Key to

General Science

5

REVISED EDITION

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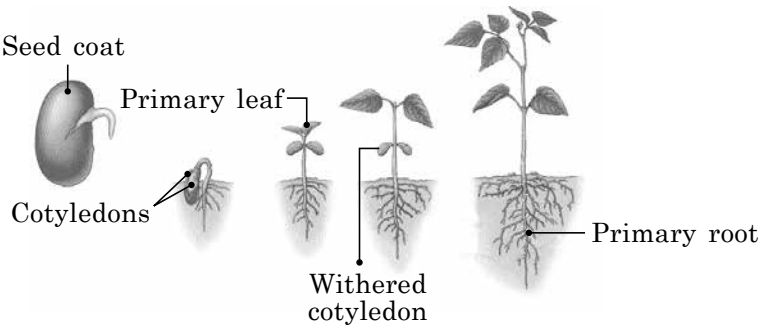
1. Reproduction in Plants

A. 1. cotyledons 2. A 3. wind
4. stem cutting

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

C. 1. plumule 2. air, water, warmth
3. underground 4. wing 5. roots

D.

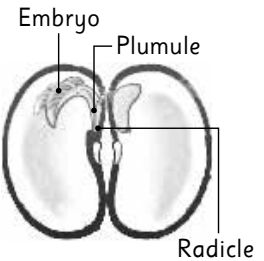


E. 1. c 2. a 3.d
4. b

F. 1. All living things grow and can produce young ones which usually resemble their parents. This is called reproduction. It takes place in plants through :
* seeds
* vegetative parts such as roots, stems, leaves, etc.
* spores

2. The process of development of a seed into seedling is called germination. Air, water and warmth are the conditions necessary for germination.

3.



4. The seeds carried to places where the conditions for germination are favourable are known as dispersal of seeds.

5. Wind, water, animals and human beings are the various agents of dispersal.

6. Potatoes are grown through stems. Stems are cut into pieces and put into the soil, they give rise to new plants.
7. The different methods of reproduction in plants are :
   * Vegetative Propagation through Roots
     Sweet potato, asparagus are some examples.
   * Vegetative Propagation through Stems
     Potato, onion are some examples.
   * Vegetative Propagation through Leaves
     Begonia, bryophyllum are some examples.
   * Vegetative Propagation through Stem Cuttings
     Rose plant, sugarcane are some examples.
   * Vegetative Propagation through Layering
     Jasmine, lemon are some examples.
   * Vegetative Propagation through Grafting
     Mango, guava are some examples.
   * Vegetative Propagation through Spores
     Mould, mushroom are some examples.
8. Agriculture is necessary to provide food for large population directly or indirectly.
9. For healthy crops :
   * Seeds must be healthy and ripe to yield good crops.
   * Seeds must be sown in the right type of soil.
   * Crops should be protected from insects, birds, rats etc. We should use pesticides to protect crops.
   * Proper irrigation is necessary for growth of plants.
   * Weeding or removal of unwanted plants should be done regularly.
   * Harvested crops must be stored properly to avoid being spoilt by moisture or animals like rats and birds.
10. The crops that are grown from November to April are called rabi crops. These crops are sown in winter season. Wheat, barley, peas, and mustard are examples of rabi crops.
    The crops that are grown from July to October are called kharif crops. These crops are sown in rainy season. Millet, rice, maize and sugarcane are examples of kharif crops.

Think and write

1. Some seeds stick to your clothes when you pass across a field because they have curved hooks, tiny barbs, spines and stiff hair or even a sticky coating.

2. Animals – Lifestyle

A. 1. feathers 2. tortoise 3. herbivores
4. gills 5. Acrtic tern

B. 1. Camel, Hedgehog 2. Frog, Toad, 3. Crow, Bear
4. Lizard, Tortoise 5. Butterfly, Grasshoppers

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

D. 1. forest 2. flippers 3. fur
4. omnivore 5. air holes

E. 1. A habitat is important for animals because the habitat of an animal provides it food, shelter and suitable conditions to live. Different animals need different conditions to live and have chosen different habitats for themselves.
2. Desert animals have thick skin to avoid water loss through sweating. They have special features to adapt themselves to live in desert.
3. Feathers help birds to keep heat in and water out. They provide insulation and help maintain body temperature.
4. Animals in polar regions have thick fur and a layer of fat under their skin to keep themselves warm.
5. Animals that eat only flesh and meat of other animals are called carnivores. Lion, tiger, leopard and wolf are some carnivorous animals.
6. Human beings have two lungs inside their chest. Air enters through the nostrils. From there, it passes into the wind-pipe and then into the lungs. In the lungs, the oxygen of the air passes into the blood and it is then carried to the whole body.
7. Aquatic animals have fins or flippers that help them to swim. Fish, whale and dolphin have fins which help them to move forward and to keep balance and sea lion, turtle, penguin and seal have flippers which help them for paddling in water.
8. Annual journey of animals in search of suitable weather conditions is called migration. Some popular birds which migrate to India from Siberia (Russia) are painted storks, siberian cranes, flamingos, night heron and mallard duck.

3. Food, Health and Hygiene

A. 1. water 2. fats 3. goitre
4. air-borne 5. rest

B. 1. Proteins 2. Roughage 3. Deficiency disease
4. Diarrhoea 5. Rickets

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

D. 1. Goitre 2. Night blindness 3. Rickets

E. 1. We need food to stay alive. The five main nutrients that our body requires are carbohydrates, fats, proteins, vitamins and minerals.

2. Minerals help in strengthening the bones formation of teeth, blood and maintaining a normal heart beat.

3. Water is very important for all of us because it helps the body cells to do their work. It aids digestion and takes the nutrients from the food to the different cells of the body. It keeps our body temperature constant. It also helps to remove the waste products from the body as urine.

4. A meal which includes all the nutrients in adequate and appropriate amount is called a balanced meal or diet. It contains carbohydrates, fats, proteins, vitamins and minerals together with roughage and water.

5. Diseases that spread from an infected person to another are known as communicable diseases.
Non-communicable diseases do not spread from person to person. These diseases are present at birth while some others are caused by lack of a particular nutrient in the diet. They are also called deficiency diseases.

6. A disease caused by consuming contaminated food or drink is called food-borne disease. It usually spreads from person to person. Flies and dust are big carriers of germs of diseases. Flies sit on food items and leave germs on them. Similarly, dust particles also contain germs. When a healthy person eats these food items, the person falls ill.

7. Diseases spread by vectors such as houseflies, mosquitoes, and cockroaches are known as vector-borne diseases like malaria and dengue.

8. We can prevent communicable diseases through vaccination.

9. We can maintain proper hygiene by the following ways :
   * Wash your hands thoroughly with soap after using the toilets.
   * Wash your hands with soap before and after having your meals.
   * Take a bath daily to remove sweat, dust and germs from the body.
   * Rinse your eyes with cold water while bathing.

* Brush your teeth twice a day.
* Trim your nails regularly.
* Cleaning the tongue with a tongue cleaner helps prevent bad breath.

10. A good posture is necessary for body because it gives a smart look to our body and prevents problems such as back ache, muscular pain and strain.

4. Human Body System

A. 1. tissues 2. biggest 3. thirty-three
4. gliding 5. heart

B. 1. T 2. F 3. T
4. T 5. T 6. F

C. 1. Ribcage 2. Skull 3. Shoulder girdle
4. Backbone

D. 1. Various organs of the body work together to make up an organ system. Different organ systems are-
* Respiratory System
* Muscular System
* Circulatory System
* Excretory System
* Skeletal System
* Digestive System
* Nervous System
* Reproductive System

2. The skeletal system is important to us because it provides the framework for the body and protects delicate internal organs.
3. A soft and spongy matter found inside the bone is called bone marrow. Bone marrow is the body's factory for producing red blood cells and it also stores fat.
4. The ribcage is made up of 12 pairs of curved bones called the ribs. It protects the heart, lungs and liver. The first seven pairs of ribs are attached to the front to the sternum, a strong bone in the centre of the chest that holds the ribs in place. The next three pairs are held on with the cartilage to the ribs above them. The last two sets of ribs are called floating as they are not connected to the sternum or the ribs above them. But they do not float freely. They are securely attached to the spine in the back.

5. An elastic tissue called cartilage is present between the bones, at the joint, to prevent the bones from rubbing against each other.
6. Hinge Joint for ex. elbow, knee, fingers
   Ball-and-socket Joint for ex. arms and legs
   Pivot Joint for ex. head and the neck
   Gliding Joints for ex. wrist and ankles
7. Muscles give shape to the flesh and beauty to the body. Also, they help in the movement of the bones.
8. (a) Bones in the spine are called vertebrae.
   (b) Strong cord like tissues that connect bones are called tendons.
   (c) Bones at the joints are joined together by a strong tissue known as ligament.

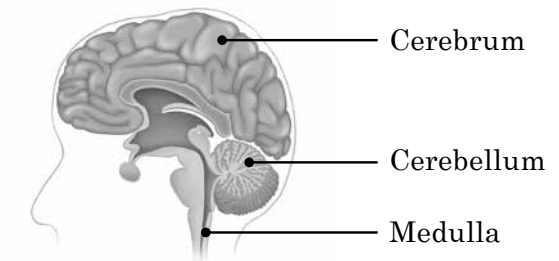
5. Nervous System

A. 1. cerebrum 2. cerebellum 3. sense organs
   4. skin
B. 1. b 2. c 3. a
C. 1. Sensory nerves 2. Voluntary 3. outer
   4. Skin 5. eyelid

D. 1. The nervous system is the control centre of the body, working continuously to keep us alert and healthy.
2. Brain, spinal cord and nerves are the different parts of the nervous system.
3. The three parts of the brain are :
   Cerebrum : It is responsible for thinking, reasoning, memory and for voluntary muscle movement.
   Cerebellum : It controls motor movement, coordination, balance, equilibrium and muscle tone.
   Medulla : It controls all the body functions, that are required for us to stay alive, like breathing air, digesting food and circulating blood.
4. The two kinds of nerves are :
   Sensory nerves : The nerves that carry messages from the sense organs to the spinal cord and to the brain are called sensory nerves.
   Motor nerves : The nerves that convey orders of the brain to muscles and other parts of the body are called motor nerves.

5. The action under the control of the will is known as voluntary action.
   The action not under the control of the will is known as involuntary action.
6. The eyes are the organs of sight. The front part of the eye is called cornea. The outer surface of cornea is convex in shape. The light coming from objects enter the eye through cornea. Just behind the cornea is the iris. There is a hole in the middle of the iris, called pupil of the eye. The screen, on which the image is formed in the eye is called retina. The image formed on the retina is conveyed to the brain by the optic nerve and gives rise to the sensation of vision.
7. The tongue gives us sense of taste. There are tiny taste buds situated in different regions of the tongue which help in tasting different things. These taste buds can be grouped into four basic tastes that our tongue can detect. The four basic tastes are sweet, salty, sour and bitter. These taste buds contain the ends of nerves. The taste messages are sent to the brain through these nerves.

E.



6. Safety and First Aid

A. 1. school ahead 2. b 3. rabies
   4. support it by sling 5. sand

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

C. 1. We should not wear synthetic clothes in the kitchen because they can catch fire easily.
2. An anti-rabies injection is necessary to treat animal bites immediately because the saliva of these animals enters the skin of the victim and can cause rabies.
3. A bandage is tied tightly above the snake bite at once because it will slow down the flow of the infected blood towards the blood.

D. 1. We can avoid accidents by being careful and by following certain rules.
2. We should follow the road signs to avoid accidents and to keep ourselves safe.
3. First aid saves the life of a victim and helps the victim recover fast. It helps the victim's condition from becoming more serious during his/her transportation to a hospital.
4. Small cuts can be treated with tincture of iodine.
5. The victim must be made to sit down on a chair with the head held back. An ice pack should be applied on the nose to stop bleeding.
6. It is very necessary to treat animal bites immediately as the saliva of these animals enters the skin of the victim which can cause rabies.

7. Rocks, Minerals and Soil

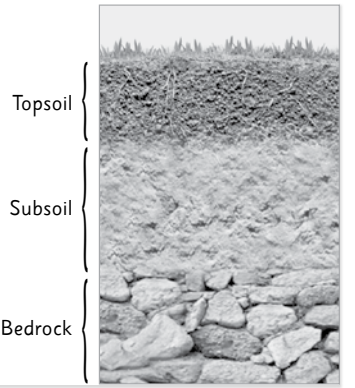
A. 1. pumice 2. refineries 3. sun
4. topsoil 5. bedrock

B. 1. Granite, Pumice 2. Sandstone, Shale
3. Marble, Slate 4. Coal, Petroleum
5. Coal, Petroleum 6. Weathered rock, Decayed Plant

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

D. 1. Igneous rocks were the first rocks to form on the earth. They were formed either underground or above ground. They were formed underground when the melted rock deep within the earth, called magma, became trapped in small pockets. These pockets of magma cooled slowly and became igneous rocks. Igneous rocks were also formed when volcanoes erupted, causing the magma to rise above the earth's surface.
2. Sedimentary rocks are formed by the deposition of sediments brought by rivers and winds. Sandstone, shale, limestone and conglomerate are examples of sedimentary rocks.
3. The two types of minerals are metallic and non-metallic.
Metallic minerals contain *metals*. Metals are hard substances with lustre or shine. Gold, iron, silver, copper are important metallic minerals.
Non-metallic minerals contain *no metals*. Potassium, phosphorus, limestone, mica, oil, coal and petroleum are important non-metallic minerals.

4. Fossil fuels are formed from the remains of living things which once flourished on the planet, but died and got buried under thick layers of younger rocks.
5. Natural Gas is a clean fuel. It causes less pollution than petrol and diesel. It does not give out any smoke and can burn completely. Nowadays it is used in automobile vehicles.
6. If we use mineral resources too fast and carelessly there will be great scarcity of these resources. So, we must use them carefully and economically.
7. The uppermost layer is called topsoil. It is the most fertile layer that contains sand, clay, water, air and above all humus that makes it suitable for the growth of plants.
   The layer below the topsoil is called subsoil. It contains pieces of rocks. It has water but less humus. Some roots go deep down into this layer.
   The lowermost layer is called bedrock. It contains still larger pieces of rocks. It has very little water. This layer is very deep down the earth.



Layers of Soil

8. Solids, Liquids and Gases

A. 1. wood 2. increases 3. condensation
   4. contraction 5. expand
B. 1. matter 2. Atoms 3. decreasing
   4. increase 5. Heating, cooling
C. 1. c 2. e 3. d
   4. a 5. b
D. 1. Molecules in a solid cannot move freely because in solids, molecules are packed closely together.
   2. A liquid does not have its own shape but has fixed volume. It takes the shape of its container because the molecules are not very tightly packed. They move freely.
   3. A solid changes into a liquid as the temperature increases because the states of matter are interchangeable.
E. 1. Matter is made up of tiny particles known as molecules.
   2. Solids, liquids and gases are the three forms of matter.

3. In solids, molecules are packed closely together. They cannot move freely but can only vibrate.
   In liquids, molecules are not very tightly packed. They can move freely.
   In gases, molecules are very loosely packed and can move freely in all directions.

Arrangement of molecules in solids

Arrangement of molecules in liquids

Arrangement of molecules in gases

4. All matters can be changed from one state to another by heating or cooling. So, we can say that the states of matter are interchangeable. Examples are as follows-
   * Melting is the change that occurs when a solid changes into a liquid as the temperature increases.
   * Evaporation is the process by which water changes into vapour due to heat.
   * Condensation is the process by which water vapour change back into droplets of water on cooling.
   * Freezing is the change that occurs when liquid changes into a solid as the temperature decreases.
5. The changes of states are temporary because cooling or heating reverses the changes.
6. The increase in size of matter on heating is called expansion. The decrease in size of matter on cooling is called contraction.

9. Force, Work and Energy

A. 1. magnetic 2. less 3. lubricants
   4. fulcrum 5. energy
B. 1. electrostatic 2. force 3. Work
   4. Friction 5. inclined
C. 1. Push, Pull 2. Wind, Water 3. Screw, Wedge
   4. Wheelbarrow, Bottle opener 5. Axe, Knife
D. Lever : scissors, fishing rod, bottle opener
   Inclined plane : slide, ramp, screw
   Wheel and axle : bicycle wheel, egg beater
   Wedge : axe, blade

E. 1. Screw 2. Pulley 3. Wedge
4. Wheel and axle

F. 1. Magnetic force 2. Electrostatic force 3. Frictional force

G. 1. A push or pull that changes the state of motion of an object is called a force. A force can –
- make a stationary object move.
- change the shape and size of an object.
- stop movement or make a moving object change its speed.
- change the direction in which an object is moving.

2. Sir Isaac Newton was the first to discover the law of gravity. Law of gravity means that every object attracts another object towards it, using a force, called gravity. Gravity acts between everything in the universe. All the planets including the earth are held in their orbit around the sun because of gravity.

3. Friction is helpful in our daily life. It-
* helps us to grasp things.
* helps us to walk.
* produces heat.
* helps cars to move and stop.
* helps in writing.

4. Two ways to reduce friction are :
* The moving parts of machines are oiled and greased regularly to reduce friction.
* Ball bearings and smooth metal balls are placed between the moving parts of machines to reduce friction.

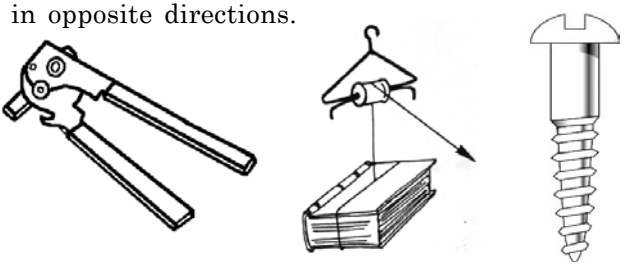
5. Potential energy is stored energy. It is waiting to be converted into power while kinetic energy is the energy of motion. The amount of kinetic energy depends upon the mass and speed of an object.
In first order lever the fulcrum is between the load and the effort. In second order lever load lies between the fulcrum and the effort.

6. A machine is a device by which a small force applied at convenient point can be used to overcome a large force at some other point. It makes our work easier. Lever, inclined plane, pulley, wheel and axle, screw and wedge are some examples of simple machines.

7. The screw is one of the most commonly used mechanical devices in the world because they are used to lower and raise things. They are also used to hold objects together.

8. A pulley consists of a grooved wheel with a rope round it. It is a machine used for lifting a load straight up. A grooved wheel is fixed to a support high up. A rope goes round the wheel. The load is fixed to one end of the rope. The effort is applied downwards at the other end of the rope. It pulls the load upwards. The load and the effort move equal distances but in opposite directions.

H.



10. Air and Water

A. 1. troposphere 2. 78% 3. oxygen
4. oil 5. rain water

B. 1. wind 2. gases, water vapour
3. oxygen 4. air-pressure 5. solvent
6. filterate

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

D. 1. The greenhouse gases are necessary for survival on earth because without the greenhouse gases such as water vapour, carbon dioxide, methane and nitrous oxide, the earth would be too cold for the survival of living organism.
2. Air is the very life of all plants because it is very useful for green plants. They take carbon dioxide from the air in making their food in the presence of sunlight.
3. Water in lakes, streams and rivers is unfit for drinking because it carries insoluble materials like sand, leaves, dung, dead plants, etc. and it may take harmful germs.

E. 1. Atmosphere is a thin layer of gases that surrounds the earth. It is important for us because it traps energy and maintains a suitable temperature to live on the earth.
2. The air in exosphere is cold although the temperature here can increase a lot because the hot molecules are far away and floating here and there.
3. Air is necessary for all of us. We cannot live without it. Air contains oxygen which is used by most organisms for respiration and carbon dioxide used by plants for photosynthesis.

4. Nitrogen, oxygen, with traces of water vapour, carbon dioxide, argon, and various others are the components of air.
5. Water vapour is present in air at all times. Take a glass and put some ice cubes into it. Place it in the open air. Let it remain undisturbed for a few minutes. Now observe the outside of the glass. Drops of water shall be seen clinging there. Where have they come from? The water vapour in the air has condensed into water drops.
6. Some examples to show the uses of air pressure are -
   Inflating tyres, playing musical "wind" instruments, drinking through straws, flushing toilets, blowing up balloons, breathing, etc.
7. Salt, sugar, soda, etc. are very common things that dissolve in water.
8. The methods to purify water are :
   * Sedimentation * Filtration * Distillation
   * Boiling * Chemicals
   Sedimentation : Take the impure water in some vessel. Leave the vessel undisturbed for sometime. The impurities settle down and clean water stays above them. This process is known as sedimentation.
   Boiling : Boiling kills most of the disease germs in water. Boil the impure water for 10 -15 minutes. The germs get killed and the water becomes pure. Filter this water. It is fit for use now.
9. Distilled water is not at all good for drinking purposes because it loses all its minerals that are necessary and useful to us.
10. We can separate soluble substance by distillation method. Take some water in a glass and dissolve some salt in it. Put the salt solution in retort whose tube goes into the mouth of a flask. The glass is kept cool by putting cold water upon it. Heat the retort. The water will be evaporated. The vapour will pass into the cold flask and the salt is left behind.

11. Sun and Planets

A. 1. sun 2. core 3. mercury
   4. neptune 5. earth
B. 1. greater 2. 71% 3. outer core
   4. Phobes, Deimos 5. Uranus

C. 1. The planets revolve around the sun because the gravity of the Sun keeps them in their orbits. Just as the moon orbits the earth because of the pull of earth's gravity, the earth orbits the sun because of the pull of the sun's gravity.

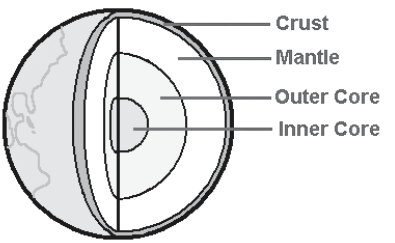
2. Jupiter is called a gas giant because it does not have a solid surface. Under its atmosphere is a large liquid ocean of hydrogen and water.

D. 1. The natural objects visible in the sky are called celestial or heavenly bodies. Stars, planets and moons are all heavenly bodies. The sun and the eight planets together form our solar system.

2. Earth is the only planet to have life because plants, animals and people all live on the earth.

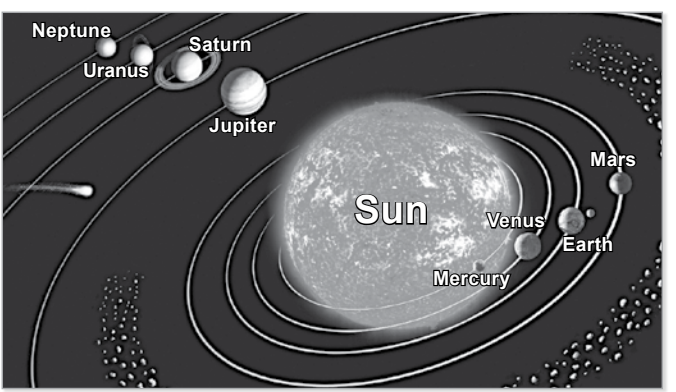
3. Earth looks like a blue ball because seventy-one percent of the earth's surface is covered with water.

4. The three layers of the earth are crust, mantle and core.
Crust : Crust is the outermost and the thinnest layer of the earth. It occupies less than one percent volume of the earth. It is made of rocks and contains everything essential for life.
Mantle : Inside the crust is the mantle, the largest layer of the earth. It occupies nearly eighty percent volume of the earth.
Core : The centre of the earth is known as the core.



5. The ozone layer protects life on earth from the harmful effects of the ultraviolet rays of the sun.

6. Mars is considered the Red planet because the 'iron oxide' found on its surface gives it a reddish appearance.

7. 

Solar system

E. 1. Moon 2. Mantle 3. Venus
4. Jupiter 5. Saturn 6. Neptune

12. The Moon and Shadow

A. 1. a gibbous moon 2. 1957 3. solar eclipse
4. lunar eclipse
B. 1. Craters 2. Soviet Sputnik 1
3. Umbra 4. Neil Armstrong 5. Full moon
C. 1. moon 2. light 3. 27, 17, 43
4. straight 5. longer

D. 1. The earth's gravity acts on the moon and the moon's gravity acts on the earth. The earth being bigger in size, its gravity is stronger than that of the moon. As a result the moon's motion is dominated by the earth.

2. The moon has almost no atmosphere, because of its weak gravity. Without an atmosphere, there is no wind or water erosion. So, there is 'no change in the moon's surface' for billions of years.

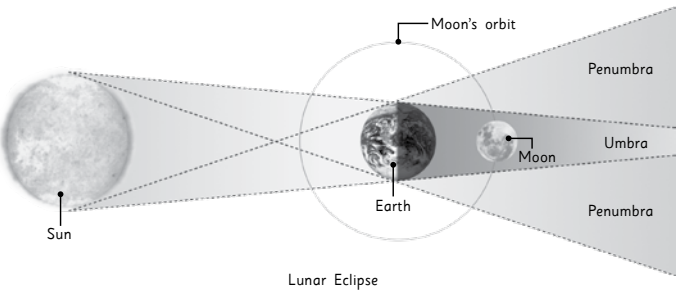
3. The changing shape of the bright part of the moon that we see is called its phase. The phases of the moon depend on its position in relation to the sun and earth. As the moon makes its way around the earth, we see the bright parts of the moon's surface at different angles. These are called "phases" of the Moon.

   The different phases of the moon have different names. As the moon waxes the moon moves through the new moon, crescent moon, first-quarter moon, gibbous moon and full moon phases. From here the moon wanes through the gibbous moon, third-quarter moon, crescent moon and new moon phases. Half moon is often used to mean the first-quarter and third-quarter moons.

4. When the bright part is getting bigger, the moon is waxing. When the bright part is getting smaller, the moon is waning.

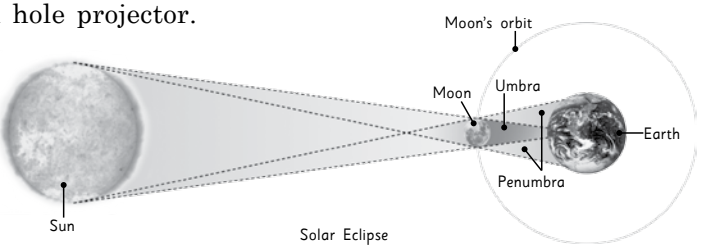
5. Artificial Satellites are human built objects orbiting the earth and other planets in the solar system. These get into orbit with the help of a rocket or a space shuttle. These are used for studying the earth as well as other planets. Artificial satellites can have a range of missions, including scientific research, weather observation, military support, navigation, earth imaging and communication.

6. Take three card-boards cut in equal size. Place them one over the other and drill a hole in all the three card-boards. Now place them in stands. Their holes must be in the same straight line.
   Place a lighted candle on one side of the card-boards. The rays of its light travel to all sides. One or two of them passes through the holes of the card-boards also.
   Look through the hole of the last card-board. You will be able to see the light. Why? It is because the light travels in a straight line.
7. The shadow of an object in light has two regions. The central dark region is called umbra. The outer less dark region is called penumbra.
8. A lunar eclipse occurs at night. It occurs when the moon passes through the shadow of the earth. A lunar eclipse lasts for a short time. During a lunar eclipse the moon may turn a reddish colour. It is not dangerous at all to look at a lunar eclipse because the moon does not make its own light.



Lunar Eclipse

A solar eclipse occurs during the day. It occurs when the moon goes in front of the sun and blocks most of the sun's light from the earth. During a total eclipse all you can see from earth is a ring of light around the moon which is part of the sun the moon did not cover. It is dangerous to look at a solar eclipse directly, even if you have sun glasses or smoked glass. It is better to view solar eclipses through a pin hole projector.



Solar Eclipse

E. 1. Gibbous moon 2. Crescent moon 3. Half moon
4. Full moon 5. New moon

13. Earth Alerts

A. 1. dormant 2. focus 3. aftershock
4. eight 5. Pacific
B. 1. plates 2. Magma 3. Richter scale
4. Ring of Fire 5. tsunami
C. 1. Mount Etna in Italy
2. Mount Mauna Kea located in the Hawaiian Islands in USA
3. Mt. Kilimanjaro in Africa
D. 1. Molten rock below the surface of the earth that rises in volcanic vents, is known as magma.
2. An aftershock is a smaller earthquake that may occur after a previous large earthquake, in the same area of the main shock. This occurs when the earth's crust adjusts to the effects of the main shock.
3. Any form of precipitation that contains harmful substances such as carbon dioxide, nitrogen and sulphur oxides is known as acid rain.
4. A scale used to express the total amount of energy released by an earthquake is known as Richter Scale. It has eight levels – the lowest or 1 indicates a quake that is almost not felt and at level 8, it indicates a very strong earthquake.
5. The point at the earth's surface directly above the focus is called the epicentre.
6. A tsunami is a series of large sea waves caused by a submarine earthquake or volcanic explosion. It is a Japanese word meaning tidal wave.

E. 1. When the earth's plates move abruptly, they give rise to volcanic eruptions, earthquakes and tsunamis known as natural calamity.
2. Volcanic eruptions can cause blasts, hot ash flows, mud slides, avalanches, falling ash and floods.
3. The three major types of volcanoes are :
Active Volcanoes :
The volcanoes that erupted recently and may erupt again soon, are called active volcanoes.
Dormant Volcanoes :
The volcanoes that are quiet for many years and may erupt again in future are called dormant or sleeping volcanoes.

Extinct Volcanoes :
The volcanoes that have not erupted for the last 10000 years or more are called extinct or dead volcanoes.

4. Earthquake is a sudden shaking and vibration of the earth's surface. Earthquakes occur when the moving tectonic plates that make up the surface of the earth move apart or bump into each other, or slide under each other.
5. The effect of tremor is greatest at the epicentre. Maximum destruction occurs at and around the epicentre. Within no time, houses collapse, roads, bridges are damaged and thousands of people die. Very high intensity earthquakes damage the entire city and town.
6. Long high sea waves caused by a submarine earthquake is the reason for a tsunami.
7. A volcano causes fire and destroys everything. Buildings are destroyed and people are made homeless. Poisonous gases kill people and animals. They cause acid rain and cause various illness to survivors. An earthquake destroys houses, roads, bridges and thousands of people die. Tsunami destroy boats, buildings, houses, cars, etc. and whatever is on the sea coast.

14. Knowing the Environment

A. 1. animals 2. pesticides 3. biogas
4. plants 5. ozone layer

B. 1. components 2. high
3. oxygen, carbon dioxide 4. global warming
5. plastic bags

C. 1. Weakening of the ozone layer which protects the earth from the harmful rays of sun getting earth hotter day by day.
2. Poisonous chemicals released from the factories, pesticides used in farming, dumping wastes near water bodies etc. contaminate the soil and ground water.

D. 1. Our environment includes living and non-living things around us. Microbes, plants, animals and humans are living things. Air, water and land are non-living things.
2. Environment has two types of components - Biotic and Abiotic. Biotic means related to living things such as humans, plants, animals and microbes. Abiotic means related to non-livings. It includes air, water, soil, wind etc. Biotic components of the environment cannot survive without abiotic components. So, these two components have an effect on each other.

3. Large crowded cities, industries, scientific inventions, etc. lead to disturbance in the environment.
4. Ozone layer performs the vital role of protecting humans and other living things from the harmful ultraviolet rays of the sun.
5. Industries use a lot of water and release the water mixed with poisonous chemicals in rivers or in fields, causing harm to the life forms found in the environment. People dump wastes near water bodies, making them dirty.
6. To save the existence of life on earth we should take the following steps :

   Use alternate sources of energy like biogas, wind energy, solar energy and energy from water.

   Keep the water bodies clean and use them carefully.

   Keep the environment clean and green.

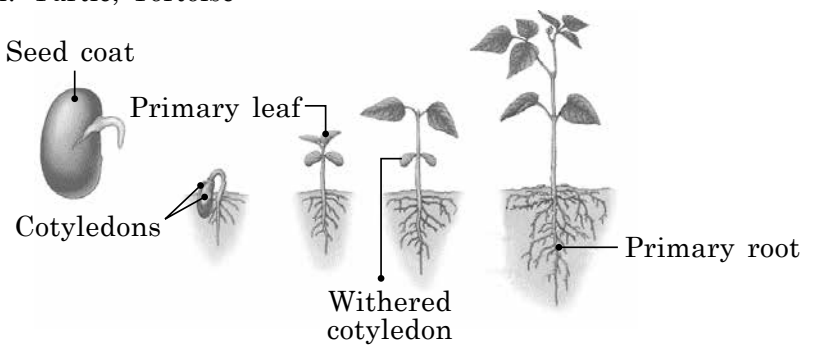
   We should not use plastic bags, it is poisonous and does not decay easily. Use paper, jute or canvas bags.

- Encourage use of non-polluting fuel.

  Save energy by switching off the lights when you are not using them.
- Walk or use bicycle if the journey is a short one.

Model Test Paper - 1

A. 1. seed coat 2. water 3. gills
   4. habitat
B. 1. flippers 2. Germination 3. pesticides
   4. air holes
C. 1. Cotton plant, Drumstick plant
   2. Mango, Guava
   3. Frog, Toad
   4. Turtle, Tortoise
D.



E. 1. Habitat is important for animals because the habitat of an animal provides it food, shelter and suitable conditions to live. Different animals need different conditions to live and have chosen different habitats for themselves.
2. The practice of growing plants in a large quantity is called agriculture. It is necessary as it provide food to human beings directly or indirectly.
3. The process of development of a seed into seedling is called germination. Air, water and warmth are necessary for germination.
4. Animals in polar regions have thick fur and a layer of fat under their skin to keep themselves warm.

Model Test Paper - 2

A. 1. growth 2. thirty-three 3. cerebrum
4. rabies
B. 1. Spinal cord 2. direct 3. Gliding
4. eyelid
C. 1. T 2. F 3. F
4. F
D. 1. Pedestrian Crossing 2. Level Crossing
3. Round About 4. No Cycle 5. School Ahead
E. 1. The skeletal system is important to us because it provides the framework for the body and protects delicate internal organs.
2. The victim must be made to sit down on a chair with the head held back. An ice pack should be applied on the nose to stop bleeding.
3. Diseases that spread from an infected person to another are known as communicable diseases.
Non-communicable diseases do not spread from person to person. These diseases are present at birth while some others are caused by lack of a particular nutrient in the diet.
4. The three parts of the brain are :
Cerebrum : It is responsible for thinking, reasoning, memory and for voluntary muscle movement.
Cerebellum : It controls motor movement, coordination, balance, equilibrium and muscle tone.
Medulla : It controls all the body functions, that are required for us to stay alive, like breathing air, digesting food and circulating blood.

Model Test Paper - 3

A. 1. refineries 2. fulcrum 3. increases
4. energy
B. 1. d 2. c 3. a
4. b
C. 1. Coal, Petroleum 2. Sunlight, Wind
3. Granite, Pumice 4. Coal, Petroleum
D. 1. Screw, Pulley, Wedge, Screwdriver
E. 1. Friction is helpful in our daily life by the following ways :
* Friction helps us to grasp things.
* Friction helps us to walk.
* Friction produces heat.
* Friction helps cars to move and stop.
* Friction helps in writing.

2. Sedimentary rocks are formed by the deposition of sediments brought by rivers and winds. Sandstone, shale, limestone and conglomerate are examples of sedimentary rocks.
3. The increase in size of matter on heating is called expansion. The decrease in size of matter on cooling is called contraction.
4. Sir Isaac Newton was the first to discover the law of gravity. His theory was that every object attracts another object towards it, using a force, called gravity. Gravity acts between everything in the universe. All the planets including the earth are held in their orbit around the sun because of gravity.

F.

Arrangement of molecules in solids

Arrangement of molecules in liquids

Arrangement of molecules in gases

Model Test Paper - 4

A. 1. sun 2. oxygen 3. earth
4. troposphere 5. oil
B. 1. greater 2. gases, water vapour
3. outer core 4. air pressure 5. Uranus

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

D. 1. Atmosphere is a thin layer of gases what surrounds the earth. It is important for us because it traps energy and maintains a suitable temperature to live on the earth.
2. Nitrogen, oxygen, with traces of water vapour, carbon dioxide, argon, and various others are the components of air.
3. Earth is the only planet to have life because plants, animals and people all live on the earth.
4. Mars is considered the Red planet because the 'iron oxide' found on its surface gives it a reddish appearance.
5. Some examples to show the uses of air pressure are - Inflating tyres, playing musical "wind" instruments, drinking through straws, flushing toilets, blowing up balloons, breathing, etc.

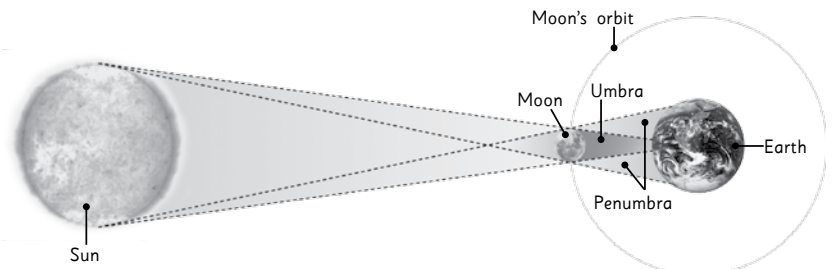
Model Test Paper - 5

A. 1. a gibbous moon 2. focus 3. biogas
4. solar eclipse

B. 1. Umbra 2. Craters 3. Seismograph
4. Ozone layer

C. 1. A scale used to express the total amount of energy released by an earthquake is called Richter Scale. It has eight levels – the lowest or 1 indicates a quake that is almost not felt and at level 8, it indicates a very strong earthquake.
2. Biotic components are the living things which means related to life. Humans, plants, animals and microbes are all biotic components.
3. When the moon is less than half-lit, it is called a crescent moon.

D.



E. 1. The moon has almost no atmosphere, because of its weak gravity. Without an atmosphere, there is no wind or water erosion. So, there is 'no change in the moon's surface' for billions of years.

2. When the bright part is getting bigger, the moon is waxing. When the bright part is getting smaller, the moon is waning.

3. When the earth's plates move abruptly, they give rise to volcanic eruptions, earthquakes and tsunamis known as natural calamity.

4. The three major types of volcanoes are :

Active Volcanoes :

The volcanoes that erupted recently and may erupt again soon, are called active volcanoes. Mount Etna in Italy is an example of active volcano.

Dormant Volcanoes :

The volcanoes that are quiet for many years and may erupt again in future are called dormant or sleeping volcanoes. Mauna Kea in the Hawaian Islands in USA comes under this category.

Extinct Volcanoes :

The volcanoes that have not erupted for the last 10000 years or more are called extinct or dead volcanoes. Mt. Kilimanjaro in Africa is an example of extinct volcano.

5. The biotic and abiotic are two components that make our environment.

Biotic components are the living things related to life. Humans, plants, animals and microbes are all biotic components.

Abiotic means related to non-living things. It includes air, water, soil, temperature, wind, source of energy – usually sun.

Mental Ability Test

1. Stems and leaves will develop
2. Lion
3. aedes mosquito
4. circulatory and respiratory
5. ribcage
6. Brain
7. support it by sling
8. igneous rock
9. metallic
10. freeze it
11. b
12. gravity
13. lack of oxygen
14. Carbon dioxide
15. much of its surface is covered with water
16. crust
17. lunar
18. submarine earthquakes