called fore-limbs.

2. Each fore-limb has three bones.

3. The upper arm above the elbow has one bone, called humerus.

4. The lower arm below the elbow has two bones called radius and ulna.

5. The wrist, the hands and fingers are made up of many small bones.

6. The hind-limbs or the legs also have three bones each.

7. Femur is the thigh bone, the longest bone in the body.

8. The lower leg below the knee has two bones, called tibia and fibula.

B. 1. The last two pairs of ribs attached to the spine at back are called floating ribs as they are not connected to sternum.

2. The bones in the head that protect our brain and give shape to the face is called skull.

3. The framework of bones with each other inside our body is called skeleton.

4. The place where two bones meet is called joint.

5. The strong fibres with which the muscles are attached to bones are called tendons.

C. 1. MUSCLES 2. JOINT 3. SKULL 4. SKELETON

5. SKELETAL

D. 1. floating 2. ligament 3. pivot

4. bone marrow 5. eight

E. 1. ✓ 2. ✓ 3. ✓ 4. ✗ 5. ✓

F. 1. d 2. c 3. b 4. c 5. b

Chapter 6: Food and Health

A.1. 1. Food is essential for our body.

2. Food contains essential nutrients which help to keep our bones, hair, nails, teeth and skin strong and healthy.

3. Food makes our immune system strong. It helps us recover quickly when we are ill. It also helps to build and repair cells and tissues of our body.

4. Food helps our body and mind grow. Without food any living thing will die.

5. Delicious food also makes one happy and gives pleasure.

6. Food contains two types of essential nutrients.

They are macro-nutrients like carbohydrates, fats, proteins and micro-nutrients like vitamins and minerals.

2. **Proteins** : Our diet must contain 35% of food rich in proteins. Foods like beans, meat, poultry, fish, cheese, nuts and pulses are rich sources of proteins.

1. We need proteins for growth.

2. They build and repair worn out cells of our body.

3. They improve our immune system.

4. They provide energy when carbohydrates are not available.

3. Importance of carbohydrates:

1. Carbohydrates are main source of energy.
2. They are easily used by the body.
3. They are needed for the central nervous system, kidneys, brain and muscles for proper working.
4. They are mainly found in starchy foods like grain and potatoes, fruits, milk and yogurt. Sugar and starch are simplest forms of carbohydrates.

Importance of Fats

1. Fats provide taste and stability to food.
 2. They provide energy for normal growth and development.
 3. They help to absorb certain vitamins.
 4. They cover the delicate body parts and protect them from injuries.
 5. They also keep the body warm.
 6. Fats are of three types. Saturated fat is found in meat, butter and cream. Trans fat is found in baked items like biscuits, snack foods and fried foods. Unsaturated fat is found in olive oil, nuts etc.
1. Vitamins and minerals are needed by our body in small amounts. So, these are called micro-nutrients.
 2. Vitamin - A prevents eye problems, promotes healthy immune system and keeps skin healthy.
 3. Vitamin -C helps to absorb iron and calcium, aids in wound healing and brain function. Also keeps bones, teeth and gums healthy.
 4. Vitamin-D strengthens bones as it helps to absorb calcium.
 5. Vitamin - E protects cells from setting damage.

6. Minerals like calcium builds strong teeth and bones, iron carries oxygen to all parts of the body, zinc strengthens immune system and magnesium helps muscles and nerve function, helps body create energy and make proteins.

5.

Non Communicable diseases

Communicable diseases

1. These are spread from one person to another.
2. These are caused by germs present in air, food, water, etc.
3. **Ex:** Typhoid, chicken pox, AIDS, Malaria, dysentery etc.

1. They do not spread from one person to another.
2. They are caused due to deficiency of vitamins, minerals etc. or due to the malfunctioning of a body part like liver, kidney etc.
3. **Ex:** Night blindness, Scurvy, Rickets, Anaemia, Goitre etc.

- B. 1. Roughage are the types of carbohydrates that our body cannot digest.
2. A diet that contains all the nutrients, roughage and water in the right proportion is called Balanced Diet.
3. Lack of proteins and carbohydrates over a long period of time causes malnutrition.
4. Immunity is the ability of the body to fight against disease.
5. Night blindness and Anaemia are deficiency diseases.

- C. 1. Vitamins 2. night blindness 3. Vitamin - C 4. Iodine 5. Anaemia

D. 1. NUTRIENTS 2. GERMS 3. VACCINATION
4. DISEASE 5. VITAMINS

E. 1. ✓ 2. ✗ 3. ✓ 4. ✗ 5. ✗

F. 1. b 2. a 3. a 4. c

Chapter 7 : Air and Water

A. 1. Air is a mixture of gases - 78% of nitrogen, 21% of oxygen, 1% other gases, dust particles and water vapour.

1. Oxygen: It is most important for breathing and for staying alive. It is also essential for burning.

2. Nitrogen: It keeps the process of burning under control. All living things need nitrogen for their growth.

3. Carbondioxide: Air contains 0.03% of carbondioxide. Plants use carbondioxide to make their own food. It absorbs the heat sent to the earth by Sun. This makes the earth atmosphere suitable for life to exist.

4. Ozone: This forms a layer in the atmosphere and is very useful in saving the earth from harmful ultraviolet rays of the Sun.

5. Water Vapour: The amount of water vapour present in the air at a given time is called humidity. When humidity becomes very high, it rains.

2. Properties of Air:

1. Air has weight.
2. Air occupies space.
3. Air exerts pressure.

3. Atmosphere is the blanket of air surrounding the earth. It consists of four main layers. They are - Troposphere, Stratosphere, Ionosphere and Exosphere.

(i) Troposphere: It is the first layer of atmosphere that extends upto 15km above the earth's surface. This

layer is made up of gases we breathe everyday.

(ii) Stratosphere : It extends upto 35km and lies above the troposphere. The ozone layer is situated in the upper part of this layer which prevents harmful ultraviolet rays to enter earth's atmosphere.

(iii) Ionosphere : Above the stratosphere, lies the mesosphere, followed by the thermosphere. The mesosphere and thermosphere are together called as ionosphere. This is the thickest layer which possesses electrically charged particle that help radious work.

(iv) Exosphere : It is the layer of atmosphere above the Ionosphere and is very thin. Beyond this layer, lies the space.

4. 1. Sedimentation is the process through which heavy particles (impurities) present in water settle at the bottom of container due to the effect of gravity.

2. Decantation is the process of separation of mixtures, carefully pouring a solution from a container and leaving sediments at the bottom of the container.

5. Soluble impurities can be removed from the water through evaporation.

Experiment: 1. Take some water in a beaker.

2. Dissolve some sugar in the water.

3. Put the beaker on a spirit lamp.

4. Allow it to boil until the entire water content of the beaker evaporates.

5. After evaporation, some crystals of sugar can be seen lying in the beaker.

6. Thus, sugar is removed from the water through evaporation.

B.1. Water purification is the process of removal of undesirable substances from raw water to make it fit for human consumption.

2. Atmosphere contains 78% of Nitrogen, 21% of oxygen, 1% other gases, dust particles and water vapour.

3. The substance impurities that gets dissolved in water are called soluble impurities.

4. Some substances which do not get dissolved in water are called insoluble impurities.

5. Different methods are followed for water purification. They are boiling, filtration, chemical treatment, ultraviolet purification, reverse osmosis, distillation etc.

C. 1. Oxygen 2. Nitrogen 3. Ozone Layer

4. Troposphere 5. Filter Paper 6. Chlorine and Iodine

D. 1. X 2. ✓ 3. X 4. X

E. 1.(d) 2.(b) 3.(b) 4.(b) 5.(d)

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

Chapter 8 : States of Matter

1. 1. Objects that take up space and have mass are called matter.

2. Our body and everything around us is made up of matter.

2.

| Physical change | Chemical change |
|--|---|
| 1. A Physical change is a temporary change which can be reversed. | 1. A chemical change is a permanent change which cannot be reversed. |
| 2. It affects only the state of matter. So we can get back the old substances. | 2. New substances are formed and we cannot get back the old substances. |
| 3. Ex: Conversion of water into ice and ice into water. | 3. Ex: Conversion of milk into curd. |

3. Matter exists in three states - Solid, Liquid and Gas.

3. 1. Molecules are always in a state of motion.

2. They never stop moving.

3. They are constantly attracted towards one another.

4. In solids, atoms or molecules are closely packed.

They are not compressible. So, a solid is relatively rigid.

5. In liquids, the molecules are less closely packed.

Molecules can move around freely. So, liquids can flow.

6. In gases, the molecules are very loosely packed.

Molecules have a lot of freedom to move here and there.

4. 1. A mixture is a combination of two or more substances that are not chemically united and do not exist in fixed proportions with respect to one another.

2. Most natural substances are mixtures.

3. **Ex:** Water and oil are mixtures.

4. Mixture is divided into two types: Homogeneous mixture and Heterogeneous mixture.

5. 1. A solution is a mixture of two or more substances in a single phase.

2. At least two substances must be mixed in order to make a solution.

3. **Ex:** Take a beaker filled with water. Put some salt in it. It dissolves. Molecules in water are loosely packed.

Space exists between the molecules of water. When we put salt in it, the salt molecules take up the empty space that exists between the water molecules.

Water molecules also fill up the empty space of salt. This results in the formation of a solution. This process continues till all empty spaces are completely filled.

B. 1. Atom: Atoms are the building blocks of matter.

2. **Molecules:** All matter can be split into tiny units that are not visible to our naked eye. These tiny units are called molecules.

3. **Element:** Atoms of the same kind form elements.

4. **Compound:** The atoms of different kinds combine and form compounds.

5. **Solute:** The substance that gets dissolved is called solute.

6. **Solvent:** The substance in the larger amount is called solvent.

C. 1. Air 2. Paper 3. molecules 4. largest

5. solvent

D. 1. ✗ 2. ✗ 3. ✓ 4. ✓ 5. ✓

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

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

Chapter 9 : Rocks, Minerals and Soil

1. 1. Rocks are made up of one or more minerals. The type of rock depends on the quality, quantity and arrangement of minerals in it.

2. According to the methods involved in the formation of rocks, there are three types of rocks.

3. They are igneous rocks, sedimentary rocks and metamorphic rocks.

2. 1. Igneous rocks form the base of all kinds of land-plains, mountains and ocean beds.

2. Igneous rocks are called fire rocks.

3. They are formed either underground or above ground.

4. They are formed underground when the melted rock, called magma, deep within the earth, is trapped in small pockets. As these pockets of magma cool down slowly, this very magma becomes igneous rock.

5. They are formed above ground when lava cools. Volcanoes erupt, causing the magma to rise above the earth's surface. This magma is called lava.

3. 1. Sedimentary rocks are formed by the deposition of material at the earth's surface and within various water bodies.

2. Sedimentation is the collective name for the processes that causes mineral and organic particles to settle and accumulate.

3. Particles that form a sedimentary rock by accumulating are called sediments.

4. 1. Metamorphic rocks are formed when existing rock types are subjected to extreme conditions of temperature and pressure leading to change in physical and chemical condition.

2. The process is called metamorphosis and the type of rock formed in the process is called metamorphic rock.

5. 1. The protection of soil against agents of soil erosion like wind, water and human action is called soil conservation.

2. Some of the common ways of soil conservation are as follows:

(i) Growing grasses and creepers when fields lie bare in between two harvest seasons.

(ii) Encouraging step or terrace farming in hilly areas.

(iii) Afforestation or growing trees over hill slopes.

B. 1. Minerals are of two types. Metallic minerals like iron, copper, tin, bauxite, manganese, etc. Non-metallic minerals like coal and petroleum.

2. Metallic minerals are those minerals which can be melted to obtain new products.

3. Non-metallic minerals are those which do not yield new products on melting.

4. Petroleum is a naturally occurring mineral primarily made up of hydrogen and carbon.

5. Soil is the thin uppermost layer of material on the earth's surface in which plants have their roots.

C. 1. Minerals 2. Magma 3. Sedimentary 4. cotton 5. pumice

D. 1. ✓ 2. ✗ 3. ✓ 4. ✗

E. 1.(d) 2.(d) 3.(d) 4.(a) 5.(b)

Chapter 10 : Simple Machines

1. 1. Machine is a device that helps us to do work very rapidly.

2. A simple machine is a machine that uses a single force.

3. It does not increase or decrease the amount of work but makes it easier through two methods:

(a) amount changing the direction of force.

(b) Increasing the distance and minimizing the amount of force needed.

4. **Ex:** A heavy box is easily loaded on to a truck, if we use a plank.

A steep climb is less tiring if it has steps.

2. There are six types of simple machines: Lever, pulley, inclined plane, screw, wheel and axle and wedge.

1. **Lever: Examples:** A hammer is a lever when it is used to pull a nail out of a piece of wood. Bottle openers, see-saw, etc. are also levers.

2. **Wheel and axle:** Examples: Cars, roller skates, door knobs, gears in watches, clocks and bicycles.

3. **Inclined plane:** Examples: Ramp, slanted roof, uphill path, slide.

4. **Wedge:** Examples: Fork, knives, axes and nails.

5. **Screw:** Examples: Jar lids, light bulbs, clamps, jacks,

spiral staircase, etc.

6. **Pulley:** Examples: Pulleys are used in flag poles, sailboats and cranes.

3. 1. A lever is a board or bar that rests on a turning point.

2. The turning point is called fulcrum.

3. An object that a lever moves is called load.

4. The force that is applied to an object is called effort.

5. The closer the object is to the fulcrum, the easier it is to move.

6. **Ex:** Hammer is a lever when it is used to pull a nail out of a piece of wood. Bottle openers and see - saw are also levers.

4. Levers are of three kinds.

1. **First-class lever:** When fulcrum is kept between load and effort, it is called first - class lever.

Ex: Scissors, claw hammer, piler, etc.

L F E

Load Fulcrum Effort

2. **Second-class lever:** When the load is put between the fulcrum and the effort, it is called second - class lever. **Ex:** Wheel barrow, bottle opener, nut cracker, etc.

F L E

(Fulcrum) (Load) (Effort)

3. **Third-class lever:** When effort is put between fulcrum and load, it is called third-class lever. **Ex:** Ice tong, fishing rod, forceps, etc.

F E L

(Fulcrum) (Effort) (Load)

5. 1. Pulley is made up of a wheel and a rope. The rope fits on the groove of the wheel.

2. One side of the rope is attached to load.
3. When we pull on one side of the pulley, the wheel turns and the load moves.
4. The pulley helps us to move the load up, down or sideways.
5. Pulleys are good for moving heavy objects.
6. It also makes the work of moving heavy loads a lot easier.
7. **Ex:** The crane uses a pulley to move a heavy ball. Without the use of a pulley, the ball would be hard to move.

8. Pulleys are also used in flag poles, sail boats, etc.

B. 1. The turning point on which a board or bar rests is called fulcrum.

2. Cars and clocks uses wheel and axle as a simple machine.

3. A wedge is a simple machine used to push too objects apart.

4. Jar uses simple machines like screws to hold the lid on its top. When we turn the lid, it moves up or down.

C. 1. single 2. lever 3. third 4. less 5. screw

D. 1. X 2. ✓ 3. X 4. X 5. ✓

E. 1.(c)✓ 2.(b)✓ 3.(b) ✓ 4.(b) ✓ 5.(a) ✓

F. 1. PULLEY 2. LEVER 3. WEDGE 4. MACHINE

5. FULCRUM

Chapter 1 : Safety and First - Aid

6. 1. If a person gets a minor cut or a deep cut I would help him as follows:

7. 1.

8. I will wash my hands before giving first - aid to an injured person.

9. 2.

10. I will try to remove all the dirt from the

wound with the help of small pads of cotton soaked in dettol or savlon.

11. 3.

12. I will cover the wound with the clean cotton dressing to stop the bleeding.

13. 4.

14. I will press on the point where the blood is coming from and keep on pressing it.

15. 2. If someone has a bleeding nose, I will-

16. 1. Mak

17. e him sit up straight.

18. 2. Lean his head forw

19. ard.

20. 3. Pinch the soft part of the nose ten minutes.

21. 4.

22. Prepare an ice pack by wrapping crushed ice cubes in a cloth. Apply the ice pack on the patients nose to reduce bleeding.

23. 3. Any break or crack in the bone is called fracture. For such an injured person having fracture, following precautions should be given:

24. 1. T

25. ell the person to keep the injured part still.

26. 2.

27. Support it to stop it moving - use hands, clothes or cushions.

28. 3.

29. If the fracture is in the hand, make a sling using a piece of cloth or bandage. The sling gives support to the arm.

30. 4.

31. If the patient has to be moved, he should be carried on a stretcher.

32. 5. T
33. take the patient to a doctor.
34. 4. 1. If I get a burn, I will cool the burn under running water for atleast ten minutes or I will apply ice cubes over the burnt area.
35. 2. I will apply an antiseptic lik
36. e Burnol.
37. 3. I will inform an adult about the accident.
38. 5. First -aid to be given in case of snake bite:
39. 1.
40. Tie a bandage just above the bite to stop the follow of blood to the heart and brain.
41. 2.
42. Do not move the victim. Any kind of movement will force the poison to spread faster in the victim's body.
43. 3.
44. Try to get the poison out from the wound as quickly as may be possible.
45. 4.
46. Consult a doctor immediately for anti-venom injections.
47. B. 1. First - aid is the help given to a person who has been hurt or is suddenly taken ill.
2. Any break or crack in the bone is called fracture.
3. The saliva of animals such as dogs, cats and monkeys contain virues of very dangerous disease called rabies. When these animals bite someone, rabies is caused because the viruses enter the victim's body through the animals salvia.
4. Sometimes, joints such as ankle get twisted and swell up. The tissues around the twisted joint are damaged. This is called sprain.

5. Burnol is an antiseptic ointment.

C. 1.injured 2.bone 3.antiseptic 4.viruses

D. 1. ✓ 2. ✓ 3. ✓

E. 1.(d)✓ 2.(a)✓ 3.(d) ✓

F. 1. Accidents 2. Fractures 3. First Aid

Chapter 11 : Solar System

1. 1. Planets are the heavenly bodies that more around the sun.

2. These planets spin on their own axis and at the same time revolve round the sun.

3. Planets do not have their own light. They reflect the sunlight.

4. There are eight planets in our solar system. They are - Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.

2. 1. A star is a large ball of gases.

2. It gives out heat and light.

3. Many patterns of the stars are visible in the sky. These patterns are called constellations.

4. The stars we see in the night sky are part of a huge star cloud called Milky way galaxy which has billions of stars.

3. 1. The sun and the planets along with other heavenly bodies is called Solar System.

2. There are eight planets in our solar system. They are - Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.

4. 1. An asteroid is a large rock in the outer space.

2. They are small in terms of size and do not have enough gravity.

3. The asteroid belt is divided into an inner belt and an outer belt.

4. The asteroids of inner belt are made up of metals and those of outer belt are rich in terms of carbon.

5. 1. Satellites are small heavenly bodies that revolve around planets.

2. Planets like the earth, mars, jupiter, saturn, uranus and neptune have their own natural satellites.

3. The moon is a natural satellite of the earth.

B. 1. Indian names of planets:-

Mercury - Budh

Venus - Shukra

Earth - Prithvi

Mars - Mangal

Jupiter - Brihaspati

Saturn - Shani

Uranus - Arun

Neptune - Varun

2. Mercury is the nearest planet to the Sun.

3. Venus is the hottest and brightest planet.

4. "I" refers to Mars.

5. No. Planets do not have their own light. They reflect the sunlight.

C. 1.Stars 2.Mars 3.Jupiter 4.Saturn

5. Venus

D. 1. X 2.X 3. ✓ 4. ✓ 5. X

E. 1.(a)✓ 2.(a)✓ 3.(d) ✓ 4.(d) ✓

Chapter 12: Satellites

1. 1. The moon is much smaller than the sun though it appears to be of the same size as that of the sun.

2. This is because the moon is closer to the earth than Sun.

3. The moon is not a light source as it does not have its own light.

4. The moon reflects the lights coming to it from the sun.

5. We can see the moon because the light from the sun bounces back towards the earth.

6. In the absence of sun, the moon would not be visible.

2. 1. The moon's gravity is one - sixth of the gravity of the earth. So, we cannot stand firmly on its surface.

2. Only traces of water was discovered on the surface of the moon which is not sufficient and suitable for life to exist on the moon.

3. The side of the moon facing the sun is extremely hot and the side away from the sun is too cold to support life.

4. The absence of atmosphere surrounding the moons surface makes us prone to harmful radiation from sun, extreme weather conditons and falling meteors.

5. In the absence of air, no sound can be heard on the moon. It is a lonely and silent place without any animal, plants or water bodies.

6. These conditions make life difficult to exist on the moon.

3. Solar eclipse:

1. Solar eclipse occurs when the sun, the moon and the earth come in a straight line.

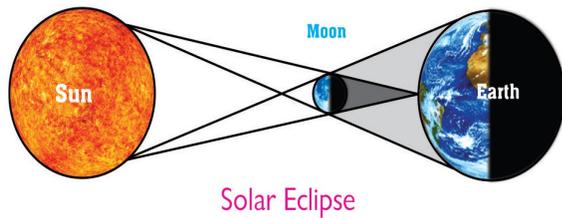
2. The moon acts as an opaque object.

3. When the sun's rays falls on the moon, it blocks the rays from reaching the earth.

4. A shadow of the moon is formed on the earth.

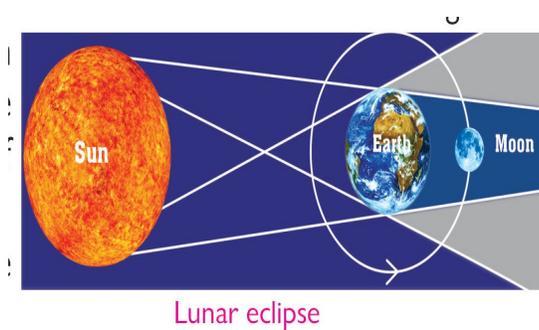
5. When the earth is completely hidden by the shadow of the moon, it is called total solar eclipse.

6. When the earth is partially hidden by the shadow of the moon, it is called partial solar eclipse.



4. Lunar eclipse:

1. The lunar eclipse occurs when the sun, the earth and the moon come in a straight line.
2. The earth acts as an opaque objects.
3. When the sun's rays fall on the earth, it stops these rays from reaching the moon.
4. A shadow of earth is formed on the moon.
5. When the moon is completely hidden by the shadow of the earth, it is called total lunar eclipse.
6. When the moon is partially hidden by the shadow of the earth, it is called partial lunar eclipse.



5. 1. A satellite is an object that goes around or orbits a planet.
2. Natural satellites and hundreds of man-made satellites also orbit the earth.
3. Many of the planets of our solar system have more than one satellite of varying sizes.

4. The moon is the earth's only natural satellite.

- B.** 1. The fixed paths around the sun are called orbits.
2. 1. During quarter moons, the gravitational forces of the sun and the moon oppose each other to produce the lowest tides called neap tides.
 2. During full and new moons, the gravitational forces of the sun and moon combine to produce the highest tides, called spring tides.
 3. When the bright part of the moon is getting bigger, the moon is waxing and when it is getting smaller, the moon is waning.
 4. A lunar month is the time the moon takes to pass through a complete cycle of its phases. Its cycle is measured from new moon to complete to new moon. A lunar month is about 29.5 days.

C. 1.Sun and planets 2.east and west 3.27 4.Milk moon

D. 1. ✓ 2. ✗ 3. ✓ 4. ✓

E. 1.(a)✓ 2.(d)✓ 3.(c) ✓

Chapter 13 : Our Environment

1. 1. A green house is a house made of glass.
2. It has glass walls and a glass roof.
3. People grow tomatoes, flowers and other plants in them.
4. A green house is warm inside, even during winters.
5. The sun's rays pass through the glass and warm up the inside of the house.
6. The heat is trapped by the glass and does not escape.
7. So, during day light hours, the air gets warmer and warmer inside a green house and remains warm at night too.

2. 1. Earth's atmosphere acts like a green house.
2. Gases present in the atmosphere such as carbondioxide acts like a roof of the earth.
3. During the day, the sun shines through the atmosphere and earth's surface is heated up in the sunlight.
4. At night, the earth's surface cools and releases the heat back to air.
5. But some of the heat is trapped by the green house gases in the atmosphere. It keeps our earth warm and cozy.
6. It also keeps the temperature moderate thus making the condition suitable for survival of life forms on the earth.

3. 1. Gases that help in causing green house effect are called green house gases.

2. These gases either occur naturally or are produced on the earth due to human or natural activities.
3. Water vapour, carbondioxide, methane, nitrous oxide and ozone are green house gases.
4. These green house gases trap some of the heat in the atmosphere and keeps our earth warm and cozy.
5. They also keep the temperature moderate thus making the condition suitable for survival of life forms on the earth.

4. Green house effect:

1. The earth is wrapped in a blanket called atmosphere which is made up of several layers of gases.
2. The sun is much hotter than the earth and gives out heat that travels through the atmosphere and reaches the earth.
3. The rays of the sun warms the earth and heat from the earth travels back into the atmosphere.

4. The gases in the atmosphere stop some of the heat from escaping into space.

5. These gases are called green house gases and the natural process between the sun, the atmosphere and the earth is called green house effect.

5. Effects of Global Warming:-

1. The planet will become warmer and the weather all over the earth will change. Water cycle pattern will get disturbed, resulting in more rainfall.
2. Water of the seas and oceans expand. Ice melting in the Antarctica and Green Land will rise threatening the low-lying coastal areas to submerge.
3. Types of crops grown in different parts of the world will be affected.
4. Homes of plants and animals will be affected all over the world. Some special plants and animals may become extinct.
5. Changing climate will have adverse effects on human species living along the coastal areas.

B. 1. Increase in more and more green house gases in the atmosphere leads to rise in temperature of the earth. This is known as global warming.

2. The process of damaging environment is called environmental degradation.
3. Cutting of forest trees on a large scale or the clearance of forest land for different purpose is called deforestation.

C. 1. Ultraviolet and infrared

2. Water vapour and nitrous oxide
3. Ozone
4. Methane
5. Chlorofluorocarbons

D. 1. Ultraviolet 2. Ozone 3. Green House 4. Revolution

5. Methane 6. Carbon

E. 1. 7 2.3 3. 3 4. 3 5. 3

F. 1.(a)3 2.(a)3 3.(a) 3 4.(d)3 5.(d)3

Chapter 14 : Natural Calamities

1. 1. An earthquake happens when two blocks within the earth suddenly slip past one another.

2. The earth has four major layers: Inner core, outer core, mantle and crust.

3. The crust and top of the mantle make up a thin layer on the surface of our planet.

4. But this layer is not one piece. It is made up of many pieces.

5. These pieces keep moving around slowly, sliding past one another and bumping into one another on some occasions.

6. These pieces are called tectonic plates and the edges of plates are called plate boundaries.

7. The plate boundaries are made up of many faults and most of the earthquakes around the world occur on these faults.

8. Since the edges of the plates are rough, they get stuck while the rest of the plates keep moving.

9. Finally, when the plate tends to move far enough, the edges dissociate on one of the faults and there is an earthquake.

2. Effects of Earthquake:

1. An earthquake sends shock waves that are strong enough for altering the surface of the earth, thrusting up cliffs and opening deep gorges in the ground.

2. Causes great damage like the collapse of buildings and other man - made structures.

3. Causes the break down of power and gas lines thus causing fire.

4. Causes land slides, snow avalanches, tsunamis and volcanic eruptions.

3. Safety procedures during the course of an earthquake:

1. Do not try to run out of the building when you are inside your house.

2. Get under a bed or table. Cover your head and face with the help of a pillow, newspaper, blanket, etc., to protect yourself from falling debris.

3. Never use the elevator during the course of an earthquake because electricity supply may be cut off leaving you stuck up in the elevator.

4. Stay at a place till the earthquake stops, if you are outdoors. Do not stay near walls, buildings, lamp posts, power poles, etc.

4. Types of Volcanoes: There are two different types of volcano - active volcano and extinct volcano.

1. Active volcano: It is a volcano that has at least one eruption during the past 10,000 years. An active volcano could be erupting or dormant.

(a) Erupting Volcano:- It is an active volcano that is having an eruption. Ex: Etna of the Mediterranean Sea.

(b) Dormant Volcano :- It is an active volcano that is not erupting but is supposed to erupt again. Ex: Fujiyama in Japan.

2. Extinct Volcano: Volcano that has not erupted for atleast 10,000 years and is not expected to erupt again in a comparable time scale of the future.

Ex: Popa in Myanmar and Mt. Kneya.

5. Causes of Tsunami:

1. The drop down and upthrust of the earth's crust

result in earthquake. The vast majority of tsunamis occur due to earthquakes.

2. A large -scale under sea landslide also triggers tsunami.

3. Under sea volcanic eruption of a certain degree also results in a tsunami.

6. Causes of flood:

1. Heavy rainfall.

2. Heavy snow melting.

3. High tides, storms, cyclones, etc. in coastal areas.

4. Deforestation.

B. 1. Hypocenter:- The location below the earth's surface where the earthquake starts is called hypocenter.

2. Extinct Volcano:- Volcano that has not erupted for atleast 10,000 years and is not expected to erupt again in a comparable time scale of the future.

Ex: Popa in Myanmar and Mt. Kenya.

3. Epicenter:- The location directly above the hypocenter on the surface of the earth is called epicenter.

4. Lava:- The liquid rocks and gases that flow out of a volcano are jointly called lava.

5. Tectonic Plates:- The crust and top of the mantle make up a thin layer on the surface of our planet. This layer is made up of many pieces that keep moving around slowly, sliding past one another and bumping into one another on some occasions. These pieces are called tectonic plates.

6. **Volcano:-** A volcano is a land form(usually a mountain) where molten rock erupts through the surface of the earth.

C. 1. Extinct

2. Cracks 3. Epicenter

4. Richter scale

5. Natural

D. 1. Tsunami 2. Epicenter 3. Volcano 4. Seismograph

5. Dormant

E. 1. ✓ 2. ✓ 3. ✓ 4. X 5. X 6. ✓ 7. X

F. 1.(b)✓ 2.(a)✓ 3.(a) ✓