Modern Science

Teacher Manual

YBPL

3

MODERN SCIENCE - 3

CHAPTER - 1 : LIVING AND NON-LIVING THINGS

A. 1. a, 2. b, 3. a, 4. b, 5. a. **B.** 1. non-living, 2. crawl, 3. stomata, 4. reproduction, 5. sense organs. **C.** 1. b, 2. a, 3. d, 4. e, 5. c. **D. 1.** Some things are made by humans. They are called man-made things. Computer and building are two man-made things. **2.** All living things need food to grow and live. Food gives us energy to work and move. **3.** Green plants make their own food with the help of air, water and sunlight. This process is called photosynthesis. **4.** Three difference between living and non-living things :

Living Things	Non-living Things
1. Living things can move on their own.	1.Non-living things cannot move on their own.
2 .Living things need air to breathe.	2. Non-living things do not breathe.
3. Living things reproduce.	3. Non-living things do not reproduce.

HOTS : 1. Because it does not grow and reproduce. **2.** No, because they do not eat food, feel, breathe air, grow and reproduce .They cannot move on their own. **3.** Right.

CHAPTER - 2 PLANT PARTS AND THEIR FUNCTIONS

A. 1. b, 2. b, 3. b, 4. c. **B.** 1. root, 2. minerals, 3. seeds, 4. germination, 5. healthy. **C.** 1. F, 2. T, 3. F, 4. F, 5. T. **D. 1.** The part of a plant that grows under the soil is called root. There are two types of roots : Tap root, Fibrous root, **2.** The stem holds the plant upright and erect to get sunlight and air. It carries water and minerals absorbed by the roots to the leaves. **3.** A green leaf makes food for the plant with the help of air, water and sunlight. That is why the leaf is called the food factory of a plant. **4.** The process through which green plants make their own food with the help of air water and sunlight is called photosynthesis. **5.** Root holds the plant firmly in the ground. Root absorbs water and minerals from the soil. **HOTS : 1.** No, because plants take carbon dioxide released by humans. **2.** Brinjal-fruit, Cauliflower-flower. **3.** Because rice has a fibrous root. and radish has tap root. **4.** No, because plant needs sunlight, soil, water and minerals to grow.

CHAPTER - 3 : BIRDS

A. 1. b, 2. c, 3. c, 4. b, 5. a. **B.** 1. upstroke, 2. flying birds, 3. hooked, 4. webbed, 5. talons. **C.** 1. T, 2. T, 3. T, 4. F, 5. T, 6. F. **D.** 1. c, 2. a, 3. b, 4. d. **E. 1.** The birds have two wings. These wings move in two ways : a. The upstroke : When the

wings move upward and backward. b. The downstroke : When the wings move downward and forward. **2.** a. Flying Birds : The birds that fly are called flying birds. They have hollow and light bones. This makes their body light. Pigeon, parrot, sparrow, duck, crow, hummingbird, etc. are some flying birds. b. Flightless Birds : The birds that cannot fly are called flightless birds. They are unable to fly because they have smaller wings, heavy and solid bones and have more feathers on their body. Kiwi, ostrich, emu, etc., are examples of flightless birds. Most flightless birds are fast runners or good swimmers. **3.** Birds do not have teeth. They have beaks instead Birds use their beaks for eating, feeding young ones, defense, gathering food and nesting materials, building nests, preening, scratching and attacking. Few types of beaks : a. Short, Hard and Horny Beak, b. Strong, Sharp and Hooked Beak, c. Curved Beak, d. Long and Pointed Beak, e. Broad and Flat Beak. **4.** Birds mainly use their feet to catch food and to protect themselves. They also use them to sit on branches. Talons and webbed feet are the two types of feet that birds have. **5.** Birds that have webbed feet are called swimming birds. Eg: geese, duck. **HOTS : 1.** An eagle has very strong and sharp claws to pick up small animals like mice, snakes and frogs; to hold them tight and rip them apart so as to eat their flesh. **2.** Water and mud will go in the duck's mouth.

CHAPTER - 4 : MAN-THE LIVING MACHINE

A. 1. a, 2. c, 3. a, 4. a, 5. b. **B.** 1. machine, 2. muscles, 3. blood vessels, 4. Digestion, 5. chest. **B.** 1. STOMACH, 2. LUNGS, 3. KIDNEY, 4. NERVES, 5. MOUTH, 6. BRAIN. **D.** 1. T, 2. F, 3. T, 4. F, 5. F. **E. 1.** Skeletal system, muscular system, respiratory system, digestive system, circulatory system, nervous system, excretory system, reproductive system. **2.** The muscular system is made up of muscles. There are more than 600 muscles in our body. These muscles cover the bones. Some muscles are attached to bones. They cause movement of bones, this makes the body move. Muscles also help us in walking, jumping, writing, etc. Muscles have the ability to contract and relax. Doing exercise daily makes our muscles strong. **3.** The organ system which helps in breathing in oxygen and breathing out air is called respiratory system. **4.** Digestion means breaking down of food into simple forms, so that our body can use it. **5.** This system consists of the brain, spinal cord and the nerves. **6.** The kidneys are the main excretory organs. These extract the waste from the blood, that is useless for the body stores it in urinary bladder in the form of urine and throws it out periodically. **HOTS : 1.** No, because hair do not have nerves and nerves are responsible for pain. **2.** Because brain controls all the body parts through nervous system. **3.** The lungs absorb the oxygen from the air we breathe in and give out carbon

dioxide in the air. If the lungs are affected, the respiration system will not function properly. **4.** Because it blocks the incoming oxygen.

CHAPTER 5 : OUR HOUSES AND CLOTHES

A. 1. c, 2. b, 3. c, 4. b. **B.** 1. clean, 2. terrost, 3. mosquitoes, 4. comfortable, 5. silkworms. **C.** 1. F, 2. F, 3. T, 4. T, 5. F. **D. 1.** our house protects us from heat, cold, storm, rain, etc. It also protects us from thieves and enemies. We feel happy and safe in our houses. **2.** Kuchcha houses : Sticks, straws, leaves and mud are used to make kuchcha houses. Pucca houses : Bricks, cement, wood and iron are used to make pucca houses. **3.** Sunlight is good for us. It also keeps the house free from germs. So, a good house should have doors and windows to let in lots of sunlight. **4.** Wire nettings in doors and windows stop the entry of insects like mosquitoes and flies. They, however, allow sunlight and air to come in. **5.** Fibres that come from either plants or animals are called natural fibres. Cotton and jute are plant fibres while silk and wool are animal fibres. Fibres, such as polyester and nylons, are manufactured by man and are called man-made fibres. **HOTS : 1.** Because it keeps the house free from germs. **2.** Cotton shirt, because cotton clothes absorb sweat and keep us cool.

CHAPTER - 6 : SOIL AND ROCKS

A. 1. c, 2. b, 3. a, 4. b, 5. c. **B.** 1. roots, 2. Humus, 3. Clayey, 4. nutrients, 5. Clayey. **C.** 1. F, 2. T, 3. T, 4. F, 5. T. **D. 1.** Soil is the top-most layer of the earth's crust where plants grow. **2.** Humus, silt, sand, gravel. **3.** Sandy soil, clayey soil and loamy soil. **4.** a. Clayey soil is used to make pots and vases. b. Cement, bricks, glass and iron are made or obtained from soil. c. We get iron, lead and many other minerals from the soil. **5.** Loamy soil is a mixture of sand, clay and humus. Loam can hold enough of both air and water. As it is rich in humus, the soil is very fertile. It is best suited for the growth of plants. **HOTS : 1.** Clayey soil, because there is no space between its soil particles. Therefore, water cannot flow through it. **2.** Cowdung is a type of manure and manure is used to make soil fertile.

CHAPTER - 7 : SOLID, LIQUID AND GAS

A. 1. c, 2. b, 3. a, 4. a, 5. a. **B.** 1. three, 2. Most, 3. freezing, 4. heating, 5. gas. **C.** 1. F, 2. T, 3. F, 4. F, 5. T. **D.** 1. c, 2. d, 3. a, 4. e, 5. b. **E. 1.** Solid, liquid and gas. **2.** Things like pen, pencil, sharpener, table, etc. have a fixed shape and size. They do not flow and cannot be poured into containers. Such things are called solids. **3.** Things like water, milk, juice and oil do not have fixed shape. They flow easily and take the shape of the container they are poured in. Such things

are called liquids. **4.** a. The process in which a liquid changes into gas on heating is called evaporation. b. The process in which a gas changes into liquid on cooling is called condensation. **5. a.** The process in which a solid changes into liquid on heating is called melting. b. The process in which a liquid changes into solid on cooling is called freezing. **HOTS :** Butter is a solid form but when it is heated it melts and it can be poured into a container.

CHAPTER - 8 : MEASUREMENT

A. 1. a, 2. b, 3. b, 4. a, 5. b. **B.** 1. Measurement, 2. quantity, 3. weighing balance, 4. Capacity, 5. second, 6. Temperature. **C.** 1. F, 2. F, 3. T, 4. F, 5. T. **D.** 1. c, 2. d, 3. a, 4. b. **E. 1.** In early days, people used body parts to measure length. They used measures like hand span, cubit, foot span, and stride. **2.** Mass tells us the amount of material an object contains. Kilogram(kg) is the unit used for measuring mass. Smaller masses are measured in gram(gm). **3.** Capacity is the quantity of a liquid which a vessel can hold. The commonly used units for measuring capacities are millilitres and litres. Small amount of liquids are measured in millilitres (ml) and large amount in litres (l). **4.** Time is measured using a clock or a watch. The unit for measuring time is second. We also use minutes and hours as other units. **5.** We can check our temperature with a thermometer. **HOTS : 1.** 12 times. **2.** We will make a weighing balance using string, rular and paper plates to weigh the apples and divide them equally.

CHAPTER - 9 : LIGHT, SOUND AND FORCE

A. 1. a, 2. b, 3. b, 4. a, 5. b. **B.** 1. sun, 2. non-luminous, 3. shadow, 4. larynx, 5. Friction. **C.** 1. F, 2. F, 3. F, 4. T, 5. T. **D. 1.** Sun is the main source of light on the earth. **2.** The objects that give us light are called luminous objects. The sun, a burning candle, a glowing bulb and a glowing tube light are some luminous objects. The objects that do not have light of their own are called non-luminous objects. The school bag, table, blackboard, etc. are some non-luminous objects. **3.** When something comes in the way of light, a shadow is formed. The dark shape of an object made on a surface is called shadow. **4.** Some sounds irritate us. They are unpleasant to hear. Such sounds are called noise. Some sounds make us feel good. They are soft and pleasant to hear. Such sounds are called music or musical sounds. **5.** Friction is a special force that slows down movements. **HOTS : 1.** Sun. **2.** We apply force and since we have moved the objects through a distance, we have done work.

CHAPTER - 10 : FOOD AND FEEDING HABITS OF ANIMALS

A. 1. b, 2. a, 3. c, 4. b, 5. b, 6. c. **B.** 1. food, 2. Carnivores, 3. gnaw, 4. catching, 5. blood, 6. tiger. **C.** 1. T, 2. F, 3. T, 4. F, 5. T, 6. T. **D.** 1. c, 2. d, 3. f, 4. a, 5. b, 6. e. **E. 1.** Animals need food to grow, to get energy to do work and move around. Animals need food for energy. Some animals help us with

our work. They need energy to do work. They also need energy to move about. They get this energy from the food they eat. **2.** There are three types of animals : Herbivores, carnivores and omnivores. **3.** Cows and buffaloes swallow their food after chewing once. Later, they bring it back into their mouth and keep chewing it for hours. This is called chewing the cud. **4.** A frog has a long, sticky tongue for catching its prey. When a frog spots an insect, it sticks out its tongue and catches the insect. Then it rolls the tongue back into its mouth. **5.** All living things need energy to live and grow. They get this energy from their food. Plants do not take food from outside. They make their own food using carbon dioxide gas and water in the presence of sunlight. Animals depend on plants for food. Herbivores eat plants to get energy. Some herbivores are eaten by carnivores. This forms a chain called the food chain. **6.** Because snakes do not have chewing teeth. **HOTS : 1.** A giraffe has a long neck, which helps it to reach the branches of tall trees and eat their leaves. **2.** An elephant has a long, thick trunk. The trunk helps it to break off branches and leaves, and put them into its mouth. The trunk is also used for drinking water. The elephant sucks water up into the trunk, curls the trunk inward and blows the water into its mouth. **3.** To cut through the tree trunk.

CHAPTER - 11 : OUR EARTH

A. 1. c, 2. b, 3. a, 4. c, 5. a. **B.** 1. Pluto, 2. Ferdinand Magellan, 3. earth, 4. Revolution, 5. ocean. **C.** 1. Pluto, 2. Earth, 3. Ferdinand Magellan, 4. Revolution, 5. Rotation, 6. Globe. **D. 1.** Rotation and Revolution are the two movements of the earth. **2.** The spinning movement of the earth on its axis is called rotation. The rotation of the earth causes day and night. The earth takes nearly 24 hours to rotate once on its axis. Twenty-four hours make a day. **3.** The earth moves around the sun in a fixed path called the earth's orbit. The movement of the earth around the sun in an orbit is called revolution. The earth takes about 365 days to complete one revolution. **4.** The large land masses on the earth are called continents. Asia, Africa, North America, South America, Antarctica, Europe and Australia are the seven continents on the earth. **5.** The earth spins about an imaginary line, which passes through its centre. It is called the axis of the earth. The line which passes to its centre is called earth's axis. We call it an imaginary line because we cannot see this line. **HOTS : 1.** Earth appears flat to us because we see only a tiny part of the huge earth. **2.** a. Mountain, b. Stones, c. Globe.

CHAPTER - 12 : THE SUN, MOON AND STARS

A. 1. b, 2. c, 3. b, 4. a, 5. b. **B.** 1. space, 2. 28, 3. sun, 4. constellation, 5. satellites. **C.** 1. F, 2. T, 3. F, 4. T, 5. T, 6. F. **D.** 1. MOON, 2. ENERGY, 3. ASTRONAUT, 4. SPACE, 5. EARTH, 6. STARS. **E. 1.** The sun affects the climate and weather of the earth. The energy which we receive from the sun is called solar energy. We use it for heating, drying and cooking. Plants use this energy for the process of photosynthesis that produces food for them. This food is used by all living things. In this way **2.** Two or three days later, after the half moon, we can see more than half of the moon. This is called gibbous moon. After two weeks of the new moon, we see the full moon. This whole process is called the waxing of the moon. Over the next two weeks the size of the moon appears to become smaller in the same way as it appeared to look bigger. At the end the moon is not visible from the earth which is called new moon. This whole process is called waning of the moon. **3.** Some stars form patterns in the sky. One group of stars appears in the shape of a hunter, another as the outline of a lion and so on. These groups of stars are called constellations. Some of the constellations are Ursa Major (The Great Bear), Scorpius (Scorpion), Orion (Hunter) and Leo (Lion). **4.** Neil Armstrong was the first astronaut to land on the moon. His footprints are still there. **5.** Kalpana Chawla died in a tragic accident when her space shuttle,

Columbia crashed on her return journey. **HOTS : 1.** Because of the glare of the sunlight when the sun is up, the blue colour in sunlight gets scattered all over the atmosphere, turning the sky into the familiar bright blue colour. **2.** No, because moon is not a star. It does not have its own light. **3.** All living things will die. **4.** No, because there is no oxygen no atmosphere and only some water on the moon.

CHAPTER - 13 : AIR, WATER AND WEATHER

A. 1. a, 2. b, 3. c, 4. b. **B.** 1. water vapour, 2. breathe, 3. solid, 4. water vapour, 5. Polluted. **C.** 1. e, 2. d, 3. c, 4. a, 5. b. **D. 1.** Air is a mixture of many gases. These gases are mainly nitrogen, oxygen, carbon dioxide and water vapour. Air also contains smoke, dust particles and germs in it. **2.** a. All living things such as plants and animals need air (oxygen) to breathe. b. Plants need air (carbon dioxide gas) to make their food. c. Moving air helps in drying clothes and wet surfaces. **3.** Water is found in three different forms in nature. These forms are liquid, solid and gas. **4.** During mornings and evenings, the rays of the sun are slanting. This is because the sun is low in the sky. At noon, the sun is overhead and the rays fall straight. That is why noon is the hottest part of the day. It is not so hot during mornings and evenings. In winter we like the warmth of the sun. **5.** What we wear, eat and enjoy depends on the weather. Foggy and stormy weather can cause accidents. Travel,

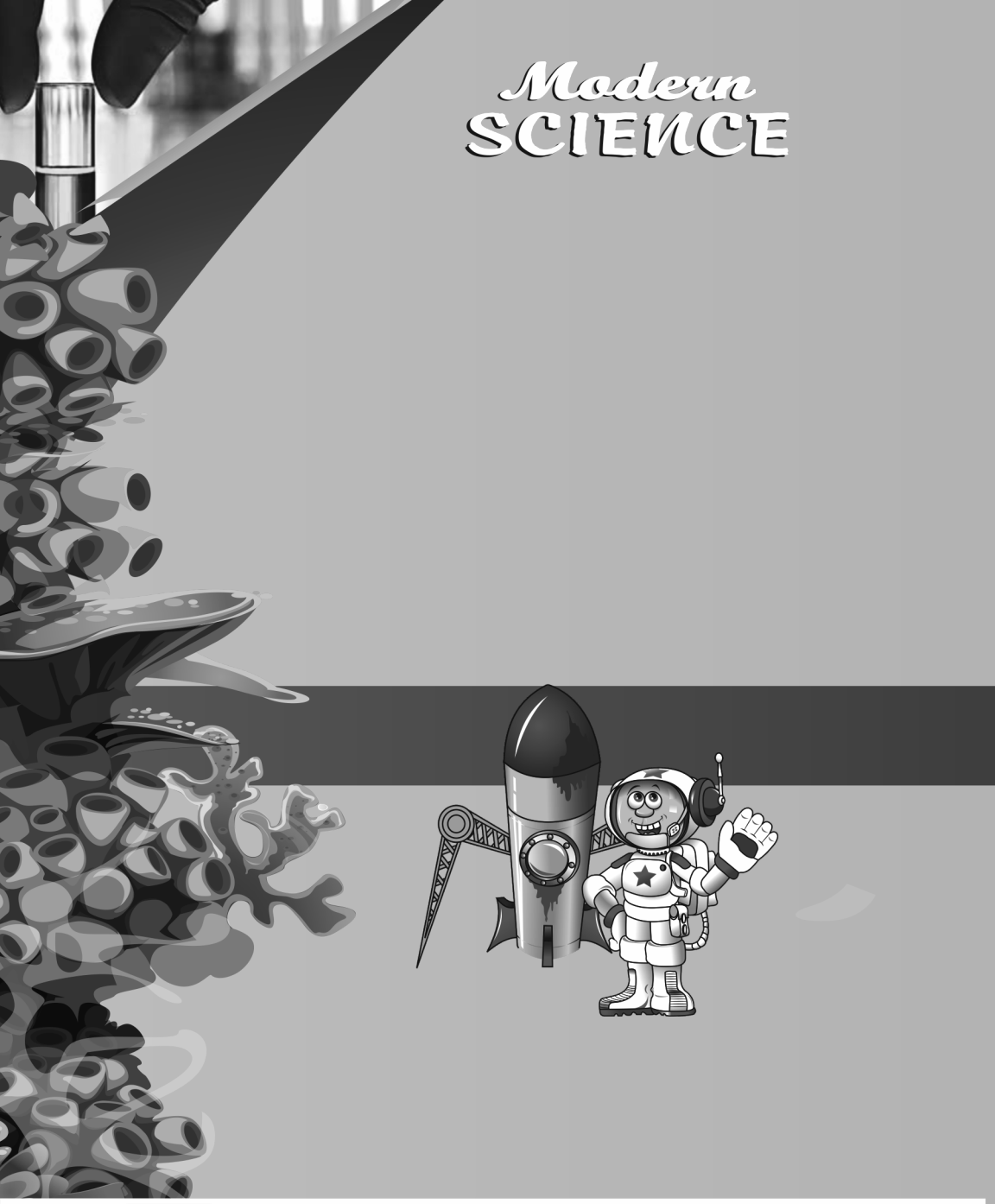
sports and outings become difficult in such weather. The weather decides the type of house we live in. In very cold places with heavy rain and snowfall, people build houses with sloping roofs. Weather also affects what we eat. In places where it rains a lot, people grow and eat rice because rice needs a lot of water. **HOTS : 1.** Because air contain smoke, dust particles and germs. **2.** It damages your tyres and rims. It also causes you to slow down and pedal harder because more of the tyre is exposed to the road surface. **3.** The cloud prevents heat from escaping through the atmosphere. **4.** Because at noon time, the sun is straight above to the earth.

CHAPTER - 14 : SAFETY RULES AND FIRST AID

A. 1. c, 2. b, 3. a, 4. c. **B.** 1. T, 2. T, 3. F, 4. F, 5. T. **C.** 1. First aid, 2. Zebra crossing, 3. Footpath, 4. Cotton, 5. Accident, 6. Hurt. **D. 1.** Carelessness and hurry and not following the safety rules are the main causes of accidents. **2.** a. Be careful while walking on the road. Always walk on the footpath. b. Do not run on the road. c. Do not play on the road. **3.** a. Do not leave your toys, bags and books lying on the floor. You might trip over them and injure yourself. b. Be careful while walking on wet floors. You might slip on the floor and get hurt.c. Never touch electric switches, plugs or wires with wet hands. You might get an electric

shock. **4.** First aid means the first medical help which we give to a person, called patient, who is hurt or injured, before the doctor comes. First aid gives temporary relief. **5.** a. Send someone for a doctor as soon as possible or carry the patient to the nearest doctor. b. Do not move the patient if it is likely that he has broken any bone. **HOTS : 1.** Right, because we should always wear helmet when we drive two wheelers it protects our head from injury. **2.** a. Never run around the benches in the classroom. You might fall down and hurt yourself. b. Do not run while climbing up or coming down the stairs. You might fall down.

Modern SCIENCE



YELLOW BIRD PUBLICATIONS PVT. LTD.
EDUCATIONAL PUBLISHER

Regd. Off. : F-214, Laxmi Nagar, Delhi-110 092
Tel. : 91-11-4758 6784, 91-97116 18765
E-mail : yellowbirdpublications@gmail.com • info@yellowbirdpublications.com
Website : www.yellowbirdpublications.com