Dear teacher,

This text book is designed to cater to the natural instincts of curiosity and experimentation of the budding scholars. We request you to adopt a childcentric and holistic methology in order to facilitate a meaningful learning ambience. Here are some suggestions for using this book.

- ⁕ Encourage the students to participate in the 'I know' and 'I want to know' discussion for a productive beginning.
- ⁕ Keep prodding the students to ask questions.
- ⁕ 'Believe it or not' and 'Knowledge Plus' are included to arouse interest and an urge for further quest. Hence they needn't be considered for evaluation.
- ⁕ All the 'activities' need to be tried out with proper training in recording the observation and drawing conclusions. Teacher demonstration can be carried out if conditions are not favourable for students' hands-on-experimentation.
- ⁕ Intended objectives and clear instructions for proceeding should be strictly stated before assigning project, group works, activities etc.
- ⁕ In group works, tasks should be distributed evenly. Care should be taken to nurture social skills along with scientific skills.
- ⁕ Take home activities, homeworks, assignment etc. should be planned to develop skills for reasoning, logical thinking, analysis and application.
- ⁕ Assessments/Evaluation should include due weightage for the above mentioned skills.

- ⁕ Open book assessments, oral questioning (viva) based on projects, multiple choice questions etc. can be included for evaluation.

Unit 1 **GROWING PLANTS**

A. 1. germination 2. rabi crops 3. cotyledons
4. dispersion 5. manure/fertilisers.

B. 1. water 2. animals 3. explosion
4. water 5. wind

C. 1. mango, watermelon 2. dandelion, maple
3. fern, mushroom

D. 1. Plants reproduce from stems, leaves and spores.

2. The growth of a baby plant from a seed is called germination. When the seeds get enough water, air and warmth they grow into new plants.

3. Kharif crops are called summer crops. These crops are grown at the beginning of the monsoon and harvested by September or October. Rice and maize are two examples.

   Rabi crops are called winter crobs. These crops are sown in the beginning of winter and harvested by March or April. Wheat and barley are two examples.

E. 1. If all the seeds of a plant fall under it, they will not get enough food and space to grow. Hence dispersal of seeds is necessary.

2. Crops should be sprayed with environment friendly insecticides and pesticides to keep them free from pests, diseases and harmful animals.

3. Plants produce many seeds because not all of them get a chance to grow into new plants.

Rack your brain

Coconut trees are mainly found near water bodies as they help in dispersing the seeds.

Workbook answers

A. 1. seed coat 2. potato 3. ferns 4. cotton

B. 1. bryophyllum 2. fern 3. dandelion

C. 1. false 2. false 3. true 4. true

D. 1. *Embryo:* The baby plant inside the seed is called embryo.

2. *Germination:* The growth of a baby plant from a seed is called germination.

3. *Spores:* Spores are very tiny bodies with hard protective coat which lie under the surface of the leaves of fern or mosses. Each spore gives rise to a new plant in favourable conditions.

4. *Seed dispersal:* Scattering of the seed away from the mother plant is called seed dispersal.

5. *Crops:* Plants that are grown in large quantities to provide food and other useful substances are called crops.

6. *Cotyledons:* The seed leaves inside the seed coat is called cotyledons.

E. 1. dispersal 2. coat 3. explosion 4. kharif

5. cotyledons 6. embryo

F. The outer hard covering of the seed is called seed coat. This protects the seed. On one side of the seed

is a scar. This is where the seed is attached to the fruit. On the top of the scar there is a small hole. Inside the seed coat are tiny seed leaves called cotyledons. Cotyledons provide food for the baby plant. Between the cotyledons is the baby plant or embryo. The embryo contains baby shoot and a baby root.

Unit 2 CLASSIFICATION OF ANIMALS AND BALANCE IN NATURE

A. 1. frog, salamander 2. crocodile, turtle

3. lion, tiger 4. cow, deer 5. lion, tiger

B. a g c g b g e g d.

C. 1. reptiles 2. water, land 3. feathers 4. gills

5. lungs 6. Sun 7. primary producers

D. 1. Mammals are the animals which give birth to their young ones and feed them on milk.

2. Plants are the only living things that can make their own food and so they are called primary producers.

3. All food chains are interconnected in a large and complex web called food web.

4. Amoeba, earthworm, hydra, insects are a few invertebrates.

E. 1. *Main features of fish are;*

1. Body is streamlined.

2. Skin is covered with scales.

3. They breathe through gills.

4. Heart has 2 chambers.

2. *Amphibians*

1. They have moist skin.

2. They lay eggs in water.

3. Eggs do not have tough covering.

Reptiles

1. They have dry scales on their body.

2. They do not need water to lay eggs.

3. Eggs have tough covering.

3. *Characteristic features of birds are:*

1. They have wings and beak.

2. Body is covered with feathers.

3. Respiration is through lungs only.

4. Heart has four chambers.

4. The relationship between the plants and animals who eat them is called a food chain. The plants (primary producers) are eaten by herbivores (primary consumers) and herbivores are eaten by carnivores (secondary consumers). When the animals die they are eaten by scavengers.

Sun → grass → insects → frog → snake → eagle

Rack your brain

If all the deer are killed then the tigers will not have food and they will also die.

Workbook answers

A. 1. True 2. True 3. False, reptiles have dry scaly skin.

4. False, green plants are called primary producers.

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

C. 1. Fish 2. Amphibians 3. Beehumming bird

4. Ostrich

D. 1. REPTILES 2. VERTEBRATES

3. MAMMALS 4. PISCES

E. 1. Chameleon 2. Newt 3. Toucan 4. Amoeba

F. 1. Crocodile 2. frog 3. bat 4. Echidna

G. 1. Primary consumers: The animals which eat food made by plants are called primary consumers. *Eg:* deer, rabbit, cow.

2. Mammals: Mammals are the animals which give birth to their young ones and feed them on milk.

3. Food web: All food chains are interconnected in a large and complex web called food web.

4. Vertebrates: Vertebrates are the animals with backbone.

Unit 3 THE SKELETAL SYSTEM AND THE MUSCULAR SYSTEM

A. 1. Thigh bone (femur) 2. Vertebrae 3. Humerus

4. The floating ribs

B. 1. Hip joint/shoulder joint.

2. Neck joint (between the skull and the backbone).

3. Skull 4. Elbows/knees 5. Wrist/ankle

C. 1. The space inside the spongy bone which contains a jelly like soft material is called the bone marrow.

2. *Ligament*: The strong elastic bands of tissue that connect two bones are called ligaments.

Tendon: The tough tissue that connects muscles to the bones are called tendons.

Joint: Joint is a place where two or more bones meet.

D. 1. The main functions of skeleton are:

a. It gives shape and support to our body.

b. It protects the internal organs. The ribcage protect the heart and lungs.

c. It helps our body to move.

d. Blood cells are produced in bone marrow.

2. The different types of movable joints are:

a. *Hinge joint*: It allows movement in one direction. *eg*: elbow joint.

b. *Ball & socket joint*: It allows movement in all directions. *eg*: hip or shoulder joint

c. *Pivot joint*: It allows sideways and up and down movement.

d. *Gliding joint*: It allows side to side as well as backward and forward movement. *eg*: wrist, ankle, backbone.

3. Voluntary muscles are under our control. They have stripes on them and so are also called striated muscles.

Involuntary muscles are not under our control. They are controlled by brain and the spinal cord.

E. Voluntary muscles have stripes on them and so they are called striated muscles.

Rack your brain

1. The tendons join the muscles to the bones. Without tendons we cannot move.

2. Elbow joint is a hinge joint which only allows movement in one direction.

Workbook answers

A. 1. Red blood cells 2. shape and support

3. Brain 4. floating ribs 5. vertebrae

6. Hinge 7.voluntary 8. cardiac

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

C. 1. brain 2. tendons 3. voluntary 4. elbow
5. correct 6. shoulder

D. 1. Ribcage 2.Backbone 3. Smooth Muscles

E. 1.

Ligaments	***Tendons***
Connect bone to bone.	Connect muscles to the bones.
Are strong stretchy bands of tissue.	These are strong cords or tissues.

2.	***Voluntary Muscles***	***Involuntary muscles***
	Voluntary Muscles are under our control.	Not under our control.
	These muscles have stripes on them.	Do not have stripes.
	Also called striated muscles.	Also called smooth muscles.
	They control the movement of arms, legs, hands etc.	They control the movement of food, flow of blood *etc.*
3.	***Hinge Joint***	***Ball and Socket Joint***
	Allows movement in one direction only.	Allows movement in all directions.
	eg: joints in our elbow, knee, fingers and toes.	*eg:* Hip joints and shoulder joints.

F. 1. True.

2. False. The skull protects the brain.

3. False. Hinge joint allows movement in one direction only.

4. False. Muscles are joined to the bones by tendons.

5. True.

G. 1. bone marrow 2. cardiac muscles

3. joint 4. floating ribs 5. 22 bones.

H. 1. SKELETON 2. LIGAMENTS 3. TENDONS

4. MUSCLES

Unit 4 THE NERVOUS SYSTEM AND THE CIRCULATORY SYSTEM

A. 1. Cerebrum 2. Neurons 3. Retina 4. Artery

B. 1. Brain, spinal cord, nerves 2. Medulla

3. Spinal Cord 4. Iris 5. four

C. 1. The different types of nerves are motor nerves, sensory nerves and mixed nerves.

2. Capillaries are very thin (thinner than our hair) blood vessels which connect arteries to veins.

D. 1. Cerebrum, Cerebellum and Medulla are the three parts of the brain.

Cerebrum: It controls memory, thoughts, learning ability and basic intelligence. It also controls our sense organs.

Cerebellum: It controls the muscle movement and helps to keep our balance.

Medulla: It controls all our involuntary activities like breathing, heart beat *etc.*

2. Reflex action is a spontaneous action controlled by spinal cord. If something flies towards our eye, we automatically close our eye.

3. Vitreous humor is the fluid in the eyeball that protects the eye from shocks and minor jerks. The pupil is the opening in the centre of iris. Light enters the eye through the pupil.

Retina is the screen on which the image of the object we see forms.

4. The main functions of circulatory system are:

   1. It transports food and oxygen to different parts of the body.
   2. It collects carbondioxide and waste produced by the body.
   3. It protects us against diseases.
   4. It also helps in maintaining the temperature of the body.

Rack your brain

The nerves carry messages from the brain to all other parts of the body.

Workbook answers

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

C. 1. MOTOR NERVE 2. BRAIN

3. SPINAL CORD 4. CEREBRUM

D. 1. Brain 2. Ventricles 3. Cerebrum

4. Spinal Cord 5. Sensory Nerves 6. Skin

E. 1. Medulla controls all our involuntary activities like heartbeat, breathing, blood circulation, functions of internal organs etc. If it stops working it results in the death of a person. So medulla works continuously without rest.

2. The fluid protects the brain from shocks and jerks and it forms a soft cushion around the brain.

3. The oxygen we breathe in is taken to all cells of the body by the blood. Blood helps to keep the body temperature constant.

4. When a person sleeps, the cerebellum becomes inactive and the balance of the body is not maintained. As a result passengers who sleep while travelling in a bus fall now and then.

5. Alcohol present in the liquor consumed by a person affects his cerebellum. It fails to control and co ordinate the different muscles of the body responsible for walking. Hence a drunkard loses his balance.

F. 1. Retina acts as a screen on which the image of what we see forms.

2. Eyelid protects the eyeball from dust.

3. Taste buds have nerve endings. They detect the four kinds of taste.

4. Motor nerves carry messages from the brain or spinal cord to the different parts of the body.

G. 1. nerves 2. axon 3. spinal cord 4. heart

Unit 5 MICROBES AND DISEASES

A. 1. disease 2. yeast 3. goitre 4. scurvy

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

C. 1. Microbes or micro organisms are minute organisms that are visible under microscope.

2. The major groups of micro-organisms are Bacteria, Viruses, Protozoa, Fungi.

D. 1. a. They convert fruit juices into vinegar and wine.

b. They help in the digestion of food in our body.

c. They help in decomposing dead matter like fallen leaves and make soil fertile.

2. Diseases like cholera and typhoid are communicable diseases. Rickets and goitre are non-communicable diseases.

3. Communicable diseases spread through air, infected food and water, insect bites or by direct and indirect contact.

4. Communicable diseases

a. Spread from one person to another.

b. These are caused by micro-organisms.

c. These are not because of the deficiency of nutrients. *eg.* chicken pox, polio.

Deficiency diseases

a. Do not spread from one person to another.

b. These are not caused by micro organisms.

c. These diseases occur due to the deficiency of nutrients in the diet for a longtime. *eg.* scurvy, ricket.

E. When the vaccine of a particular disease enters our body, we get immunity or resistance to that disease.

Rack your brain

Due to heavy flooding, the water gets contaminated and diseases spread.

Workbook answers

A. 1. Bread and Wine 2. Amoeba, Paramaecium

3. Chicken Pox, measles 4. Cholera, Jaundice

5. Scurvy, Rickets

B. 1. VACCINATION 2. AMOEBA 3. VIRUS

4. RICKETS

D. 1. Bleeding gums, swelling in joints.

2. Swelling in the neck.

3. Bones become soft and bend.

4. Pale body, weakness and fatigue.

5. Cannot see properly in the dark.

E.

Virus	**Bacteria**	**Protozoa**	**Fungus**
polio	typhoid	malaria	ringworm
chicken pox	tuberculosis	amoebic	
common cold	diphtheria	dysentery	

F. 1. Microscope 2. Disease 3. Vaccines

4. Beri - beri 5. Iron

Unit 6 **MATTER**

A. 1. molecules 2. melting point 3. water cycle
4. atoms 5. compounds

B. 1. gold, copper, aluminium, iron *etc.*

2. carbon dioxide, ammonia, carbon monoxide *etc.*

3. milk, sea water, juice *etc.*

C. 1. False. The smallest particles of water are water molecules.

2. True.

3. False. Carbon dioxide is a compund. Elements of a compound can be separated only by chemical methods.

D. 1. *Matter*: Anything that occupies space and has weight is matter.

2. *Intermolecular space*: In matter, the space in between one molecule and the other molecules closer to it is called intermolecualr space.

3. *Sublimation*: Solids like camphor, moth balls directly vaporise without going through a liquid state. This process is called sublimation.

E. 1. In solids the intermolecular force of attraction is the strongest. Hence it cannot flow. In liquids, the intermolecular force of attraction is weak and so they can flow freely.

2. Mixtures contain different types of molecules and so are called impure substances.

F. 1. Atoms are smaller than molecules but they do not show all the properties of the substance. An atom cannot exist on its own. Molecules are the smallest particles of a substance that show all the properties of that substance. They are capable of independent existence.

2. On heating molecules move farther apart from each other. On cooling they move closer together.

Rack your brain

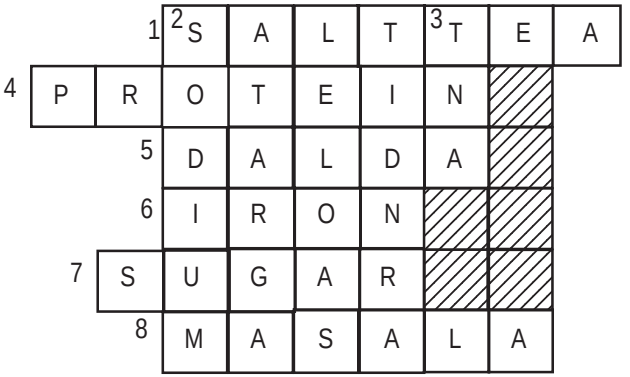
Kerosene: 2l only (liquids have definite volume)

Cooking gas: 3l (gases do not have definite volume; they take up the space available)

Workbook answers

A. 1. Silver, 2. carbon, 3. platinum, 4. chlorine

B. Elements : gold, copper, aluminium, nitrogen
Compounds : vinegar, protein
Mixtures : sugar syrup, apple juice, sea water, soil



C. 1. HYDROGEN 2. NITROGEN
3. CARBON DIOXIDE 4. OXYGEN

E. Elements ➛ Iron, Sodium
Compounds ➛ Salt, Sugar, Protein
Mixtures ➛ Tea, Masala, Dalda

Unit 7 OUR EARTH – A UNIQUE PLANET WITH ITS AIR AND WATER

A. 1. nitrogen 2. ozone 3. humidity
4. water 5. sediment 6. sunlight

B. 1. False, filtration is used for removing very small insoluble impurities.

2. False, as we go higher up, air gets thinner.

3. True.

4. False. Air exerts pressure in all directions.

C. 1. injection syringe, drinking straw or medicine dropper *etc.*

2. cholera, jaundice, dysentery *etc.*

3. helium, hydrogen, carbondioxide *etc.*

4. alum, potassium permanganate, chlorine *etc.*

D. 1. It can dissolve many different types of materials in it.

2. It may contain different types of soluble impurities and germs.

E. 1. *Filtration*: very small or fine insoluble impurities are trapped by the filter paper and the water obtained after the process is very clean.

2. Distillation involves both evaporation and condensation of vapour. In this case both the solute and solvent are obtained without any loss.

F. 1. Humidity is the amount of water vapour in the atmosphere.

2. Layer of atmosphere nearest to the Earth's surface is the troposphere.

3. Ozone blocks the harmful ultra violet rays of the Sun from falling on Earth and protects us from deadly health problem.

H. 1. ✻ It supports life by providing oxygen for breathing to living things.

✻ It supports the process of photosynthesis by providing carbon dioxide to green plants.

✻ It prevents the air from becoming too hot during the day and too cold at night and thus provides suitable warmth.

✻ It acts like a mirror which reflects away harmful radiations coming from the Sun.

✻ It acts like a big sieve which lets in rays of the Sun useful to the Earth in the right amount.

2. The air around us is a mixture of different types of gases. Air contains 78% nitrogen, 21% oxygen and the remaining 1% gases like hydrogen, argon, carbon dioxide, ozone *etc.*

3. The tap water is purified using sedimentation, filtration and chemical treatment before distribution. In chemical treatment chemicals like alum chloride are used to purify water and this water is disinfected using chlorine.

Rack your brain

Neema is correct; plants do not do photosynthesis during night and thus do not give out oxygen. Instead they breathe out carbondioxide like other living things and it is not good for us to inhale this air.

Workbook answers

A. 1. Text diagram

B. 1. ARGON 2. NEON 3. OZONE 4. HELIUM

C. 1. Turn off water tap after every use.

2. Reuse water from kitchen sink, bathroom etc. for watering plants.

3. Using water collected in basin or bucket instead of bath showers for bathing.

4. Ensuring everybody in your house observe the tips and follow the motto: 'reduce, reuse and recycle'.

D. 1. Distillation 2. Carbon dioxide

3. All the given choices 4. Carbon monoxide

5. 2/3

E. 1. Do not wash clothes here.

2. Do not bathe your animals here.

3. Do not wash dirty vessels here.

4. Do not dump waste into this pond.

5. Do not open your sewage outlet to this pond etc.

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

Unit 8 **FORCE, WORK AND ENERGY**

A. 1. energy, 2. friction, 3. Sun, 4. chemical energy, 5. kinetic energy (mechanical energy)

B. 1. mechanical to electrical

2. electrical to mechanical (kinetic)

3. chemical to electrical to sound

4. electrical to mechanical or kinetic.

C. 1. True.

2. False, The energy is not destroyed. According to 'law of conservation of energy', it only changes to another form.

3. False, Moon's force of gravity is less than that of the Earth.

4. False. Hard or rough surfaces offer more friction than smooth or polished surfaces.

D. 1. Exposure to disturbing or irritating noises can lead to serious hearing problems in humans. This is called noise pollution.

2. Work is done on a body whenever a force moves an object through a distance.

3. Energy can neither be created; nor be destroyed; only we can convert one energy form into another.

E. 1. Friction helps us to hold things in our hand, walk smoothly on ground, keeps tyres of vehicles moving forward.

2. Gravitational force is the force of attraction existing between any two objects in this universe. This force helps the heavenly bodies to keep moving in their orbit without falling on to each other.

The force of gravity from the Earth on us gives us weight; enables us to stay on Earth's surface and also makes things that are thrown up to come down.

3. Force can start an object at rest moving. Force can stop a moving object too. It can also change the shape of a body, speed or direction of moving bodies.

Rack your brain

Kiran's sister is doing just the right thing! LPG is a fossil fuel.Fossil fuels are obtained from dead remains

of plants and animals which were buried deep inside the Earth. When these plants and animals were alive, they depended on the SUN for their food – plants directly and animals indirectly. Thus SUN is the actual source of energy for even fossil fuels!!

Workbook answers

A. 1. TV, computer

2. burning of crackers, volcanic eruption (heat is also produced)

3. hotplate, room heater, iron etc.

B. 1. sound : loudspeaker 2. kinetic : washing machine
3. heat – hair drier 4. light – camera.

C. 1. potter's wheel, dough made into chapathi

2. hockey/football players hitting the ball to different directions, vehicles taking turn *etc.*

3. goal keeper collects and kicks off the ball to a player, vehicles/living things move from one place to another. Carrom coins are moved from one place to another while playing.

D. 1. force of friction 2. Chemical

3. X is North and Y is South

4. A boy pushing a parked lorry 5. Mechanical

E. a. gravitational force.

b. muscular force, friction from road.

c. force of gravity.

d. mechanical force, friction from road.

F. a. No work done b. Work done

c. No work done d. Work done e. Work done

Unit 9 **SIMPLE MACHINES**

A. *First class:* pliers, common balance, see saw

Second class: bottle opener, lemon squeezer, nutcracker, wheel barrow.

Third class: tongs, tweezers, fishing rod

B. *First class:* 1. E, 2. F, 3. L

Second class: 1. F, 2. L, 3. E

Third class: 1. F, 2. E, 3. L

C. 1. lever 2. inclined plane 3. wedge

4. wheel and axle 5. pulley.

D. 1. False; Some simple machines increase the effort. Some change the direction of the effort.

2. False; All levers are simple machines but all simple machines are not levers.

3. True

E. 1. Any simple machine which moves about a fixed point called Fulcrum and has parts Effort and Load is called a lever.

2. A simple fixed pulley makes our work easier by changing directions of force into a convenient one.

3. A wedge is a special type of inclined plane which makes our work easier by increasing the effect of our force.

F. 1. Machines make our work easier by;

a. increasing or decreasing the effect of our force.

b. changing the direction of our force into a more convenient one.

2. A wooden wedge makes the woodcutter's job easy. A small cut is made in the log of wood first and the wedge is placed in the cut. When the wedge is hit on the head, it goes deep into the cut and thus widens up the split.

3. In this arrangement a wheel is connected to a rod called axle. Together they make a simple machine which help to move things. Examples: steering wheel of vehicles, door knob, screw driver, bicycle pedal, sewing machine.

Rack your brain

When a screw driver is used for tightening or loosening screw, it acts like a wheel-axle arrangement. When it is used as a bottle-opener it acts like a second class lever.

Workbook answers

A. 1. F at elbow, E in the arm, L in palm (end) (third class)

2. F in the middle, E and L at ends (first class)

3. L in the middle and E and F at two ends (second class)

4. F in one end, E where fingers press and L where paper is picked (third class)

B. 1. WEDGE 2. PULLEY 3. RAMP 4. LEVER

C. 1. An inclined plane 2. fulcrum 3. first class

4. wedges 5. threads

D. First class : see-saw, pliers

Second class : lemon squeezer, nut cracker

Third class : tongs, tweezers

E. 1. Inclined plane 2. Tweezers – third class lever
3. Screw Jack 4. Pulley 5. Wheel and axle

Unit 10 LIGHT AND SOME NATURAL PHENOMENA

A. a – d, b – a, c – b, d – c

B. 1. Wood : not transparent, others are

2. Black : others are rainbow colours.

C. 1. *False*. Light travels in straight line only; does not bend around objects.

2. *False*. Light travels faster in air.

3. *True*.

4. *False*. When vibgyor colours combine together we get white colour.

D. 1. A band of seven colours – Violet, Indigo, Blue, Green, Yellow, Orange and Red – seen in sunlight is called spectrum of colours.

2. Bouncing back of light when it falls on to a smooth surface is called reflection of light.

3. The path of light bends when it goes from one medium to another.

F. 1. When sunlight is split into its seven colours by the water droplets present in the atmosphere we get a bow shaped band of colours. This band of colours is called rainbow.

2. Light rays travel in straight line path. When an opaque object blocks the path of light rays, the region behind the object becomes dark. This dark region is called shadow.

3. The image formed by a plane mirror is of the same size as the object in front of it and it is also erect.

Rack your brain

Answer: 4 metre! Miya is 2 metre in front of the mirror. Her image is 2 metre behind the mirror. So distance between Miya and her image is 4 metre!

Workbook answers

A. a. bending of light b. straight line motion of light

c. spectrum of light d. reflection

B. VIBGYOR

C. 1. Straight tube is used. Light rays travel in straight lines. Flame is visible.

2. Bent tube is used. Flame cannot be seen as light rays travel only in straight path.

D. a. mirror b. prism c. shadow

d. lunar eclipse e. light energy

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

F. 1. Moon should come in between the Sun and the Earth.

2. Sun should be larger than the Earth.
Correct Diagram – Refer Text.

Unit 11 **OUR SOLAR SYSTEM**

A. 1. b, 2. c, 3. d, 4. c, 5. b

B. 1. star, 2. new moon, 3. craters, 4. Saturn, 5. orbit

C. 1. We always see only one side of the Moon because the Moon takes the same time for completing one revolution around the Earth and also for one rotation about its own axis.

2. The Sun appears to be different from the other tiny twinkling stars in the sky because the Sun is closer to the Earth than the other stars. Other stars are very far away from the Earth and so appear small.

D. 1. 'Chandrayaan' is the name given to India's specialised spacecrafts meant for studying the Moon closely. Chandrayaan 1 was launched in 2008 and Chandrayan 2 will be launched by 2015.

2. There are huge mountains and deep craters on the surface of Moon. It is covered with a thick layer of dust and rocks of different sizes.

Rack your brain

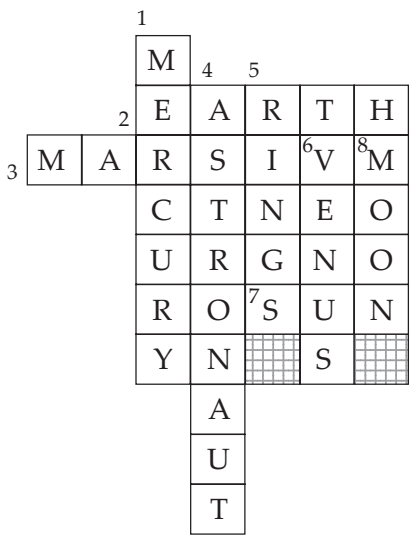
The moon does not have an atmosphere! If there had been an atmosphere it would have blocked excess heat of the Sun during day time from reaching the Moon and at night stopped the heat from escaping from the Moon.

Workbook answers

A. 1. MOON 2. MARS 3. JUPITER

4. SATURN 5. PLUTO

B.



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

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

E. NASA : National Aeronautics and Space Administration.

ISRO : Indian Space Research Organisation.

VSSC : Vikram Sarabhai Space Centre.

F. 1. New moon 2. Crescent moon

3. Half moon 4. Gibbous moon

5. Full moon

Unit 12 **FOREST - A NATURAL RESOURCE**

A. 1. Forest, Water 2. Bamboo, Eucalyptus

3. Latex 4. Bamboo 5. coal, petroleum

B. 1. natural resources 2. sanctuaries

3. deforestation

C. 1. A forest is a large area of land covered with different types of plants.

2. Fruits, spices, timber and medicinal plants are a few valuable products from forests.

D. 1. 'Vanamahotsav' is a week long festival of tree plantation. It is organised every year in the month of July. Most of the schools celebrate this festival. Besides planting trees, several competitions like drawing, debates, discussions and lectures on the

importance of trees in our lives are conducted on this day.

2. The government has brought in measures to protect and conserve our forests. Some of these measures are:

   a. No forest can be cleared without the permission of the government.

   b. A large number of trees are planted every year.

   c. People are made aware of the importance of forest conservation.

3. The cutting down of trees in large numbers which result in clearing of forests is called deforestation. The planting of trees and taking care of them is afforestation.

E. Though tribal people cut down trees to earn their livelihood, they plant more trees and look after them till they are fully grown.

Rack your brain

Forests are called the lungs of the environment because they take in carbon dioxide and provide us with oxygen. Thus they clean the air for us. Forests also help in preventing unfavourable climate changes.

Workbook answers

A. 1. Vanamahostav 2. latex 3. Deforestation

B. 1. Rubber : not used to make paper.

   2. Latex : not a fuel.

   3. Jasmine : not a tree

C. 1. Lungs 2. Vitamin C 3. Perfumes

   4. Sanctuaries 5. Natural Resources

D. 1. Forests serve as lungs because it cleans the air for us. They take in carbon dioxide and provide us with oxygen.

   2. Vanamahostav is celebrated every year to make aware of the importance of forest conservation and to motivate people to plant trees.