



Teacher's
Manual



Focus SCIENCE



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Class - 1

1. My Body

- A. 1. (b), 2. (b), 3. (c)
B. 1. mouth, 2. nose, 3. eyes, 4. ears, forehead
C. 1. True, 2. False 3. True, 4. False
D. 1. (c), 2. (e), 3. (b), 4. (a), 5. (d)
E. 1. The topmost part of our body is called head. Hair grow on head.
2. Our nose helps us to smell.
3. Eyes, Nose, Ears, Tongue, Skin help us to know about our surroundings.
4. Legs are used for walking, playing and running.

2. Looking After My body

- A. 1. (b), 2. (a), 3. (b)
B. 1. strong, active, 2. clean, 3. fresh, 4. fit
C. 1. True, 2. False, 3. False, 4. True
D. (✓), (X), (✓), (✓), (✓).
E. 1. We must brush our teeth regularly. We should take a bath daily with clean water. We should wash our hair at least twice a week. We must wear clean clothes because they make us look smart.
2. Listening music, reading stories and playing indoor games make us feel refresh, when we are tired.
3. We should go to bed early at night and get up early in the morning.

3. Plants Around Us

- A. 1. (c), 2. (b), 3. (c), 4. (a), 5. (a)
B. 1. stems, 2. green, 3. climber, 4. Cactus, roses
C. 1. Mint, 2. Grapevine, 3. Rose, 4. Peepal
D. 1. (c), 2. (d), 3. (a), 4. (e), 5. (b)
E. 1. Trees : Some plants are big and strong. These plants have woody stems. We call them trees.
2. Rose and Sunflower are two bushy plants.
3. Creepers cannot stand straight. They grow along the ground.
4. Rose and Cactus are two thorny plants.
5. Some plants are very small. They have soft and green stems. We call them herbs.

4. Parts of a Plant

- A. 1. (a), 2. (c), 3. (c), 4. (b)
B. 1. many, 2. Roots, 3. Flowers, 4. leaves, 5. seeds
C. 1. Stem, root, leaves, flowers and fruits are the parts of a plant.
2. Stem helps the plant to stand straight and carries food and water to other parts of the plant.
3. Banana plant has large leaves. 4. Flowers grow into fruits.
5. Air, water and sunlight.

5. Food From Plants

- A. 1. (b), 2. (a), 3. (c)
B. 1. plants, 2. cereals, 3. carrot, turnip, 4. stems.
C. 1. (c), 2. (a), 3. (d), 4. (b) D. 1. True, 2. False, 3. True, 4. False
E. 1. Fruits and vegetables, cereals and pulses.
2. Two parts of a plant that we eat as vegetable are stem and leaf.

3. Wheat, corn and rice.
4. Kidney beans, white gram and black gram.

6. The Animal World

- A. 1. (b), 2. (c), 3. (a)
B. 1. False, 2. True, 3. False, 4. False
C. 1. Deer, Rabbit 2. Frog, Crocodile 3. Snake, Lizard 4. Cat, Dog
D. 1. Fish, 2. Dog, 3. Rabbit, 4. Cockroach
E. 1. Animals which live in forest are called wild animals.
2. Animals which live around our homes are called pet animals.
3. Animals that live both on land and in water are called amphibians.
4. Crawling animals are called reptiles.

7. Food And Homes of Animals

- A. 1. (c), 2. (a), 3. (a), 4. (b)
B. 1. food, 2. insects, 3. grass, 4. foodgrains, 5. den
C. 1. False, 2. True, 3. True, 4. True, 5. False
D. 1. Animals that eats green plants and grass are called herbivores.
2. Flesh eating animals are called carnivores.
3. Animals which eat insects or warms are called insectivores.
4. Animals also need homes to live in safely. Homes protect them from heat, cold, winds, rains and enemies.
E. 1. deer, 2. frog, 3. coop, 4. beehive

8. Importance of Animals in Human Life

- A. 1. (a), 2. (c), 3. (c), 4. (c), 5. (a)
B. 1. Cow, goat, 2. wool, 3. plough, 4. cloth.
C. 1. Animals are very useful to us in many ways. Cows, buffaloes and goats give us milk. Some animals give us meat and eggs to eat.
2. Sheep, Rabbit are animals which give us wool.

9. Staying Safe

- A. 1. (a), 2. (c), 3. (b)
B. 1. footpath, 2. wait, 3. play, 4. rubber tube
C. 1. False, 2. True, 3. False, 4. True
D. Stop, Wait, Go
E. 1. The medical aid given to an injured person before the arrival of a doctor is called first aid. 2. Zebra Crossing: The black and white stripes marked on the road to cross the road. 3. (a) Always wait for a bus in a queue. (b) Let the bus stop and then gets in one by one. Do not learn out of the window of the bus.

10. Air

- A. 1. (a), 2. (c), 3. (c)
B. 1. Air, 2. wind, 3. burn, 4. space, weight
C. 1. True, 2. True, 3. True, 4. False.
D. 1. (c), 2. (a), 3. (b), 4. (e), 5. (d)
E. 1. No, we cannot live without air. 2. A strong wind can uproot the trees.
3. (a) Plants and animals also need air to breathe. (b) Air is needed to burn things. (c) Air helps us to dry clothes.
4. Air occupies space: Take a balloon and fill it with air. It grows bigger and bigger. The balloon gets increased in size because of the air filled in it. This shows that air occupies space.
Air has weight: Take two balloons with no air in them. Weigh them on a scale. Both have equal weight. Now blow air into one of the balloons. Weigh

them again. You will find that the balloon having air in it weighs more than the other balloon. This shows that air has weight.

11. Water

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

B. 1. water, 2. wash, 3. Rain.

C. Well, River, Pond

D. 1. (a) We need water for drinking. (b) We need water for cooking. (c) We need water to clean our utensils. (d) We need water to bathe.

2. We get water from rivers, lakes, ponds, streams, wells, etc.

3. Plants absorb water from the soil through their roots.

12. Weather and Seasons

A. 1. (c), 2. (b) B. 1. summer, 2. winter, 3. sunny days, 4. monsoon

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

D. 1. Summer, 2. Cloudy Day, 3. Winter, 4. Umbrella

E. Winter weather, Rainy weather, Sunny weather.

F. 1. We like to have ice-cream and cold drinks during summer. 2. We use woollen clothes and enjoy taking hot drinks like tea and coffee. during winter. 3. There are three main seasons in India — Summer Season, Monsoon Season and Winter Season

13. The Sky

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

B. 1. light, 2. East, 3. fire, 4. stars.

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

D. 1. The Sun, 2. The Moon, 3. The Stars, 4. West.

E. 1. The Sun makes the day warm and bright.

2. We see the Moon and stars in the sky at night.

3. The stars appear small because they are very far from the Earth.

4. No, Moon's shape keeps changing every night.

14. Helping Our Earth

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

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

C. 1. The sun, soil, air, water, plants and animals are part of nature. All these things around us make up our surroundings.

2. Air and water pollution, cutting down of trees and hunting of animals are the dangers to Earth.

3. (a) Do not waste water or make it dirty.

(b) Do not waste food.

(c) Plant more trees and look after them.

4. The Sun, soil, air, water, plants and animals are the parts of nature.

Class - 2

1. Know Our Body

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

B. 1. hard, soft, 2. skeleton, 3. exercise, 4. skull, 5. lungs;

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

D. 1. Posture, 2. Skeleton, 3. Wrist, 4. Muscles, 5. Bone

E. 1. We need joints to bend our body to do many activities.

2. Exercising regularly and eating healthy food keeps our muscles strong.

3. We have 206 bones in our body.

4. Skeleton gives support and shape to our body. Without a skeleton, we would not be able to stand straight and walk. It protects our delicate internal organs.

2. Food For Health

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

B. 1. diseases, 2. Body-building food, 3. sick, 4. dust, 5. overeat.

C. Energy-giving foods - Rice, cornflakes, kidney beans, sugar

Body-building foods - Milk, eggs, sugar

Protective foods - spinach, potato, beans

D. 1. We all need food to live and grow. It gives our body the energy to work and play. it also helps us to stay healthy and fight against diseases.

2. Body-building foods, Energy-giving foods, Protective foods, are the different kinds of foods.

3. We should eat fresh food because stale food can make us sick.

4. Eat slowly and chew your food well. Do not eat uncovered food sold by street vendors. They contain dust and germs. Do not overeat.

3. Housing and Clothing

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

B. 1. Pucca, 2. flats, 3. cotton, cloth, 4. Wool.

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

D. 1. Home, 2. Kuchcha, 3. Igloos, 4. Caravans, 5. Tents

E. 1. We need a house and clothes because they both are our basic needs.

2. (a) Pucca houses are made of bricks, cement and steel.

(b) Kuchcha houses are made of mud and straw.

3. The houses which float on water are called house boats.

4. In summer, we wear cotton clothes. These clothes keep our body cool by absorbing sweat.

5. We get wool from sheep.

4. Safety and First Aid

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

B. 1. match box, 2. medicines, 3. moving, 4. roads.

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

D. 1. (a) Cross the road only when the traffic light is green for the pedestrians.

(b) Cross the road at zebra crossing.

2. (a) Always go for swimming with your elders and follow the instructions of the coach or the life guard.

(b) Don't go or jump into the deep end of the pool.

3. (a) Don't touch electric wires, plugs, sockets and other electrical appliances.

(b) Don't play with matchbox.

4. (a) Always play in a safe place. (b) Don't play on the roads or streets.

5. Types of Plants

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

B. 1. trees, 2. shrubs, 3. Tulsi, 4. creeper, 5. cactus

C. 1. Neem, Banyan 2. Rose, Cotton 3. Pumpkin, Watermelon

4. Moneyplant, Grapevine 5. Lotus, Waterlily

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

E. 1. The different types of plants are trees, herbs, shrubs, creepers and climbers.

2. Trees are big and tall plants. They have a hard and thick woody stem called a trunk.
3. Climbers are the plants that need support of other objects as they have weak stems. They climb on other plants, sticks or walls to grow upright.
4. Deserts are dry places with little water and no rain. Plants like cactus grow in deserts.
5. Plants grow in water or on water are called aquatic plants.

6. Uses of Plants

- A. 1. (b), 2. (a), 3. (b)
 B. 1. bamboo, 2. rubber, 3. Kikar, 4. Jute, cotton, flax, 5. root.
 C. 1. False, 2. True, 3. False, 4. False, 5. True.
 D. 1. (e), 2. (d), 3. (b), 4. (c), 5. (a)
 E. 1. We eat the stems of potato, onion and ginger.
 2. Most of the food that we eat comes from plants.
 3. Neem, tulsi and garlic are used to make medicines.
 4. We get paper from the bamboo tree.
 5. Plants give us food, medicines, cloths and wood.
 F. Fruits, vegetables, cereals, spices, medicinal plants.

7. Useful Animals

- A. 1. (c), 2. (b), 3. (a) B. 1. milch, 2. oxen, 3. horses, 4. guard.
 C. 1. False, 2. False, 3. True, 4. False.
 D. 1. Goat, Chicken 2. Cow, Buffalo
 3. Horse, Donkey 4. Goat, Camel
 E. 1. Animals that are kept at our homes or on farms are called domestic animals.
 2. We drink milk to grow strong and healthy. Milk is also used to make cheese, butter, ghee, ice cream and curd.
 3. Horses, camels, donkeys, elephants and bullocks, help us to carry heavy loads, so we call them beast of burden.
 4. Farmers use oxen to plough their fields for farming.

8. Wild Animals

- A. 1. (a), 2. (c), 3. (b)
 B. 1. Elephant, 2. herbivores, 3. Jackal, 4. Carnivores, 5. burrow
 C. 1. (e), 2. (c), 3. (b), 4. (a), 5. (d)
 D. 1. False, 2. True, 3. True, 4. True, 5. False
 E. 1. Elephant, deer, giraffe. 2. Elephant and giraffe.
 3. Lion, wolf, snake 4. Bears and lions live in caves and dens.
 5. Birds build nests to live in.
 F. 1. Both are omnivores, 2. Both are wild animals, 3. Both are carnivores (scavengers)
 G. 1. Panda is a land animal while crocodile is an amphibian.
 2. Snake is a reptile while kite is a bird.

9. Air Is Everywhere

- A. 1. (a), 2. (c), 3. (c), 4. (c)
 B. 1. Air, 2. gases, 3. Dirty, 4. pressure, 5. gliders
 C. 1. We need air to breathe in.
 2. Air is a mixture of several gases such as oxygen and carbon dioxide. Air contains dust-particles, germs and water vapour.
 3. Air has weight, e.g., a football full of air is heavier than a vacant football

because it is filled with air.

4. When wind blows softly, it is called breeze. When wind blows fast, it is called a storm.

5. (a) It is used to make windmill run.

(b) It also helps to fly kites and birds to fly.

10. Water

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

B. 1. basic, 2. Snow, 3. wells, 4. waterworks, 5. Potable.

C. Handpump, Well, River, Rain

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

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

F. 1. We should boil or filter the water to make it clean before drinking.

2. Water is our basic need.

3. We get water from many sources. Rain is the main source of water. Rivers, ponds, lakes, wells and seas are the other sources of water.

4. Pond water is unsafe for drinking. This water becomes dirty as people throw waste material into the ponds. Waste material carries germs and so the water of ponds can make us ill.

11. Forms of Water

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

B. 1. Vapour, 2. ice, 3. condensation, 4. three.

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

D. 1. Evaporation, 2. Condensation, 3. Freezing, 4. Melting.

E. 1. Water exists in three different forms—solid, liquid and gas.

2. Changing of water into water vapour is called evaporation.

3. Changing of water vapour into water is called condensation.

4. Changing of water into ice is called freezing.

5. Water vapours rise up and cool down to form tiny water droplets. These droplets combine to form clouds. When these clouds are unable to hold the droplets more, they fall in the form of rain and snow.

12. Rocks and Soil

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

B. 1. Coal, 2. Slate, 3. sand, 4. Diamond.

C. 1. It is used in making jewellery. 2. It is used for making buildings.

3. It is used for making statues and buildings.

4. It is used for making blackboards and roofs of houses.

D. 1. Sand stone: It is used for making buildings.

2. Diamond: It is used in making jewellery.

3. Coal: It is used for burning fire in houses and factories.

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

F. 1. Diamond is the hardest rock.

2. The Earth is made up of rocks and soil. Rocks can be found almost everywhere.

3. Marble is a hard rock.

4. The outermost layer of the Earth is soil.

13. Light and Shadow

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

B. 1. Sun, 2. light, 3. opposite, 4. short.

C. 1. Sun, 2. Light, 3. Shadow, 4. Noon.

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

- E. 1. The Sun gives us heat and light.
2. The Sun, candle and torch are the three sources of light.
3. When light cannot pass through an object, a shadow is formed.
4. Shadows are longer in the morning and evening.

14. The Earth, Sun and Stars

- A. 1. (a), 2. (c), 3. (a), 4. (c), 5. (b).
- B. 1. month, 2. flat, 3. natural, 4. hot, 5. eight,
- C. 1. False, 2. False, 3. True, 4. False, 5. True
- D. 1. It is because there is air and water on the Earth.
2. There is no air and water on the moon, so there is no life.
3. Every night we see different shapes of the Moon. These are called the phases of the Moon.
4. Stars look very small because they are very far from the Earth.
5. We can see stars and the Moon in the night sky.

Class - 3

1. Living Things and Non Living Things

- A. 1. (a), 2. (c), 3. (c), 4. (b)
- B. 1. plants, 2. carbon dioxide, 3. Plants, 4. senses, 5. Lotus.
- C. 1. True, 2. False, 3. False, 4. True, 5. True.
- D. 1. Plants prepare their food with the help of air, water and sunlight.
2. They do not move from one place to another.
3. Animals breathe through their nose, lungs, gills, skin or air-holes. Animals that live on land generally breathe through lungs. Animals (fish) that live in water breathe through their gills. Frogs that live both on land and in water breathe through their lungs and skin. Ants and cockroaches breathe through air-holes.
4. Some man-made non-living things are furniture, houses, shoes, clothes, vehicles and roads.
5. Things which are made by man are called man-made non-living things. Things which are not made by man are called natural non-living things.

2. Parts of a Plant

- A. 1. (b), 2. (c), 3. (c).
- B. 1. shoot system, 2. fibrous, 3. chlorophyll, 4. buds.
- C. 1. True, 2. True, 3. False, 4. False.
- D. 1. (b), 2. (c), 3. (d), 4. (a).
- E. 1. Taproot: A taproot has one main thick root. Many small roots grow from the main root. The main root grows straight down the Earth.
Fibrous Root: When a number of roots grow from the end of the stem, these are called fibrous roots. Fibrous roots are bushy in appearance.
2. Root fixes the plant firmly into the soil. It provides water and minerals to the plant, which it absorbs from the soil.
3. A stem holds the plant upright and straight. It carries water and minerals absorbed by the roots, to the leaves. The stem carries the food prepared by leaves to different parts of the plant.
4. The process by which the plant-leaves make the food from carbon dioxide, water and sunlight is called photosynthesis.
5. The leaves are called the food factory or kitchen of the plant because they make food for the plant.

3. Eating Habits of Animals

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

B. 1. Food, 2. omnivores, 3. plant, 4. mosquito, 5. tongue.

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

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

E. 1. Herbivores are plant-eating animals. Some animals like cows, buffaloes, horses, goats, deer, rabbits, etc. are plant-eaters.

2. Carnivores are flesh-eating animals. Some animals like lions, tigers, crocodiles, etc. eat flesh of other animals. These animals are called hunters.

3. Omnivores are plant and flesh eating animals. Some animals like bears, crows eat both plants and flesh of other animals.

F. 1. Living things need food as it helps them to grow and it gives energy to work.

2. Plant-eating animals have flat grinding teeth to chew their food. Their front teeth are sharp, but not pointed.

Flesh-eating animals have very sharp, pointed and curved front teeth to eat flesh. They also have strong grinding teeth at the back of their mouths.

3. An elephant uses its long trunk to uproot grass and tear off branches from trees. It also uses its trunk to suck up water.

4. Cows and buffaloes have a very interesting way of eating. They first cut and swallow their food without chewing it. When they relax, they bring the food back into their mouth and chew it properly. This process is called chewing the cud.

5. Animals that are useful to us and live with us are called domestic animals.

4. Our Feathered Friends

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

B. 1. body, 2. streamlined, 3. talons, 4. webbed, 5. curved.

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

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

E. 1. The body of a bird is designed to help it fly. It is shaped like a boat. This is called a streamlined body, which makes it easy for a bird to fly.

2. They use their beaks and claws to catch and eat food. They also use their beaks to protect themselves from their enemies.

3. Perching birds have three toes in front and one at the back. These types of feet help the birds to hold on to a branch.

4. Flesh eating birds have strong hooked beaks for tearing flesh of other animals.

5. Webbed feet help a duck to swim.

5. Organs and Organ Systems

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

B. 1. saliva, 2. muscles, 3. organ, 4. internal

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

D. 1. skeletal, 2. Brain, 3. Digestion, 4. Tissue

E. 1. The skeletal system gives form, shape and support to our body.

2. Circulatory System pumps blood to all parts of the body. It receives blood containing impurities from different body parts through veins. This blood is purified in the heart and is distributed to all parts of the body through arteries.

3. Digestion is the process by which food is broken down into simple substances that the body can use to get energy.

4. Kidneys help to remove waste material from the body. Its help to get rid of urine.

6. Safety First

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

B. 1. play, 2. fire, 3. adult, 4. zebra.

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

D. 1. While crossing the road we will first look towards our right, then left, and then right again. Then we will cross the road.

2. Follow the game's rules when we are playing. Carefully follow the instructions of our teacher. Wait for our turn at the swings, see-saw, etc. Do not push any other child. Never play rough games.

3. (a) Lighting of matchsticks (b) Plug point (c) An electric wire (d) Medicines (e) Blades or razors

4. The first help given to an injured person before the arrival of a doctor is called first aid. If we help an injured person right away, we may stop the injury from becoming serious.

5. Ask an adult for help or call a doctor if the wounds are serious.

7. Housing and Clothing

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

B. 1. house, 2. strong, 3. spun, 4. water, 5. natural.

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

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

E. 1. Houses are built with bricks, stones, cement or steel. They are also made of wood.

2. (a) The house should be kept clean and tidy. We should also help our parents to keep our house clean.

(b) The kitchen platform, sinks, bathrooms, toilets and washbasins should be washed daily.

(c) Garbage bins should be covered.

(d) Water should not be allowed to collect around the house.

3. (a) A good soap or detergent should be used to wash clothes. Washed clothes should be rinsed properly to remove the soap.

(b) Synthetic clothes should not be squeezed after rinsing.

(c) Woolen clothes should be kept out in the sun after the winter is over. Then they can be packed along with neem leaves or moth balls.

4. A good house should have a proper drainage system to carry away dirty water. Mosquitoes breed in stagnant water causing diseases like malaria and dengue.

5. Cotton, jute, wool and silk are some of the natural fibers. Nylon, terylene, rayon and polyester are some of the synthetic fibers.

8. Rocks and Soils

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

B. 1. rocks, 2. sandy soil, 3. clayey soil, 4. diamond, 5. loamy soil.

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

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

E. 1. Rocks are made of small grains. These grains are called minerals. Some rocks are made of just one mineral while some are made of many.

2. Soil is a mixture of minerals, water, air and other substances.

3. Loamy is a mixture of sand, clay and a lot of humus. So, loamy is the best

soil for growing plants. It stays wet but it is not sticky. There is enough air for roots to breathe. The humus makes the loam soil very fertile.

4. The soil also contains some rotten pieces of dead plants and animals, mixed with it. Rotten pieces of plants and animals are known as humus.

5. Animals like worms, mites, bacteria and moles live in the soil.

9. The Earth

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

B. 1. Earth, 2. Crust, 3. axis, 4. revolution.

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

D. 1. The shape of the Earth is round.

2. People who travel into space are called astronauts.

3. The Earth is at the right distance from the sun and so it is neither too hot nor too cold.

4. The rotation of the Earth causes day and night. The Earth takes 24 hours to complete one rotation around its axis.

5. The movement of the earth around the Sun is called revolution. The Earth takes 365 days (one year) to go around the Sun once.

The revolution of the Earth causes the seasons to change.

10. The Sun, Moon and Stars.

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

B. 1. star, 2. planet, 3. satellite, 4. Craters, 5. astronomer.

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

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

E. 1. The sun and eight planets make up the solar system.

2. The Moon is dry and barren. There is no water and air on the Moon. With the result that there is no possibility of life.

3. Within two weeks of new Moon, we see the full face of the moon. It is full moon (Purnima). When the Earth is in between the sun and the moon, the sunlight falls on that part of the moon which is facing the Earth.

4. Stars form various patterns in the sky. A group of stars which forms a particular design is called a constellation. Constellations have different names. Some of the common constellations are Leo (Lion), Orion (Hunter), Scorpius (Scorpion) and Ursa Major.

11. Measurement

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

B. 1. kilometers, 2. 1000, 3. cm, 4. degree celsius, 5. Time.

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

D. 1. We need to find out measures like length, weight, volume, time or temperature of things to be able to express their quantity or amount in a suitable way called standard unit.

2. Measuring tape.

3. Kilogram (kg)

4. The quantity of liquid a container can hold is known as its capacity.

5. Temperature

6. Do yourself

E. 1. 3 Inches, 2. 1kg, 3. 98.6 Fahrenheit, 4. 5:00 hours, 6. 650 ml.

F. 1. cm, 2. metre, 3. gm, 4. kg, 5. ml, 6. litre.

12. Air, Water and Weather

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

B. 1. wind, 2. gases, 3. Summer, 4. over, 5. vapour

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

D. 1. Solid, liquid and gas are the three different forms of water.

2. Water when heated or left in the open, it starts changing into water vapour and gradually disappears. This change of liquid water into its gaseous form is called evaporation. On cooling, the water vapour changes back into liquid water. This change is called condensation.

3. In the sky water vapour comes in contact with cold air. It cools down to form tiny drops of water. These tiny drops cling together to form clouds.

4. Summer, Rainy, Winter and Spring are the main seasons.

5. When the weather remains almost the same for a long period, it is called a season. As the weather changes everyday whereas the season changes after every few months.

Class - 4

1. Plants-The producers

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

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

C. 1. chlorophyll, 2. lamina, 3. midrib, 4. stomata, 5. starch

D. 1. Leaves prepare food for the plants. They are called the kitchen or the food factories of the plants.

2. Plants are called producers because they prepare their own food.

3. The plants use the food to grow and live. Plants store some of the food produced by them for future use.

4. Do yourself.

5. No, they can't make their food at night because they need sunlight to prepare their food.

2. Plant Adaptations

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

B. 1. Evergreen tree, 2. aquatic, 3. terrestrial, 4. stem, 5. Pine.

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

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

E. 1. Plants growing in different habitats have special features that are suited to their natural surroundings. These features are called adaptations.

2. (a) The desert plants either don't have any leaves, or have very few of them to reduce water loss. The process of photosynthesis is then carried out in the green stems.

(b) The leaves are in the form of spines to reduce water loss.

3. Mangroves are suited to live in swampy areas by giving out breathing roots to absorb air.

4. Plants that grow on land are called terrestrial plants.

Plants that grow in water are known as aquatic plants.

5. Aquatic plants have thin, hollow and bendy stems and waxy covering on their surface that help them to grow in water.

3. Animal Adaptations

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

B. 1. fins, limbs, 2. hollow, 3. Camel, 4. Amphibians, 5. omnivore.

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

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

E. 1. (a) Animals that live on land are called land animals or terrestrial animals.

Examples : Tiger, lion, elephant, cow, rat, and Yak.

(b) Animals that live in water are called aquatic animals.

Examples : Fish, turtle, octopus and crab.

(c) Animals that live both on land and in water are called amphibious animals.

Examples : Frog, toad and salamander are some amphibious animals.

(d) Animals that fly are known as aerial animals.

Examples : Birds, bats and many insects are some aerial animals.

2. Animals such as bear and squirrel go into a sleep-like state till winter is over. This long winter sleep-like state is called hibernation.

3. (a) Fishes, houseflies and frogs move fast enough to escape from their enemies.

(b) Whales, elephants and hippos are too big to be eaten by other animals.

4. Camouflage : To hide by colouring or changing appearance to look like their surroundings.

5. (a) They have webbed feet to help them to swim in water.

(b) Their eyes have a special skin that protects them when they go under water.

4. Reproduction in Animals

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

B. 1. eggs, 2. Yolk, 3. water, 4. three, 5. mammals

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

D. 1. Animals reproduce in two ways either they give birth to their babies directly or they lay eggs.

2. Give diagram of the life cycle of a frog.— Pg. 29

3. The young one of a butterfly that hatches out of the egg is called caterpillar. The caterpillar builds a cocoon around itself to form a pupa. Pupa shed its skin many times to change into an adult butterfly.

4. Pg. 29

5. The process of shedding the old skin is called moulting.

6. Some animals do not lay eggs and give birth to young babies that feed on their mother's milk. These type of animals are called mammals.

They are the most developed among all animals. Their bodies are covered with hair. Some examples of mammals are cats, horses, goats, elephants, rabbits and rats. Humans too are mammals.

Mammals take care of their babies for a long period of time.

5. Food : Our Basic Need

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

B. 1. Exercise, 2. Minerals, vitamins, 3. Calcium, 4. fat, 5. Carbohydrates

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

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

E. 1. (a) Our body need vitamins and minerals because they keeps us fit and healthy. Calcium and Iron are two important minerals needed by our body.

2. Exercise helps us to have healthy body. It keeps the body fit, alert and active. It makes the muscles strong.

3. Our body uses roughage to remove waste through the stomach and out of the body.

4. Proteins help in the growth of the body and repair worn-out and injured parts.

6. Teeth and the Digestive System

- A. 1. (c), 2. (b), 3. (a)
B. 1. 32, 2. enamel, 3. plaque, 4. food pipe, 5. balanced.
C. 1. False, 2. True, 3. False, 4. True, 5. False.
D. 1. 20 for temporary set, 32 for permanent set
2. Molars
3. (a) Brush our teeth twice a day. If not possible, we should rinse our mouth after every meal. Make sure that we brush our teeth properly and in the right manner.
(b) We should clean our tongue daily with a tongue cleaner.
(c) We should floss to clean the gaps between the teeth. We should not use any other pointed objects.
(d) We should eat lots of fruits and vegetables which are healthy for our teeth and gums.
4. Give a diagram of inner parts of a tooth. (Pg - 43)
5. When we eat, tiny bits of food are left in spaces between our teeth. We need to clean them out otherwise germs may grow in these gaps and form a sticky yellow layer called plaque.
6. Give a diagram of digestive system. (Pg. 45)

7. Safety and First Aid

- A. 1. (c), 2. (b), 3. (c), 4. (c).
B. 1. cotton, 2. zebra crossing, 3. electrical, 4. first-aid, 5. insect bite.
C. 1. (d), 2. (a), 3. (b), 4. (c).
D. 1. (a) Always pick up a knife by its handle. Never try to play with knife.
(b) Throw vegetable and fruit peels in the dustbin to avoid stepping on them and slipping.
(c) Wear cotton clothes when you have to be near a fire.
(d) When something spills on the floor, wipe it off immediately or someone may slip and fall.
(e) Never climb on tables and chairs. Always use a step-ladder to reach things stored on high shelves.
2. (a) Keep the bathroom floor clean. If you spill something on the floor, clean it off quickly so that you yourself, or someone else, does not slip or fall.
(b) Always place the soap and shampoo back in their place after use.
(c) Never touch electrical gadgets or switches if your hands are wet, because you could get a shock.
(d) Do not touch cleaning materials because they could hurt you or make you very sick.
(e) Keep the bathroom floors dry when the bathroom is not in use.
3. First aid is the immediate help given to an injured person. In case of an accident, it is important to offer first aid before an adult or the doctor arrives.
4. band-aids sticky tape plastic gloves
 cotton safety pins a thermometer
 bandages scissors a small torch
 gauze pads tweezers
5. a. If any person faints, make him/her lie down, legs raised, and the head lower than the body so that, the blood flows faster into the brain. Wash the face with cold water and give him/her something warm to drink.

- b. (i) Completely wash the wound with water to remove dirt.
(ii) Then clean it with cotton dipped in a few drops of antiseptic lotion like Dettol or Savlon.
(iii) If it is a small cut put a bandage. For major cut use a cotton swab and a sterilized bandage.
- c. (i) In the case of a bee sting, remove the sting left behind by the bee as quickly as possible. Use the edge of your school identification card or a similar stiff card to gently scrap off the sting.
(ii) Do not let the patient scratch the place where the bee has stung.
(iii) Wash the area with soap and water.
(iv) Apply ice or a cool, wet cloth to the area to reduce pain and swelling.
- d. (i) Wash the burnt area with cold running water.
(ii) Put an ice pack on the burnt part or dip it in cold water till the pain is gone.

8. Clothes

- A. 1. (b), 2. (a), 3. (c), 4. (b), 5. (c).
B. 1. clothes, 2. Jute, 3. pores, 4. synthetic, 5. moth, neem.
C. 1. (d), 2. (c), 3. (e), 4. (a), 5. (b).
D. 1. Good clothes make us look smart. Students wear uniform for school. We use different clothes for a party. We wear loose, comfortable clothes at home and another set when we go to bed at night.
2. Natural fibres come from plants and animals. Jute and cotton are plant fibres, while silk and wool are animal fibres.
3. We wear dark-coloured clothes made from silk or wool in winter because silk and woollen clothes do not allow the heat of body to escape so, we feel warm. They also absorb sunlight. The heat of the Sun is passed onto our body, making us feel warm.
4. Synthetic fibres are not found in nature. They are made from chemicals and crude oil. Examples are polyester, nylon, rayon, lycra, spandex, etc. These are useful for different reasons. Some are waterproof, others stretchable and wrinkle-free, etc. They are made for our comfort.
5. (a) We should take care of clothes properly so that they look good and we can use them for a long time.
(b) We should wash our clothes with a good soap or detergent. This removes germs, dirt, sweat and stains from them.
(c) We should dry wet clothes in sunlight so that all germs are killed.
(d) We should clean clothes made of silk and wool with care. They are usually dry-cleaned.
(e) We should store clothes made of silk and wool carefully.
(f) We can place moth balls and dried neem leaves in the cupboards and boxes where we store these clothes. This prevents damage by insects like silverfish and moths.

9. Matter and its States

- A. 1. (b), 2. (a), 3. (c), 4. (a), 5. (b)
B. 1. nails, teeth, 2. blood, water
C. 1. solution, 2. melts, 3. melts, 4. freezes, 5. evaporates.
D. 1. Water, 2. salt solution
E. 1. Matter is anything that has weight and occupies space.
2. Solids: (a) Solids stay in one place.

(b) Solids always take up the same amount of space.

Gases: (a) Gases are often invisible.

(b) Gases spread out and they do not have a fixed shape. Unlike liquids, gases change their volume to fill up whatever space is available to them.

(c) Gases can be compressed.

3. Solids: (a) Solids stay in one place and can be held.

(b) Solids always take up the same amount of space.

Liquids: (a) Liquids can flow or can be poured easily. They are not easy to hold.

(b) Liquids change their shape. They take the shape of the container they are put in.

4. Molecules in a solid are very tightly packed. They are close to each other. Therefore, solids have fixed shape and size.

5. Water changes into water vapour (gas) when it is heated. We call it steam. Thus, heating a liquid can turn it into a gas. This is called **evaporation**.

Droplets are water vapour that is present in the air. When the water vapour cools it changes into water. Cooling a gas can turn it into a liquid. This is called **condensation**.

10. Force, Work and Energy

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

B. 1. opposite, 2. lever, 3. tool, 4. sources, 5. force

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

D. 1. There are different types of simple machines that we use in daily life. Some examples of simple machines are: lever, pulley, inclined plane, screw, wheel and axle.

2. Wind can also be used to produce energy. The energy that we get from wind is called wind energy.

Wind energy can turn the blades of windmills. These windmills can be used to generate electricity. Sailboats also use wind energy to move.

3. Energy is the ability to do work.

Different forms of energy are:

mechanical, chemical, heat, light, electrical, magnetic, sound.

4. Any pull or push that acts on an object is an example of force. When we apply force, it can have different effects on objects.

There are many types of force in nature. Muscular force, gravitational force and frictional force are the three common forces.

5. A wheel and axle is simply a wheel connected to a rod called the axle, Wheel and axle is used in bicycles, fans, windmills, and steering wheels.

11. The Environment

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

B. 1. plants, animals, 2. water, air, soil, 3. three-fourth, 4. soil pollution, 5. non-biodegradable.

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

D. 1. Rules you should follow to keep the environment clean:

(a) Separate waste into two groups, biodegradable and non-biodegradable.

(b) Do not litter.

(c) Put waste into the dustbin not on the roads, or your surroundings.

2. The poisonous gases like carbon dioxide given out by vehicles and factories mix with the clean air and pollute it. Bursting crackers during Diwali also pollutes the air.

3. Dirty water from our homes, shops and factories goes into the drains. This water contains soap, detergents, chemicals, etc. Drains release this dirty water into rivers and pollute them.

4. When harmful wastes are mixed in soil, it spoils the soil and causes soil pollution. Anything that is leftover and not used is thrown as waste. These wastes can be from our homes, factories and agricultural fields.

5. (a) Reduce: Choose the things that can be used again.

(b) Reuse: Find new ways to use things before you throw them.

12. Measuring Time and Temperature

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

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

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

D. 1.

Measurement	Unit
Length	Metre
Weight	Gram
Volume	Litre

2. (a) Examples to estimate number is when you need to know the time it will take to walk to the school or the number of days a tube of toothpaste will last.

(b) Estimating the measurement of something helps you to have a rough idea about the measurement.

3. Stop-watch clock is used to measure short time.

4. Temperature tells us how hot or cold a thing is.

5. Pg. 88

13. The Universe

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

B. 1. galaxy, 2. Mercury, 3. revolution, 4. Earth, 5. seasons

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

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

E. 1. About 15 billion (15,000,000,000) years ago, the universe was formed with a huge explosion called the Big Bang. The universe has been expanding continuously from that time.

After the Big Bang, matter started to cool, Galaxies, stars and planets were formed.

2. The Sun is the largest object in the solar System and is about 5 billion (5,000,000,000) years old. It is made up of burning gases. The temperature on the surface of the Sun is around 6000° Celsius. (Water boils at 100° Celsius.)

3. The Earth is also called the 'Blue Planet' because almost 70% of its surface is covered with water.

4. (a) The inner planets have firm, rocky surfaces while the outer planets are made mostly of gases.

(b) In rotation, the Earth rotates on its own axis while in revolution the Earth

revolves around the Sun in a fixed path.

(c) Axis is an imaginary line on which the Earth rotates while equator is an imaginary line that divides the Earth into two halves: Northern Hemisphere and Southern Hemisphere.

14. Soil

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

B. 1. smooth, 2. Clay, 3. humus, 4. Bedrock, 5. trees.

C. 1. Humus is the substance formed from the decay of dead plants and animals.

2. It is the topmost layer of soil. It is the most fertile layer. It contains humus. Microorganisms and animals such as earthworms can be found in the topsoil.

3. This layer is present just below the topsoil. This layer is mainly rich in minerals.

4. The removal of the fertile topsoil by the action of wind and water is called soil erosion.

D. 1. Soil is the topmost layer of earth's surface. It consists mainly of fine particles of rocks, humus and minerals along with some amount of water and air. Soil is formed by the breaking down of rocks into smaller pieces by the action of Sun's heat, wind and rain.

2. Sand particles are the largest soil particles.

Sandy soil feels rough and gritty.

Clay particles are the smallest soil particles.

Clay feels smooth when it is dry and sticky when it is wet.

3. This layer is present just below the subsoil.

This layer is mainly made up of large pieces of rocks.

4. Strong winds, heavy rainfall and cutting down of trees increases soil erosion.

5. Protection of soil from erosion is known as soil conservation. There are certain steps that we can take to conserve soil.

(a) More number of trees should be planted to replace the ones that are cut down.

(b) Trees and bushes should be planted in open lands. This practice does not allow the wind to blow full force and take away the topsoil.

(c) Flowing water can easily wash away a lot of topsoil. Dams should be built on rivers to prevent floods.

Class - 5

1. Plant Reproduction

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

B. 1. germination, 2. Scarecrows, 3. Kharif, 4. Rabi

C. 1. Cotyledons, 2. Embryo, 3. Germination, 4. Explosion, 5. Agriculture

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

E. 1. The process by which a seed produces a new plant is called germination.

2. The process by which seeds are scattered away from the mother plant is called dispersal.

3. The different ways of seed dispersal are:

(i) By wind; examples are maple and dandelion seeds. (ii) By water:

examples are lotus and coconut (iii) By animals: cocklebur (iv) By explosion: examples: peas and beans.

4. Crops grown from November to April are called Rabi crops. These crops do not depend on the monsoon rains. Examples of such crops are wheat and legumes.

Crops grown from June to October are known as Kharif crops. These crops depend largely on the monsoon rains. Examples of such crops are rice and maize.

5. Plants scatter their seeds to far away places so they do not grow too close to one another.

2. Animal Adaptations

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

B. 1. spiracles, 2. herbivores, 3. forelimbs, 4. stand

C. 1. Reptiles, 2. carnivores, 3. migration, 4. Lungs, 5. Insects.

D. 1. Butterflies breathe through air holes present in the sides of their body.

2. (a) Fish swim by moving their body and tail from side to side. Fish have three types of fins. Most fish use their fins for balancing, changing direction and stopping. Some also use their fins like oars to push the water to move forward. (b) Water boatman is an insect that uses its legs as oars to swim.

3. Mammals, birds and reptiles breathe through their lungs.

4. Snakes have scales on their lower side which are attached to the ribs with muscles. They move these scales to move forward.

3. Food and Health

A. 1. (c), 2. (c), 3. (c), 4. (c), 5. (c)

B. 1. protein, 2. obesity, 3. lack, 4. direct contact, 5. mosquito.

C. 1. Papaya, Carrot; 2. Fries, Junk Food; 3. Dalia, Cabbage; 4. Beriberi, Night blindness; 5. Common Cold, Tuberculosis;

D. 1. Food contains five main components as follow:

(a) Carbohydrates (Sources: Bread, rice, wheat, fruits, sugar, potato)

(b) Fats: (Sources: Meat, vegetable oil, milk, butter, dry fruits)

(c) Proteins: (Sources: Chicken, fish, eggs, milk, cheese, pulses, soyabean)

(d) Vitamins and mineral: (Sources: Fruits, vegetables, fish, eggs and milk)

2. Diseases caused due to the deficiency of a particular nutrient are called deficiency diseases. Five deficiency diseases, their causes and food containing the required vitamin and minerals are as follow:

(a) Beriberi – Lack of vitamin B-1, food— milk, peas, cereals, etc.

(b) Scurvy – Lack of vitamin C, food— amla, orange, lemon, tomato

(c) Rickets – Lack of vitamin D, food— milk and milk products

(d) Goitre – Lack of iodine, food— iodized salt, sea food

(e) Anaemia – Lack of iron, food— spinach, apple, meat.

3. Allergies, obesity, heart condition, diabetes and cancer are the different types of non-communicable diseases.

4. (a) Common cold: cough, sore throat, runny nose, fever – regular hand washing and keeping away from the infected person.

(b) Pneumonia: cough, Fever and shortness of breath – treatment with antibiotics.

4. Bones and Muscles

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

B. 1. 206, 2. Humerus, 3. Joint, 4. Ligaments, 5. Sternum

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

D. 1. Skeleton gives shape to the body and protects the internal organs such as heart, lungs and kidneys from getting injured. Along with the muscular system, it helps the body to move.

Its important functions are —

(i) It provides support to our body and helps in forming our body shape.

(ii) The skull protects the brain and forms the shape of our face.

(iii) It helps in the movement of different parts of the body.

2. The place where two bones meet is called a joint. Joints may be movable or immovable.

There are four kinds movable joints:

(a) Ball and Socket Joint

(b) Hinge Joint

(c) Pivot Joint

(d) Gliding Joint

3. Muscles help the body in movement. Muscles are helpful in running, walking, eating, etc. They help to lift things. They help us to smile, blink and wink.

4. Muscles are classified into three types:

(a) Skeletal Muscles

(b) Smooth Muscles

(c) Cardiac Muscles

5. Our Nervous System

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

B. 1. brain, 2. Neuron, 3. Retina, 4. Tongue, 5. Nose.

C. 1. Our brain is made up of three different parts:

(a) Cerebrum

(b) Cerebellum

(c) Medulla

2. Three types of nerves are:

(a) Sensory Nerves : These nerves send signals from the sense organs to the brain or the spinal cord.

(b) Motor Nerves : These nerves send signals back from the brain or spinal cord to the muscles and glands in the body.

(c) Mixed Nerves : These nerves send signals from the sense organs to the brain as well as carry messages from the brain to the sense organs.

3. A reflex action is one of the ways by which the body protects itself from harm. This action takes place very fast and is done without any immediate instructions from the brain. The automatic response of the body to an action is called a reflex action.

4. Eye consists of three different layers:

(a) The outer layer forms the white portion of eye and the cornea.

(b) The middle layer contains iris in the front of our eyes. Iris is the round dark coloured part of our eye. It is responsible for giving colour to our eyes.

(c) A small opening in the iris, called the pupil; controls the amount of light that enters in our eyes.

(d) The inner layer of our eye is retina. It is the place where the image is formed.

(e) The optic nerve carries the sensations of sight from retina to the brain.

5. (a) Skin should be scrubbed and cleaned regularly. This removes dead cells, care of skin sweat and dirt from our skin.

(b) Skin can be moisturised using a moisturiser in the dry season. It keeps the skin healthy.

(c) Keep your skin clean by washing it with soap and water.

(d) Wear clean clothes.

6. Safety and First Aid

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

B. 1. Gas leaks, Cooking; 2. Dressing; 3. Bees, wasps; 4. Poisonous;

C. 1. (a) Electric fault, (b) Accidents in the kitchen, (c) carelessness while handling burning matchsticks, candles and fire crackers.

2. (a) Keep the injured person and yourself calm. Do not panic and crowd around the person who is hurt. Let him breathe freely.

(b) Make the victim comfortable and let him lie down comfortably on an even surface.

(c) Do not try to move the injured person if he/she has suffered from a fracture. This can cause more damage.

3. (a) Apply some antiseptic and cover the burn with a clean cloth so that the wound do not come in contact with the germs.

(b) If the clothes of the victim have caught fire then cover the person in a blanket to put off the fire.

(c) Make the victim lie down in an open place and do not let people gather around him/her.

(d) Remove the burnt clothes except the ones sticking to the affected area.

(e) Rush the victim to the hospital.

4. In case of dog bite, you can do certain things:

(a) Wash the wound with an disinfectant soap and clean water.

(b) Cover the wound with sterilize gauze bandage.

(c) Take the victim to the doctor.

(d) Take an antirabies injection if the doctor recommends so.

5. (a) Pinch the nose between the thumb and the forefinger for about 10-12 mintues to check the flow of blood.

(b) Apply an ice-pack or wet cloth on the nose to reduce bleeding.

7. Air and Water

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

B. 1. air, 2. Nitrogen, 3. Thermosphere, 4. Water, 5. Impurities

C. 1. Nitrogen, oxygen, argon, carbon dioxide, neon, helium and methane.

2. It protects the Earth from becoming too hot by stopping a large part of the sun's heat from reaching the Earth.

At night, it stops the heat from escaping the Earth. Without the atmosphere, the Earth would be a cold freezing place at night.

The ozone layer in the atmosphere prevents the harmful ultraviolet rays of the Sun from reaching the Earth.

3. We use air pressure to drink juice from a straw. Air is compressed into smaller spaces. Tyres filled with compressed air can support bicycles, cars, buses, trucks and even aircrafts.

4. Soluble impurities are removed from water by evaporation. When water evaporates it leaves all the dissolved impurities behind. By distillation water is first heated and then it evaporates. The water vapour is cooled and it condenses into water and collected in another flask.

5. Water is treated by sedimentation, filtration and chlorination before it reaches our homes.

8. Natural Disasters

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

B. 1. epicenter, 2. seismologists, 3. tsunamis, 4. earthquake

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

D. 1. Earthquakes generate waves that travel all over the Earth. They can be detected with an instrument called seismograph.

2. When the ground shakes, houses, buildings and bridges shake. When an earthquake lasts for some time, structures, shatter, roads crack and communication systems collapse. There is a loss of life and property.

3. A volcano is an opening on the Earth's surface which allows hot, molten rock, ash and gases to escape from below the surface. These burst out of the crust through a vertical tunnel called vent. This hot molten rock is called lava. The lava spreads over the land sometimes covering an entire region.

Three types of volcanoes are:

(a) Active Volcanoes (b) Dormant Volcanoes (c) Extinct Volcanoes

4. A tsunami is caused by hurricane, cyclone or earthquake. They cause destruction on the seashore within seconds.

They can cause severe damage. These giant waves travel at a speed of 800 km/h. This results in destruction of life and property in the area.

5. If a particular area receive no rain or less rain than normal for a long period, it is said to be affected by drought. However, it is not only the lack of rainfall that causes drought. Hot dry winds, very high temperature and evaporation of moisture from the ground can also result in conditions of drought.

9. Soil and its Importance

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

B. 1. water, wind; 2. terrace farming; 3. Topsoil; 4. Sandy soil; 5. Uppermost;

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

D. 1. Weathering; 2. Topsoil; 3. Afforestation; 4. Terrace Farming;

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

F. 1. Soil is formed when rocks break down into smaller pieces due to the repeated heating and cooling by the Sun, rains and winds.

2. Sandy soil, Clayey soil, Loamy soil.

3. There are generally three layers in soil:

Topsoil: The upper layer, about 100-120 mm deep is the layer from where the plants get their nutrients, so that they are able to grow. Topsoil is often darker than the other layers as it is rich in humus.

Subsoil: Generally, more clay-like, this layer acts as a reservoir (water storage) for plants growing in the topsoil. When the subsoil is exposed it erodes easily.

Bedrock or Parent rock: This is the underlying layer from which the first two horizons are formed.

4. The removal of soil by water or wind is called soil erosion.

5. The protection of soil against erosion is called soil conservation.

10. Solids, Liquids and Gases

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

- B. 1. Atoms, 2. freezing, 3. tightly, 4. three, 5. fixed
- C. 1. Solids have a fixed shape because molecules are very tightly packed together.
2. Liquids flow because molecules in a liquid are also packed together but not so closely as in a solid. They are attracted with less force towards each other.
3. Liquids are called miscible when they dissolve in water.
4. When the change is only in state of matter, it is called a physical change.
(a) Evaporation (b) Condensation
5. Sometimes when we heat or cool some objects, new substances are formed. It is a chemical change.
(a) Corrosion (b) Combustion

11. Force and Simple Machines

- A. 1. (a), 2. (c), 3. (a), 4. (a), 5. (a)
- B. 1. Load, 2. Force, 3. Inclined plane, 4. Axle, 5. Wedge
- C. 1. Road up the hill, 2. Blade of a knife, 3. Hammer, 4. Wheelbarrow, 5. Fishing Rod.
- D. 1. A push or pull on an object is called force.
2. (a) To move an object (b) To stop an object
3. Simple machines are simple tools used to make our work easier. For example: inclined plane, wedge, screw.
4. A lever is a simple machine consisting of a beam or a rigid rod pivoted at a fixed hinge or fulcrum. Levers often helps us to lift or move things by using force.
5. A pulley is a wheel with a groove around its outer edge.

12. Our Environment

- A. 1. (b), 2. (c), 3. (c), 4. (b), 5. (c)
- B. 1. Global warming, 2. Domestic, 3. Land, 4. air, 5. carbon dioxide
- C. 1. Smoke and harmful gases released from vehicles and factories.
Burning of garbage. Cutting down of trees on a large scale for manufacture of paper, furniture and flooring.
2. Air pollution can be prevented by the following ways:
(a) Factories should filter the smoke before it is released into the air. Factories should be located far away from forests, farms and cities.
(b) Clean fuels should be used in vehicles. Diesel fumes pollute more than the fumes of petrol and CNG. Public transport should be made more efficient.
3. (i) Solid waste dumped into rivers.
(ii) Untreated industrial waste water released into rivers and lakes.
4. Some effects of noise pollution are:
(a) Use of fertilizers (b) Dumping of solid wastes (c) Felling of trees
5. Noise pollution may result in the following:
Headache, dizziness and earache.
Deafness and mental illness occurs due to continuous exposure to loud noises.

13. Rocks and Minerals

- A. 1. (b), 2. (b), 3. (c), 4. (b), 5. (c)
- B. 1. Granite, Pumice, 2. Sandstone, Limestone, 3. Marble, Slate,

4. Gypsum, Mica, 5. Magnetite, Bauxite.

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

D. 1. The two igneous rocks are: Granite and obsidian. Granite is very hard and is formed by the slow cooling of lava. Obsidian is smooth and glassy and is formed by the quick cooling of lava.

2. Rain, wind and rivers flowing down mountain, wear away rocks on mountains. These rock particles are carried down and deposited elsewhere. Repeated deposition process down the lower layers and hardens them into rocks. Such rocks are called sedimentary rocks. They are always formed in layers.

Different types of sedimentary rock are: sandstone, conglomerate, shale and limestone.

Shale: It is made of solidified clay and comes apart in thin layers. It is used in making bricks and cement.

3. Different types of metamorphic are: marble, slate, Gneiss and quartzite. Marble: It is formed from the sedimentary rock, limestone. Marble is used in making statues and for other ornamental purpose. It is quite popular as a material for flooring too.

Slate: It is formed from shale, a sedimentary rock. Like shale, it splits into flat layers. It is used in making bricks and cement.

4. Various uses of minerals: (i) Minerals are used as building materials. (ii) Minerals give us useful metals. (iii) Minerals are used as gemstones. (iv) Minerals are used as fertilizers. (v) Minerals serve us as a part of our diet.

5. Generally the substances that can attract iron are called magnets. Magnets can attract objects made of substances such as iron, cobalt and nickel.

There are two types of magnets:

Natural and man-made. Natural magnets are found in nature. For example, magnetite.

Man-made magnets are generally made from iron, nickel or cobalt.

14. Measurement : Speed and Density

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

B. 1. C, 2. D

C. 1. By comparing speed of each runner.

2. Density is the amount of mass contained in a unit volume of a substance. Things that are made of different materials have more mass in the same volume. When two things are of the same size but one of them weighs more than the other (it has greater mass), we say that the heavier one has greater density. For example, the metal spoon has greater density than the plastic spoon.

3. Things that have a lower density float.

Things that have a greater density sink.

4. The density of water is greater than that of wood, so the force of water pushing up against the wood is greater than the force of wood pushing down. That is why wood floats on water.



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