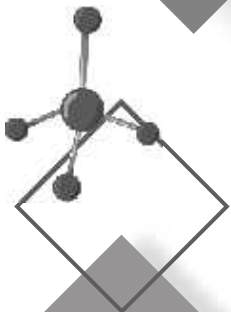




Incorporates  
**NEP**



**1-5**



# Young **SCIENTIST**



**Teacher's Learning Materials**

# SCIENCE-1

## 1. Our Surroundings

- A. 1. (b) 2. (b) 3. (a)
- B. 1. surrounding 2. neighbours 3. sick 4. clean; green
- C. 1. (b) 2. (e) 3. (d) 4. (c) 5. (a)
- D. 1. We should not waste water because it is very essential for us. 2. Environment means everything in the world around us like plants, animals, air, water, soil and humans. 3. We should keep our surrounding clean. We can fall ill if our surrounding are dirty. Clean and green surrounding help us to stay healthy. 4. All the things around us form a part of our surrounding.

E. and F. Do yourself.

## 2. Living and Non-living Things

- A. 1. (b) 2. (c) 3. (b)
- B. helicopter (×); goats (✓); leaves (✓); nurse (✓); train (×); bird (✓)
- C. 1. need 2. grow; die 3. natural 4. man-made 5. need
- D. 1. Things that do not have life in them. They cannot move on their own and do not breathe, feel, grow and reproduce are called Non-living things. 2. Living things can breathe, move, eat, feel, reproduce, grow and die. 3. Living things need food to grow. 4. Air and water. 5. Chair and car.

E. and F. Do yourself.

## 3. Plants Around Us

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

- B. salad, chair, black pepper and nuts
- C. 1. Trees have a very thick, hard and woody stem known as trunk. 2. Herbs live for only one season. 3. Roots, stem, branches, leaves, flowers, fruits, and buds are the main parts of a plant. 4. We get fruits, vegetables, tea, oil from plants.
- D. and E. Do yourself.

## 4. Food From Plants

- A. 1. plants 2. leaves 3. stem 4. flower 5. apple
- B. 1. (d) 2. (b) 3. (c) 4. (e) 5. (a)
- C. 1. carrot; radish 2. potato; ginger 3. apple; mango 4. rice; wheat 5. gram peas
- D. 1. Plants give us fruits, vegetables, cereals and pulses. 2. We eat the roots, stems, leaves and flowers of some plants as vegetables. 3. Plants not only provide food, they are also home to many animals. So, we should protect plants. 4. Apple, mango and banana. 5. Gram, peas and kidney beans.

E. and F. Do yourself.

## 5. Animals Around Us

- A. 1. (a) 2. (a) 3. (b) 4. (c)
- B. 1. (b) 2. (c) 3. (e) 4. (d) 5. (a)
- C. 1. lion; wolf 2. parrot; dog 3. cow; buffalo 4. pigeon; eagle 5. mosquito; housefly 6. snake; lizard
- D. 1. Domestic animals are the animals which live around us in our farms or fields. They can be tamed for doing different works, so they are useful to us in various ways. They give us milk, eggs, meat, honey, wool and silk. They can carry loads too. 2. Some animals live in water. They are known as aquatic animals. Fish and

octopus. **3.** Pet animals are the animals which live in our homes with us. We keep them because they give us pleasure. We love their company. **4.** Birds are amazing as they have feathers and wings to fly. ♡ They lay eggs and live in nests on trees. ♡ They have beak and two legs with claws. ♡ They have no teeth. **5.** Reptiles are animals, which crawl or move on their belly or on their small and short legs. For example:- snake, lizard.

E. and F. Do yourself.

## 6. Food and Shelter for Animals

- A. 1. (b) 2. (c) 3. (a) 4. (c)
- B. 1. cow; horse 2. squirrel; hen 3. lion; tiger
- C. 1. The house of a dog is called kennel. 2. Fish are kept in an aquarium in our homes. 3. Most animals live in the open in the forest. 4. They make their nests with straw, twigs, leaves and cotton. 5. Cow—grass; Squirrel—grains; Lion—flesh; Bear—both flesh and plants.

D. and E. Do yourself.

## 7. Knowing Your Body

- A. 1. (c) 2. (c) 3. (a) 4. (a)
- B. 1. eyes 2. legs 3. hands 4. tongue
- C. 1. two 2. grow 3. head 4. skin 5. one
- D. 1. (d) 2. (a) 3. (e) 4. (b) 5. (c)
- E. 1. We use our hands to eat, write and hold things. We use our legs to run, stand, climb, jump, walk, skip and kick. 2. Our sense organs help us to know about our surroundings. 3. All living things grow. A baby grows up to be a boy or a girl. 4. We have five sense organs; eyes, ears, nose, tongue and skin.

F. and G. Do yourself.

## 8. Food We Eat

- A. 1. (b) 2. (c) 3. (c) 4. (b)
- B. (A), (P), (A), (P), (A)

C.

I	A	P	P	L	E	D	M	E	V	A	D	E
L	M	E	O	I	M	K	A	A	T	S	E	A
O	B	V	T	A	L	Y	N	E	P	E	A	S
Y	A	F	A	V	M	M	G	R	A	P	E	S
O	N	T	T	A	P	A	O	I	S	E	A	P
N	A	S	O	N	A	K	H	N	T	A	K	E
I	N	A	G	A	R	L	I	C	H	S	E	N
O	A	L	S	I	A	A	M	A	D	L	A	I
N	T	H	O	R	A	N	G	E	M	T	S	T
H	C	A	P	S	I	C	U	M	J	A	V	A

- D. 1. We need food to live. It helps us to grow and stay healthy. It gives us energy to work, play and do other activities. 2. Fruits, vegetables and pulses are get from plants. 3. Milk, honey and eggs are get from animals. 4. We take three meals in a day. Breakfast in the morning, lunch in the afternoon and dinner at night.

E. and F. Do yourself.

## 9. Housing and Clothing

- A. 1. (a) 2. (a) 3. (a) 4. (b)
- B. 1. hot sun, cold 2. bathroom, bedroom 3. wind, rain 4. raincoat, umbrella
- C. 1. (b) 2. (d) 3. (a) 4. (c)
- D. 1. Because they have separate room of different types of work. 2. We wear cotton clothes when it is hot. 3. We wear woollen clothes when it is cold. 4. A house keeps us safe from the hot sun, the cold, the wind, the rain and wild animals. 5. Clothes protect us from the heat, the cold, the wind and the rain.

E. and F. Do yourself.

## 10. Safety Saves

- A. 1. car 2. stop 3. zebra crossing 4. on the road
- B. U, S, U, U
- C. 1. hurry 2. footpath 3. first 4. stranger
- D. 1. The word 'safety' means to stay away from getting hurt. Accidents happen if we are not careful or if we are in a hurry. We must follow some safety rules to remain safe, every time and everywhere. 2. Do not play with sharp, pointed things like knives, scissors, needles, blades etc. 3. Always use Zebra crossing to cross the road. 4. First aid is the first help given to an injured person before the arrival of a doctor.

E. and F. Do yourself.

## 11. Air Everywhere

- A. 1. (b) 2. (b) 3. (c) 4. (c)
- B. 1. (c) 2. (e) 3. (a) 4. (b) 5. (d)
- C. 1. see 2. moving 3. space 4. weight 5. animal
- D. 1. Air is all around us. We cannot see air. We can feel air blowing our hair and dress. We can see air blowing leaves in the garden. 2. Hang an empty balloon in one side and a balloon filled with air in the other side. You will find that the empty balloon is lighter than the balloon filled with air. This shows that air has weight. 3. A football without air is flat and shapeless. When we fill air into the ball, it becomes round in shape. This is because air inside the football occupies the empty space and gives the ball its shape. 4. Moving air is called wind. 5. Air has many uses, such as :  
♦ People, animals and plants need to breathe air to live. ♦ Moving air moves different things such as windmills, sailboats and kites. ♦ In order to use some things we need to fill them

with air first. ♦ Moving air or breeze helps to dry wet clothes. ♦ Air is needed for burning.

E. and F. Do yourself.

## 12. Water

- A. 1. (a) 2. (b) 3. (c) 4. (c)
- B. 1. cooking 2. washing 3. watering plants 4. cleaning 5. bathing 6. drinking
- C. 1. (b) 2. (d) 3. (c) 4. (a)
- D. 1. source 2. rivers; ponds 3. underground 4. wells 5. waste
- E. 1. Rain is the main source of water on Earth. 2. Some rainwater seeps through the soil and gets collected underground. 3. We use water for drinking, washing, cooking, bathing and watering plants. 4. River water is cleaned and then sent to our homes through pipes.

F. and G. Do yourself.

## 13. Weather and Seasons

- A. 1. air conditioner 2. hot 3. spring 4. fire 5. cotton
- B. 1. F 2. T 3. F 4. T 5. T
- C. 1. There are five seasons. 2. In spring, weather becomes pleasant. The trees get new green leaves and flowers bloom. We enjoy walks and outdoor games in this season. 3. The rainy season is also called the monsoon. 4. People wear woollen clothes in winter season.

D. and E. Do yourself.

## 14. The Blue Sky

- A. 1. (a) 2. (c) 3. (c) 4. (b)
- B. 1. F 2. T 3. F 4. F 5. F
- C. 1. sun 2. bright 3. east; west 4. shape 5. heat

and light **6.** plants

- D.** **1.** At night, we see the moon and stars in the sky. **2.** The sun is the main source of energy on earth. It helps us to see the world around us. Life is not possible on the earth without the sun. **3.** We see the sun during the day. **4.** The moon changes its shape every day. **5.** They are very far from us that's why they look so small.

**E.** and **F.** Do yourself.

## SCIENCE–2

### 1. Plants Around Us

- A.** **1.** (c) **2.** (a) **3.** (b) **4.** (a) **5.** (c)
- B.** **1.** Banyan; Ashoka **2.** Mint; Rice **3.** Pumpkin; Watermelon **4.** Lotus; Duckweed **5.** Seaweed; Hydrilla
- C.** **1.** Leaf, fruit, branch, stem, root are the different parts of a tree. **2. Shrubs:** ● The small but strong plants are called shrubs. ● They have thin, brown or green coloured woody stem. They have many branches. **Herbs:** ● The small but weak plants are called herbs. ● Their stems and branches are green and soft. **3.** Plants that grow in water bodies such as ponds, lakes, rivers, etc. are known as water plants. ● Some of these plants float. They are known as floating plants, for example , lotus and duckweed. ● Many of these plants grow inside water. They are known as submerged plants, for example, seaweed , hydrilla, etc. **4.** The plants which need support to grow are called climbers. **5.** Plants that have sharp outgrowths to discourage plant-eating animals from eating them are called thorny plants. They may have spines, thorns or prickles.

**D.** and **E.** Do yourself.

### 2. Plants Are Useful

- A.** **1.** (b) **2.** (a) **3.** (c) **4.** (b) **5.** (b)
- B.** **1.** spinach; coriander **2.** mango; orange **3.** neem; tulsi **4.** jute; cotton **5.** jasmine; rose
- C.** **1.** Nuts are seeds and fruits inside of a hard outer shell. They are dried form of them, hence they are also called dry fruits. **2.** The trunk and branches of some trees are used as timber from which furnitures are made. **3.** Coconut oil, almond oil and olive oil. **4.** Radish, carrot and beetroot. **5.** Ginger, potato and garlic.

**D.** and **E.** Do yourself.

### 3. Helpful Animals

- A.** **1.** (a) **2.** (b) **3.** (b) **4.** (c) **5.** (a)
- B.** **1.** (b) **2.** (c) **3.** (a) **4.** (e) **5.** (d)
- C.** **1.** horse; goat **2.** cow; buffalo **3.** sari; scarf **4.** donkey; elephant
- D.** **1.** Domestic animals **2.** Milk products **3.** Wax **4.** Pet animals
- E.** **1.** The animals that can be kept at farms or homes are called domestic animals. **2.** We drink milk to grow strong and healthy. **3.** We get meat from animals such as goats, chickens and fish. **4.** The skin of animals such as goats, sheep, buffaloes and camels, after they are dead, is used as leather. Leather is used to make jackets, shoes, bags, belts and many more things. **5.** Pets are our friends. They help us in many ways . A dog guards our house and a cat chases mice away.

**F.** and **G.** Do yourself.f.

## 4. Wild Animals

- A. 1. (b) 2. (c) 3. (a) 4. (c) 5. (a)
- B. 1. F 2. T 3. T 4. F 5. F
- C. 1. (c) 2. (e) 3. (d) 4. (a) 5. (b)
- D. 1. Wild animals may live on land, trees and in water. 2. **(a)** Elephants, horses, zebras **(b)** Lion, leopard, crocodile **(c)** Jackal, hyena, vulture 3. Hyena eat the flesh of dead animals and keep the forest clean. 4. Jackal and hyena. 5. Some animals like panda, tiger, the Great Indian Bustard and Indian rhinoceros are left few in number. They may all die soon. Such animals which may not exist for long are called endangered animals. We should stop destroying forests. We must not cut down trees as animals are becoming homeless. This has led to the decrease in the wildlife. We need to protect animals. They are an important part of the environment.

E. and F. Do yourself.

## 5. Bones and Muscles

- A. 1. (b) 2. (a) 3. (c) 4. (b)
- B. 1. I 2. E 3. I 4. E 5. E
- C. fruits, chicken, egg, vegetables, milk, pulses
- D. 1. There are 206 bones in our body of different shapes and sizes. All the bones join together to form a framework in our body which is called the skeleton. 2. ● The skeleton gives definite shape to our body. ● It protects the delicate internal organs such as heart, lungs, brain etc. 3. Muscles become strong when we use them regularly. 4. Good posture keeps our body fit. 5. It controls all functions of our body.

E. and F. Do yourself.

## 6. Healthy Food

- A. 1. (a) 2. (c) 3. (a) 4. (b)
- B. 1. T 2. T 3. F 4. T 5. F
- C. 1. Food is one of our basic necessities. We all need food to live and grow. Food provides us energy to work and play. It also helps us to stay healthy and fight against diseases. 2. Rice, sugar, butter, potato, etc. are energy-giving foods. They give us energy to work and play. 3. Apart from food, we also need to drink a lot of water every day. It helps us to digest our food. It also cleans our body by throwing out wastes from it. We should drink at least eight glasses of water every day. 4. Some people eat only plants and plants' products. They are called **vegetarians**. Some people eat plants and plants' products as well as meat of animals. They are called **non-vegetarians**. 5. (i) Wash your hands before and after eating meals. (ii) Eat slowly and chew your food well. (iii) Always eat fresh and clean food.

D., E. and F. Do yourself.

## 7. Housing and Clothing

- A. 1. (a) 2. (c) 3. (c) 4. (b) 5. (a)
- B. 1. House 2. Caravan 3. Kutcha house 4. Pucca house 5. Hut 6. Houseboat
- C. 1. T 2. F 3. F 4. T 5. F
- D. Houseboat, Igloo, Flats
- E. 1. All of us need a house to live in. We feel safe and happy in our house because: ● It protects us from heat and cold. ● It protects us from strong wind and rain. ● It keeps us safe from thieves and robbers. 2. Tent and caravan 3. In hilly areas, houses are made with sloping roofs. In plains, houses are made with flat



roofs. **4.** In summer, we wear light cotton clothes. **5.** In winter we wear woollen clothes to keep ourselves warm.

F. and G. Do yourself.

## 8. Keeping Safe

- A. 1. (b) 2. (c) 3. (a) 4. (b) 5. (a)
- B. 1. (e) 2. (a) 3. (d) 4. (c) 5. (b)
- C. **1.** We can stay safe by being careful in everything we do. Most of accidents take place due to carelessness. We can avoid such accidents by taking proper care. Safety habits keep us safe. We should always follow safety rules. **2.** Cross the road only at zebra crossing. **3.** (i) Always walk on the footpath. (ii) Obey traffic signals. **4.** The immediate help given to a hurt person, till proper medical assistance or doctor arrives, is called first aid. **5.** If you or someone gets hurt while playing or anywhere else, inform your parents, teacher or an elder person at once.

D. and E. Do yourself.

## 9. Air Around Us

- A. 1. (b) 2. (c) 3. (a) 4. (c) 5. (b)
- B. 1. F 2. F 3. T 4. F 5. T
- C. 1. (c) 2. (d) 3. (e) 4. (b) 5. (a)
- D. **1.** Air contains many dust particles. **2.** Air also contains germs which makes us ill. Germs come out when we cough or sneeze, and mix with air. The air we breath in is mixed with all those harmful things. Dirty air makes us fall ill. **3.** Germs come out when we cough or sneeze, and mix with air. **4.** When air moves gently it is called a breeze. **5.** A very strong wind is called a storm. A storm can blow away things like clothes, weak sheds or can uproot the trees

and damage buildings. Storms at sea can sink ships.

E. and F. Do yourself.

## 10. Water Everywhere

- A. 1. (a) 2. (b) 3. (c) 4. (a)
- B. 1. (e) 2. (c) 3. (d) 4. (a) 5. (b)
- C. **1.** rainwater **2.** rivers **3.** germs **4.** boiling
- D. **1.** In our homes we get water from taps. **2.** Drinking dirty water can make us ill. We should boil water before drinking. Boiling water can kill the germs. **3.** No, we should not waste water. **4.** We use groundwater by digging wells and hand pumps. **5.** We should not waste water. We can save water in many ways. Two ways are : (i) We should not let the tap open when we brush our teeth. (ii) We should not waste water while bathing or washing clothes.

E. and F. Do yourself.

## 11. Forms of Water

- A. 1. (b) 2. (c) 3. (a) 4. (c) 5. (c)
- B. 1. (d) 2. (e) 3. (a) 4. (b) 5. (c)
- C. **1.** Water **2.** rain **3.** sunlight **4.** ocean **5.** condensation
- D. **1.** Put some water in an ice tray and place it in freezer of the refrigerator. After 2-3 hours you will find that water has changed to ice. The cold condition changes water into ice. This change is called freezing. **2.** Ask your mother to heat some water in a kettle. After some time, you will find that steam comes out from the spout of the kettle. If she continues heating, the whole water will change to steam within few minutes. This process is called **boiling**, by which water changes to water

vapour. **3.** In nature, water vapour on evaporation rise in the air. As water vapours rise up, they cool down and condense into tiny droplets of water. Together they form clouds.

**4.** Due to the warmth of the sunlight, water has changed to water vapour. This change is called evaporation. The change of form from water vapour to water droplets is called condensation.

E. and F. Do yourself.

## 12. Rocks and Minerals

A. **1.** soil **2.** Diamond **3.** sand **4.** minerals  
**5.** jewellery

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

C. **1.** Silica **2.** Granite **3.** Sandstone **4.** Coal  
**5.** Graphite **6.** Slate

D. **1.** Rocks can be everywhere. Rocks are found on the surface of the earth. They are also found under the ground, in rivers and in seas. **2.** Granite and Marble. **3.** Slate and sandstone. **4.** Talc, graphite and china clay. **5.** Rocks break into stones. These stones break into smaller and smaller pieces and finally become like a powder which is called soil.

E. and F. Do yourself.

## 13. Sunlight and Shadow

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

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

C. **1.** The sun is a huge ball of fire. It rises in the east and sets in the west. It gives us heat and light. **2.** The sunlight helps us to see the world around us. With the help of sunlight, plants make their food. Human beings and animals also need sunlight to survive. **3.** Bulb and tubelight. **4.** When any object comes in the

path of light, a dark shape is seen on the ground. This dark shape is called a shadow.

**5.** The size of a shadow can be changed by moving an object closer to or farther from the light.

D. and E. Do yourself.

# SCIENCE-3

## 1. Living and Non-living Things

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

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

C. **1.** Stomata **2.** fins **3.** Plants **4.** Lungs **5.** Humans

D. **1.** F **2.** T **3.** T **4.** T **5.** T

E. **1.** The sun and the moon. **2.** Books and toys

**3. Living Things :** (i) Living things need food to grow. (ii) Living things can move from one place to another. (iii) Living things grow and die. (iv) Living things need air to breathe. (v) Living things feel and react to changes around them. **Non-living Things :** (i) Non-living things do not need food. (ii) Non-living things never move on their own. (iii) Non-living things live forever and they do not grow old. (iv) Non-living things do not breathe. (v) Non-living things do not respond to change in the surround. **4.** (i) Living things and non-living things are made up of matter. The body of humans and animals is made up of skin, bones and organs and a table or a chair is made up of plastic or wood. (ii) Living and non-living things occupy space and have weight. An elephant occupies space and has weight and a car also occupies space and has weight. (iii) Weather conditions affect living and non-living things in a same way. As heat, cold or rain affects our skin, they also affect wood or a



building. **5.** Living things feel and react to changes around them. They react to light, touch, heat, cold and sound.

**F. Growth :** ✓, x, ✓, x, x **Movement :** ✓, x, ✓, x, x **Reproduction :** ✓, x, ✓, x, x **Breathing :** ✓, x, ✓, x, x **Living :** ✓, x, ✓, x, x **Non-living :** x, ✓, x, ✓, ✓

**G.** and **H.** Do yourself.

## 2. Parts of a Plant

- A. 1.** (a) **2.** (c) **3.** (b) **4.** (a) **5.** (c)
- B. 1.** (d) **2.** (e) **3.** (a) **4.** (b) **5.** (c)
- C. 1.** root **2.** trunk **3.** veins **4.** chlorophyll **5.** germination
- D. 1.** The root and the shoot are two main parts of a plant. **2.** Leaves make food for the plant. Therefore, they are also known as the kitchen of the plant. **3.** Most fruits have one or more seeds inside them. Seeds grow into new plants. Thus, flowers are important to a plant as they help it to reproduce. **4.** We eat seeds of plants such as wheat, gram, corn, rice and bean. Such seeds are called edible seeds. **5.** (i) Most leaves appear green because they contain a substance called chlorophyll. Chlorophyll helps leaves to absorb light. Green leaves prepare food for the plant in the presence of air, water and light. (ii) Leaves give out a gas called oxygen, which is essential for life. (iii) Leaves of some plants store food. Spinach, cabbage, lettuce and coriander leaves are examples of leaves eaten by human beings. **6.** When a seed gets the right amount of air, water and light, it grows into a baby plant. The process by which a seed grows into a new plant is called germination.

**E.** and **F.** Do yourself.

## 3. Eating Habits of Animals

- A. 1.** (b) **2.** (a) **3.** (c) **4.** (c) **5.** (b)
- B. 1.** herbivorous **2.** carnivorous **3.** omnivorous **4.** gnawing **5.** proboscis **6.** food chain
- C. 1.** F **2.** T **3.** T **4.** T **5.** F
- D. 1.** Every living thing needs energy in order to live. Animals run, jump, move from place to place in search of food and shelter. They need energy to do all these activities. For this, animals need to eat food. Food provides them energy and nutrients necessary for healthy growth. **2.** Some animals, such as sheep, goats, cows, elephants, camels and horses eat plants and plant parts. They are called herbivorous animals. Carnivorous animals such as tigers, lions and wolves eat the flesh of other animals. The eagle is a carnivorous bird. It flies high in the sky looking for animals such as rabbits. Bear and crow are examples of omnivorous animals. Such animals eat both plants and the flesh of other animals. Humans are omnivorous too. **3.** Snakes swallow their whole food. **4.** A butterfly uses its proboscis to drink nectar. **5.** A food chain shows 'who eats whom' in a habitat, starting out with a plant and ending with an animal. Example : Green Plant Herbivores carnivores (catchers and eaters of other animals) carnivores (eaters of other animals).

**E.** and **F.** Do yourself.

## 4. Birds World

- A. 1.** (b) **2.** (c) **3.** (c) **4.** (a) **5.** (a)
- B. 1.** eagle, vulture **2.** kiwi, ostrich **3.** crane, Heron **4.** crow, sparrow **5.** duck, swan **6.** hen, peacock
- C. (a)** penguin **(b)** woodpecker **(c)** weaver bird

(d) eagle (e) pigeon (f) tailor bird

- D.** 1. The flight feathers, flight muscles, hollow bones and streamlined body shape help the birds to fly easily. 2. Birds do not have teeth. They use their beaks to pick up food and eat. 3. Preying birds like eagles and vultures have sharp and strong claws called talons to hold the small preys while flying. 4. Birds build nests to lay their eggs and to protect their eggs and chicks from bad weather and enemies. 5. Birds lay hard shelled eggs which take different time periods to hatch in chicks. The mother bird lays the eggs and sits on them to keep them warm till the chicks are fully developed. The chicks hatch out of the eggs by cracking the egg shells with their beaks. This process is called hatching.

**E. and F.** Do yourself.

## 5. Our Body

- A.** 1. (b) 2. (c) 3. (a) 4. (c) 5. (b)
- B.** 1. (b) 2. (a) 3. (e) 4. (c) 5. (d)
- C.** See page no. 37 of textbook and do it yourself.
- D.** 1. The stomach it mixes with the digestive juices and forms a paste. 2. The skeleton provides shape and support to the human body. It protects the soft and delicate inner organs of a human body. 3. Cells are the building blocks of a human body. There are different types of cells in our human body. Cells of same types are combined together to form tissues. 4. Excretory system removes the waste from our body. Kidneys are the main part of our excretory system. They clean the blood and throw out urine. The skin removes sweat and lungs throw out carbon dioxide. 5. Kidneys are the main part of our excretory system. They clean the blood and throw out

urine.

**E. and F.** Do yourself.

## 6. Light, Sound and Force

- A.** 1. (b) 2. (a) 3. (b) 4. (a) 5. (b)
- B.** 1. T 2. T 3. T 4. F 5. F
- C.** 1. The sun 2. table 3. ring of the school bell 4. whisper 5. the continuous honking of a vehicle 6. loudspeaker
- D.** 1. The sun is the main source of heat and light on Earth. 2. Our tongue helps us to make sound. 3. Friction is a special force that slows down movements. 4. An object that does not give out light is called a non-luminous object. Paper, table, and kite are examples of non-luminous object. 5. Some sounds are soft, e.g., whisper. Some sounds are loud, e.g., ring of the school bell. Some sounds are pleasant, e.g., music. Some sounds are unpleasant, e.g., the continuous honking of a vehicle. We like to hear soft and pleasant sounds. We do not like to hear loud and unpleasant sounds. 6. Everyday life, we push or pull things to move them. A push or a pull is called force. Force helps us to do many things : Force can move an object such as a football. Force can stop a moving object. Force can change the shape of objects.

**E. and F.** Do yourself.

## 7. Measurement

- A.** 1. (b) 2. (a) 3. (b) 4. (c)
- B.** 1. T 2. F 3. T 4. T 5. F
- C.** 1. (b) 2. (c) 3. (d) 4. (a)
- D.** 1. We can use thermometer to measure the temperature of human body. 2. many ways to measure time. A clock or a watch is used to

measure time and a calendar is used to know about days, weeks, months and year. Time is measured in hours, minutes and seconds. **3.** Measurement is the process of finding the size or quantity of something. **4.** In order to be accurate, all measurements must make a comparison with something that is called a standard. A standard is a quantity, or amount that everyone relies on. **5.** A calendar is used to know about days, weeks, months and year. Time is measured in hours, minutes and seconds. **6.** Mass tells us how heavy or light an object is.

E., F. and G. Do yourself.

## 8. Housing and Clothing

- A. 1. (a) 2. (b) 3. (a) 4. (c) 5. (a)
- B. 1. (ii) 2. (v) 3. (iv) 4. (vi) 5. (i) 6. (iii)
- C. 1. A healthy house has : ● Airy or well-ventilated and well-lit rooms. ● *Varendah*, balconies and terrace that provides open space, fresh air and sunlight. ● Wire-netted doors and windows to keep away disease-causing pests such as flies and mosquitoes from the house. ● A proper drainage system to carry out dirty water from the bathroom and kitchen far away from the house. 2. A fabric is a material made of natural or artificial fibres woven together. 3. **Pucca houses** are strong. They are also called permanent houses. They are made up of wood, bricks, cement, iron rods and steel. Wood and glass are used to make doors and windows. Flats and bungalows in cities and towns are pucca houses. **Kutch houses** are made up of wood, mud, straw and dry leaves. Such houses are not very strong. They are mostly found in villages. A hut is a kutch house. 4. **Tents** are made up of strong cloth

known as canvas. A tent can be folded, packed up and carried easily from place to place. **Caravans** have wheels and can move people and their belongings from one place to another. 5. Clothes are made of different fabrics such as cotton, wool, silk and nylon. A fabric is a material made of natural or artificial fibres woven together. Cotton, wool and silk are natural fibres. We get these from plants and animals. Nylon and polyester are examples of artificial or man-made fibres.

D. and E. Do yourself.

## 9. Soil and Rocks

- A. 1. (b) 2. (c) 3. (a) 4. (c) 5. (a)
- B. 1. (d) 2. (c) 3. (b) 4. (a)
- C. 1. Plants 2. Soil 3. Humus 4. Loamy 5. Diamond
- D. 1. The surface of the Earth is made up of many layers. The topmost layer of the Earth's surface is called soil. 2. Soil is formed from the weathering of rocks and minerals. It takes over a very long period of time may be one thousand years or more. The surface rocks break down into smaller pieces due to the effect of different weather conditions. Dead plants and animals get decomposed and mixed with these tiny rock particles. This continues till a powdery mass is formed. This powdery mass is called soil. 3. Sandy, clayey and loamy soils are the basic types of soils. Different types of soils have different colours and textures. 4. Loamy soil is a mixture of sandy and clayey soil. It has much air space and good water holding capacity. It also has humus which is good for growth of plants. 5. **Granite** is hard rock made up of quartz, feldspar and mica. It is used to make kitchen slabs and floors. **Marble** is made up of calcite or dolomite. It is used for making statues and

buildings.

E. and F. Do yourself.

## 10. Solids, Liquids and Gases

- A. 1. (b) 2. (a) 3. (c) 4. (b)
- B. 1. liquid 2. liquid 3. solid 4. solid 5. gas 6. gas
- C. Tyre—rubber, Cupboard—wood, Sweater—wool, Igloo—ice, Coin—metal, Nuts—iron
- D. 1. There is one common property of all materials i.e, they occupy space. 2. **Solids** : Materials which have a definite shape are called solid. They do not change their shape when moved to another container. They do not flow by themselves. Hence they cannot be poured into containers. **Liquids** : Materials which do not have any definite shape and can be poured into containers are called liquid. They take the shape of the container in which they are poured. Liquids flow by themselves. Water, milk, juice, oil, petrol, honey are some common liquids. 3. The different forms of matter can be changed from one form to another on heating or cooling. 4. The process in which a liquid turns into gas on heating is called **evaporation**. The process in which gas turns into liquid on cooling is called **condensation**.

E. and F. Do yourself.

## 11. Air and Water

- A. 1. (b) 2. (b) 3. (a) 4. (c) 5. (c)
- B. 1. F 2. T 3. T 4. F 5. T
- C. 1. (c) 2. (a) 3. (e) 4. (b) 5. (d)
- D. 1. Air is a mixture of many gases, water vapour, dust and smoke. 2. (i) We breathe in oxygen present in the air. (ii) Plants breathe in carbon dioxide present in the air. 3. We need water to

survive. 4. Water is found on the Earth in three different forms or states that is solid, liquid and gas. 5. In nature, water keeps on changing its form continuously through evaporation and condensation. The sun heats up the Earth. The heat changes water in the rivers, seas, lakes and oceans to water vapour. These water vapours goes into the air. As it goes up in the sky, it becomes cool. When it comes to contact with cold air, it forms tiny droplets of water. These droplets join together to form clouds. On cooling, as the clouds become heavy and cannot hold the water in themselves any more, they fall down in the form of rain which run back into the ponds, rivers and seas. This process is called water cycle.

E. and F. Do yourself.

## 12. Weather and Seasons

- A. 1. (a) 2. (a) 3. (b) 4. (c)
- B. 1. five 2. Weather 3. Spring 4. warm; bright 5. flood
- C. 1. T 2. T 3. F 4. T 5. F
- D. 1. Too much or untimely rain can cause floods and loss of crops. 2. Lack of rain over a long period of time results in drought. If drought lasts long; plants, animals and human beings may die due to lack of water and food.
- E. 1. Changes in weather are caused by sun, wind and water vapour in the air. 2. Weather affects us in different ways. 3. When the same type of weather continues for a long period, it is called a season. 4. In the morning and evening, it is not very hot because we get slanting rays of the sun. But at noon, it is very hot because the sun shines directly over the head. 5. Spring, weather is very pleasant. It is neither too hot nor too cold. It is the season of flowers and

butterflies. Trees sprout new green leaves. During spring, days and nights are equal.

F. and G. Do yourself.

## 13. Our Earth and Its Neighbours

- A. 1. (a) 2. (a) 3. (b) 4. (b) 5. (c)
- B. 1. Astronaut 2. Axis 3. Orbit 4. Neptune 5. Rotation
- C. 1. (c) 2. (d) 3. (e) 4. (b) 5. (a)
- D. 1. third 2. spherical 3. axis 4. 365 days 5. orbit
- E. 1. The earth is spherical in shape. 2. The eight planets are; Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. 3. The presence of air and water makes life possible on planet earth. 4. When seen from the outer space, the earth appears like a beautiful blue and white ball. 5. The earth is made up of three layers; the thin outermost layer called the crust, the innermost part called the core, and the part in between them called the mantle.

F. and G. Do yourself.

## 14. Space World

- A. 1. (a) 2. (c) 3. (a) 4. (b) 5. (c)
- B. 1. Rakesh Sharma 2. Neil Armstrong 3. Columba 4. Spacecraft 5. Yuri Gagarin
- C. 1. The conditions on moon are very tough. On moon, there is no air to breathe and the temperature is extremely low. 2. You have already read that the earth is round. However, you do not fall off the earth even if you are at the sides or at the bottom of the globe. This is because the earth pulls you towards itself. This power is called the earth's gravitational force or gravity. 3. Space is the region beyond the

earth's atmosphere. All heavenly bodies like the sun, the moon, planets and stars are in space. 4. The earth pulls you towards itself. This power is called the earth's gravitational force or gravity. 5. People who travel in space are known as astronauts.

D. and E. Do yourself.

## SCIENCE-4

### 1. Plants : Living and Surviving

- A. 1. (b) 2. (a) 3. (c) 4. (c) 5. (a)
- B. 1. (f) 2. (d) 3. (g) 4. (b) 5. (c) 6. (a) 7. (e)
- C. 1. F 2. T 3. F 4. T 5. T
- D. 1. Alocasia 2. Pine 3. Cactus 4. Tape grass
- E. 1. The features that allow a plant to live in a particular place are called adaptations. 2. Plants growing on land are called terrestrial plants. The land has different features like mountains, forests, plains and deserts. 3. Some trees shed their leaves in winter to protect themselves against the cold. As spring approaches, new leaves start growing. Such trees are called deciduous trees. Mango, peepal, banyan, gulmohar and neem are such trees. 4. Some plants like mushrooms, toadstools and moulds are non-green because they do not have chlorophyll. Such plants cannot make their own food and usually absorb food from other plants or dead materials. They are called parasitic plants. 5. The plants which eat insects are called insectivorous plants. These plants grow in soil which is poor in minerals. Pitcher plant, Sundew and Venus fly trap are insectivorous plants. 6. There are three types of aquatic plants : (i) Floating plants (ii) Fixed plants (iii)



Underwater plants

F. and G. Do yourself.

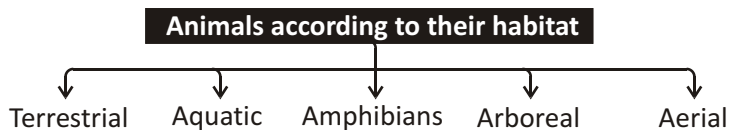
## 2. Plants : The Food Producer

- A. 1. (b) 2. (c) 3. (b) 4. (c) 5. (a)
- B. 1. oxygen 2. stomata 3. chlorophyll 4. dead 5. starch
- C. 1. F 2. T 3. T 4. F
- D. 1. Leaves have a green substance called chlorophyll that gives them the green colour. Green leaves need air, water and sunlight to make food. Sunlight provides the energy needed to make food. It is the chlorophyll that traps the sunlight. 2. Due to the presence of chlorophyll leaves are green in colour. 3. Plants do not use all the food they make. They store some of the food in their roots, stems, leaves, fruits and seeds. 4. This food is also used by the plants for their growth. We eat that part of a plant which has food stored in them. 5. The sun's energy flows from plants to animals through food chains. 6. Green plants give food in the form of vegetables, fruits, nuts and grains to animals. Animals cannot live without this food. Plants also release oxygen during photosynthesis and freshen up the air. This oxygen is used for human and animal breathing. In return, animals and humans breathe out carbon dioxide which plants use to prepare food. When animals die, their body gets decomposed in the soil and form important nutrients for the plants. So, you can see that plants and animals depend on each other in many ways.

E. and F. Do yourself.

## 3. Animals : Living and Surviving

- A. 1. (a) 2. (c) 3. (b) 4. (b) 5. (c)
- B. 1. Bat, Insect 2. Vulture, Hyena 3. Lice, Flea 4. Siberian crane, Arctic Tern 5. Lion, Tiger
- C. 1. Polar bear have long hair or thick fur to get protection from cold. They also have a fat layer under their thick skin to keep their body warm. This layer of fat provides them energy during the extreme winter, when food is unavailable. 2. Yak have long hair or thick fur to get protection from cold. They also have a fat layer under their thick skin to keep their body warm. This layer of fat provides them energy during the extreme winter, when food is unavailable. 3. Camels have broad, padded feet to walk easily on sand. Their bodies are adapted to store food and water for a long time. 4. Birds spend most of their time flying in the air. They have wings to fly and tails to change direction while flying. Birds have hollow bones and streamlined bodies which help them to fly. 5. Fish have gills to breathe and a streamlined body which helps them to swim. Their body is covered with waterproof scales. Fish swim with the help of fins.
- D. 1. We can divide animals into five major groups on the basis of their habitats.



2. All living beings develop special body structures or abilities which help them to survive in their surroundings. These abilities are called adaptations. 3. Carnivores have special adapted sharp teeth (canines) to tear the flesh. They are powerful runners to catch prey easily. The meat is the most essential part

of their diet. They have physical features that allow them to efficiently hunt, capture and eat their target. **4.** Camouflage is the ability of an animal to change its colour to blend or merge with its surroundings so that it becomes difficult for its enemies to spot it. Examples are chameleon, grasshopper, stick insect and leaf insect. **5.** Many animals survive in the extreme winter season by going into a kind of deep sleep called hibernation. Their heart beat and breathing slows down in this period. They use the fats stored in their body for nourishment. They wake up when spring season approaches. Examples are polar bears, lizards, snakes and frogs.

E. and F. Do yourself.

## 4. Reproduction in Animals

- A. 1. (b) 2. (b) 3. (b) 4. (c) 5. (a)
- B. 1. F 2. F 3. T 4. T 5. F
- C. 1. animals 2. yolk 3. tadpoles 4. caterpillar 5. nymph
- D. 1. Every living being has the ability to reproduce. The process by which living beings, resembling their parents, are produced is called reproduction. 2. Reproduce is important for life to continue on the earth. 3. Many animals reproduce by giving birth to young babies of their own kind. Female of such animals give birth to young ones and suckle them. These animals are called mammals. The mammals are the most developed among all animals. These animals have hair on their body and they also possess external ears. Animals such as lion, tiger, cow, horse, dog, bear, etc. give birth to babies. The young ones are formed inside the body of their mother. They stay there for several weeks until they are fully developed to be

born. **4.** Fish and Frog are lay their eggs in water. **5.** All eggs have a similar structure. An egg has a thin shell called the egg shell. It protects the baby inside. The yolk in the middle is rich in fat, vitamins and minerals. Inside the yolk, there is an embryo which develops into a chick. There is a white jelly-like substance called the albumen outside the yolk, which is rich in protein. The albumen protects the yolk and the embryo. The air sac has air through which the embryo breathes while it is inside the egg. Young ones hatching from eggs look like their parents. Some look very different at birth, but as they grow, they look like their parents. (For diagram see page no. 29 of textbook.)

E. and F. Do yourself.

## 5. Food : Our Basic Need

- A. 1. (a) 2. (a) 3. (a) 4. (a)
- B. 1. T 2. F 3. F 4. F 5. T
- C. 1. cereals, vegetables 2. milk, egg 3. curd, almond 4. dry fruits, legumes 5. corn, fruits
- D. 1. The main nutrients found in food items are carbohydrates, proteins, fats, vitamins and minerals. **Carbohydrates** : Food items such as cereals (rice, wheat and corn) and vegetables such as potatoes give us a lot of energy. They contain carbohydrates. Food items rich in carbohydrates are called **energy-giving foods**. People who do a lot of physical work, such as labourers, farmers and sportspersons, need a lot of carbohydrates to give them more energy. **Proteins** : Food items such as milk, egg, cheese, fish, meat, beans and pulses are rich in proteins. Food items rich in proteins are called **body-building foods**. They are needed for the growth and repair of our body and also for building muscles. Young children need

more protein-rich food than adults because they are still growing. **2.** The food that we eat has many substances that help our body to grow and stay healthy and strong. The substances that are needed by our body for energy, good health, and proper growth are called nutrients. **3.** Nutrients give us energy to do our work. They help to repair our body and also prevent us from falling ill too often. **4.** They are needed for the growth and repair of our body and also for building muscles. Young children need more protein-rich food than adults because they are still growing. **5.** If food items are kept for a long period of time and not stored properly, they get spoilt. Such food items are bad for our health. Preservation of food prevents it from getting spoilt. We can preserve food in a number of ways. **Drying** : Removing the water content of the food. For example, drying grapes to get raisins. **Pickling** : Mixing fruits and vegetables with salt and oil. For example, mixing mango, lime and other vegetables with oil and salt. **Refrigerating** : Keeping food in the fridge to preserve it for a short time. For example, keeping cooked food and fresh vegetables in the fridge. **Deep freezing** : Keeping food in the freezer to preserve it for a longer time. For example, keeping meat and fish in the freezer. **Canning and bottling** : Storing food in cans and bottles. For example, bottling of sauces and jams. **6.** Our body needs rest for proper functioning. We need 6-8 hours of sleep in a day. Lack of sleep may result in improper functioning of body organs. It can make us fall ill. Therefore, staying up late is not a good idea. Exercise is important to stay healthy. Regular exercise and playing outdoor games such as hockey, football and cricket help us to stay fit.

E. and F. Do yourself.

## 6. Digesting Food

- A. **1.** (b) **2.** (c) **3.** (c) **4.** (b) **5.** (b) **6.** (a)
- B. **1.** T **2.** T **3.** F **4.** T **5.** T **6.** F
- C. See page no. 43 of textbook for diagram and do it yourself.
- D. **1.** From the stomach, the food passes into a pipe called the small intestine. Here, the food is mixed with more digestive juices, and it breaks down even more. Some of the digestive juices are made by the small intestine. Some are made by other body organs such as the liver and the pancreas. The digested food passed into the blood through the walls of the small intestine. The blood takes the food to all the cells in the body. **2.** Some portion of the food that you eat cannot be digested. It becomes waste. This passes into a wide pipe called the large intestine. Here, water is absorbed from the waste. The solid part is sent out of the body through the anus. **3.** (i) To stay healthy eat a balanced diet. Too many sweets, or too much of fried food can cause indigestion. Include vegetables, fruits, wheat bread and milk in your diet. (ii) Do not eat more than you need, otherwise you will have stomach problems. Drink a lot of water. (iii) Include in your diet, foods containing fibre. Fibre is that portion of food that cannot be digested. It helps food and waste move through your digestive system. Food obtained from plants such as vegetables, fruits, beans and wheat bread have fibre in them. **4.** To work properly, every part of your body needs food. Food has to reach your body cells. Here, it is used to provide energy. But before it can enter the cells, it has to be broken down into tiny, simple pieces which can dissolve in water. Breaking down food inside the body is called

digestion. **5.** When you eat food, it goes through your digestive system. This is a group of body parts that work together to digest the food. **Inside the mouth :** Digestion begins inside the mouth. You first use your teeth to chew food and break it down into small pieces. The food is mixed with saliva and made into a paste before swallowing. Saliva is a special juice made by the salivary glands present inside your mouth. Saliva softens the food and also starts the digestion of starches into the food. The tongue helps to mix the food with the saliva. **Inside the stomach :** As you swallow the food, it goes down a tube called the food pipe and enters your stomach. It stays there for up to three hours. During this time the food is digested more. The stomach makes digestive juices. The stomach muscles churn and mix the food with these juices. They break down proteins and other substances into simple soluble substances. **In the intestines :** From the stomach, the food passes into a pipe called the small intestine. Here, the food is mixed with more digestive juices, and it breaks down even more. Some of the digestive juices are made by the small intestine. Some are made by other body organs such as the liver and the pancreas. The digested food passed into the blood through the walls of the small intestine. The blood takes the food to all the cells in the body. Some portion of the food that you eat cannot be digested. It becomes waste. This passes into a wide pipe called the large intestine. Here, water is absorbed from the waste. The solid part is sent out of the body through the anus.

E. and F. Do yourself.

## 7. Teeth and Microbes

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

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

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

D. **1.** The teeth of a new born baby are hidden below the gums. The baby cannot chew solid food. It can only drink milk and other liquids. When the baby is about six months old, the teeth start appearing. By the time he is about three years old, he has 20 teeth. These teeth are called milk teeth. **2.** When you eat, small bits of food get stuck between your teeth. Brushing your teeth removes this food as well as germs. If you do not brush, the germs change the sugar in food to a substance called acid. This acid sticks to your teeth as a pastelike material called plaque. It can weaken the enamel and make small holes or cavities in it. **3.** The **crowns** is the top portion of the tooth. The root is inside the gums. It holds the tooth firmly in place. The hard, white portion of the tooth that you can see is called the **enamel**. It is the hardest part of the human body. Below the enamel is the **dentine**, which is not as hard as the enamel. Inside the dentine is the soft pulp. It has blood vessels that provide nutrients to the tooth. It also has nerves. **4.** Some microbes are useful to us. Some bacteria can change milk into curd. Others can change sugar into alcohol. A fungus called yeast helps in making cakes and bread fluffy. Some bacteria help in the decay of dead plants and animals. This is very important for cleaning up our surroundings. Some bacteria help to produce vitamins in humans. Some other bacteria help animals to digest food. **5.** Just over a hundred years ago, Louis Pasteur proved that tiny living things called microbes can cause diseases. Microbes are so small that they can only be seen under a microscope. **6. Bacteria** are microbes made up of one

cell only. They have different shapes. They cause diseases such as typhoid, tuberculosis and pneumonia. **Viruses** are smaller than bacteria and other microbes. They enter the cells and increase in number inside the cell. They cause diseases such as influenza (or flue), common cold and polio by destroying the cells. **Protozoans** are also made up of one cell. They cause diseases such as malaria and dysentery.

E. and F. Do yourself.

## 8. Clothing

- A. 1. (a) 2. (c) 3. (a) 4. (c) 5. (c)
- B. 1. (c) 2. (d) 3. (a) 4. (b)
- C. 1. T 2. F 3. F 4. F 5. T
- D. 1. Nylon 2. Uniform 3. Woollen 4. Natural fibre
- E. 1. Synthetic fibres are the man-made fibres and do not occur in nature. Nylon, rayon, lycra and polyester are some examples of synthetic fibres. 2. In winter, we wear dark coloured clothes made of wool. 3. We need clothes to protect ourselves from the scorching heat of the sun, cold, rain and insect bites. ● The sun rays, especially during summers can cause sunburns. ● We know that air around us contains dust. This dust settles on our clothes. We can see it on the collars and cuffs of our shirts and other clothes. Thus, our clothes form a protective layer between dust and our body. ● Clothes protect us from insect bites. When we visit a park, we should wear full sleeve shirts and full pants to protect ourselves from mosquito bites. Mosquito bites can cause malaria, dengue and yellow

fever. ● Clothes protect us from cold and keep us warm in winter. ● Clothes make us look smart. 4. During summer, we wear loose, light-coloured cotton clothes. Cotton clothes allow air to circulate freely and the heat of the body escapes. 5. To look smart, neat and tidy, we should wear clean and well ironed clothes. We should take proper care of our clothes to keep them in good conditions for a long time. ● Clothes should be washed properly with a good quality detergent or soap. Clothes also need to be ironed. ● While keeping woollen or silk clothes, mothballs or dried neem leaves should be kept with them. This helps to keep the insects like silverfish and moths away. ● We should mend clothes that are torn or broken button before wearing them. ● Washed and ironed clothes should be kept neatly in a cupboard. ● A sick person's clothes should be disinfected with antiseptic solution. ● Stains should be washed immediately. ● Well maintained clothes make us feel comfortable and look smart. 6. **Natural Fibres** : As the name suggests, these fibres are obtained from nature. Natural fibres are obtained from either plants or animals. Cotton, jute, linen, hemp are plant fibres, while wool and silk are animal fibres.

F. and G. Do yourself.

## 9. States of Matter

- A. 1. (a) 2. (b) 3. (b) 4. (b) 5. (a)
- B. 1. solid 2. liquid 3. vaporization 4. filtration
- C. 1. All things take up space and have mass. Any substance that has mass and occupies space is called matter. Solids, liquids and gases are the three states of matter. **Solids** are substances in which the particles are packed very close to each other. Solids are usually hard and have a



fixed shape. Pencil, book, chair and marbles are examples of solids. **Liquids** are substances in which the particles are not very closely packed. Unlike solids, they have no fixed shape and can flow. They take the shape of the container they are poured into. Water, milk and juices are examples of liquids. **Gases** are substances in which the particles are very loosely packed. They too have no fixed shape. Unlike liquids, they occupy all the available space in a container. Air and cooking gas are examples of gases. **2. Solids** are substances in which the particles are packed very close to each other. Solids are usually hard and have a fixed shape. Pencil, book, chair and marbles are examples of solids. **Liquids** are substances in which the particles are not very closely packed. Unlike solids, they have no fixed shape and can flow. They take the shape of the container they are poured into. Water, milk and juices are examples of liquids. **Gases** are substances in which the particles are very loosely packed. They too have no fixed shape. Unlike liquids, they occupy all the available space in a container. Air and cooking gas are examples of gases. **3.** The process by which a solid changes into a liquid is called **melting**. When you take out an ice cube from the freezer and leave it at room temperature, you will see that the ice starts to melt into water. The process by which a liquid changes into a gas is called **vaporization**. Vaporization can happen by evaporation and boiling. **4.** The process by which a gas changes into a liquid on cooling is called **condensation**. When you hold a cold steel plate over a pot of boiling water, you will see tiny drops of water condensing on the tray. **5.** Soluble substances are those substances that dissolve completely in a solvent to form a solution. For example, salt

and sugar are soluble in water. **6.** During **sedimentation**, the liquid is left undisturbed for some time. The heavy insoluble solids settle down at the bottom. This process in which insoluble substances settle down is called sedimentation. Then the upper clear liquid is poured into another container without disturbing the insoluble solids. This process is called **decantation**. Mud and water can be separated by sedimentation and decantation.

D. and E. Do yourself.

## 10. Safety and First Aid

- A. 1. (b) 2. (a) 3. (c) 4. (b) 5. (a)**
- B. 1. F 2. T 3. T 4. F 5. T**
- C. 1.** If there is itching on insect bites apply calamine lotion. **2.** Because synthetic clothes can catch fire easily. **3.** While giving first aid to an injured person, it is important to stay calm and act fast. **4.** For the extra blood to reach the brain. **5.** Do it yourself.
- D. 1.** (i) Always keep the floor clean and dry. (ii) Do not touch the electric appliances with wet hands. (iii) Things like toys, books etc. should not be left scattered on the floor. All things should be kept at proper place. (iv) Keep things like matchboxes, candles, knives, medicines etc. away from the reach of children. **2.** Cross the road only at zebra crossing. Make sure that the 'walk' signal is green, means it is safe to cross. **3.** A doctor may not always be present when an accident takes place. After calling for the doctor, care should be taken of the injured person. This is known as 'first aid'. It is immediate medical help given before the doctor arrives. It can save a life and reduce injury. **Insect bite first aid:** It is important to remember that bees and

other insects sting only when we disturb them. If a bee stings you, try to remove the sting with a sharp object. Never pinch it as more of the poison may enter your body. You should:

- Wash the area thoroughly with water.
- Put ice pack for 10 minutes till burning sensation is reduced.
- Apply some soothing cream. A soft pad soaked in ammonia water also gives relief. Apply calamine lotion if there is itching.

**4.** We get burn, when we touch very hot objects. To get relief from the pain:

- Remove the heat source.
- Put out flames or remove clothing.
- For minor burns dip the part in cold water or hold the burnt part under running water for some time. Do this at once. This cools the wound and avoids a severe burn.
- Minor burns heal on their own. In case of more serious burns, consult a burn specialist immediately.

**5.** In case your nose bleeds, stay calm and do not panic. Sit and press the nose tightly with your fingers. Keep your both nose close tightly for 5-10 minutes. This stops the blood from flowing. Breathe through your mouth.

**6.** If a person faints make him lie down for a while. Keep the head low for the extra blood to reach the brain.

E. and F. Do yourself.

## 11. Force, Work and Energy

- A. 1. (c) 2. (b) 3. (c) 4. (c) 5. (b)
- B. 1. T 2. T 3. T 4. T 5. F
- C. 1. In our daily life, we lift, pull or push things. We can move objects and change their shape by applying force. Nothing can move on its own. A force is an external agent (pull or push) which causes a body to start moving or to stop when it is in motion. 2. The force that slows down a moving object in contact with other

surface is called frictional force. Whenever two things rub against each other, there is friction. If we push a ball on a rough surface, it stops after a few seconds. The friction resulting from the rubbing of the rough surface and ball, stops the movement of the ball. The force of friction is less on a smooth surface. 3. The meaning of work as used in science is different from the everyday use of the work. When you apply force to move things you do work. According to science, work is done only when the thing moves. 4. Some simple machines that we use in our everyday life are : 1. Wheel and axle 2. Inclined plane 3. Screws 4. Wedges 5. Pulleys 6. Lever

**Wheel and Axle :** The axle is a rod that passes through the centre of a wheel and it helps to lift or move objects. The most common example where it is seen is the bicycle we ride.

5. We are able to do work only when we have energy. Energy is the ability to do work. We need energy to do everything, right from the basic things like walking, reading and talking to the difficult tasks like lifting, carrying and climbing. 6. Fossils are the remains of animals or plants which died millions of years ago. Dead animals and plants got squeezed and pressed under layers of rocks. They slowly changed into coal, crude oil and natural gas. All these are found underground. They are called fossil fuels. When you burn fossil fuels you get energy.

D. and E. Do yourself.

## 12. Air, Water and Weather

- A. 1. (b) 2. (a) 3. (c) 4. (a) 5. (b)
- B. 1. E 2. C 3. C 4. E 5. E
- C. 1. three-fourth part of earth is covered with water. 2. of the convection. 3. of evaporation.

4. it has many impurities.

- D. 1. Day to day condition of the atmosphere of a place at any given time is called weather. It may be hot, cold, rainy, windy, cloudy, dry or humid. Weather changes from day to day, time to time and place to place. The weather of a place depends on the following factors : (a) wind (b) air pressure (c) clouds (d) temperature (e) moisture
2. **Land Breeze** : At night, the land cools faster than sea water. The air above the sea water is warmer than the air above the land. Warm air rises and cool air from the land rushes towards the sea. This is called land breeze. **Sea Breeze** : During daytime, the land heats up faster than sea water. The hot air from the land rises and the cool air from the sea rushes to take its place. So the wind blows from the sea towards the land. This is called sea breeze.
3. When water is heated up, it changes into water vapours. This process is called evaporation. There are some factors which affect evaporation such as: (a) High temperature or heat of the sun. (b) When the exposed surface is larger.
4. **Forms of Condensation** : **Rain** falls because water vapours in the air get condensed and fall from clouds. **Dew** drops are found on plants, leaves, window panes on cold winter mornings when vapours condense. **Fog** is formed in winters when water vapours condense on the dust particles close to the ground. **Frost** is formed when water vapours freeze into ice crystals in winter. **Snow** is formed in very cold places where water droplets freeze and form snow.
5. **Storage of Water** : After purifying the water, it should be stored in clean and covered vessels. We should wash our hands before taking out water from the vessel. The

containers should be kept in a neat and clean place away from dustbins.

E. and F. Do yourself.

## 13. The Solar System

- A. 1. (c) 2. (c) 3. (c) 4. (a) 5. (c)
- B. 1. Mercury 2. Mercury 3. Mars 4. Jupiter 5. Jupiter
- C. 1. T 2. F 3. F 4. T 5. F
- D. 1. **Rotation** : The earth spins on its axis from the west to the east. The axis of the earth is an imaginary line that runs through the centre of the earth. This axis is slightly tilted. The two points where the axis seems to enter are called the poles; the north pole and the south pole. The earth takes 24 hours to complete one rotation. Day and night are caused due to the rotation of the earth. **Revolution** : The earth also travels around the sun in a fixed oval shaped path called the orbit. This movement of the earth is known as the revolution. The time taken by earth to complete one revolution is  $365\frac{1}{4}$  days. 2. The revolution of the earth around the sun causes seasons. There would be no seasons if the earth was not tilted from its axis. This tilting of the earth on its axis gives us the four main seasons of the year— summer, winter, spring, autumn. 3. The sun, the planets and their moons belong to a family of objects called the solar system. 4. **Layers of the Earth** : The earth is made up of three layers. The outer most layer of the earth is called the **crust**. It is the coolest layer. We live on this layer. It consists mostly of rocks, the granite and basalt. The middle layer is called the **mantle**. It is a thick layer of rocks rich in iron and magnesium. The innermost layer or the centre of the earth, is the hottest. It is called the **core**. It is further divided into a

**liquid outer core** made up of nickel and iron mixture, and the **solid inner core** made up of iron. **5.** New Zealand lies in the southern hemisphere whereas India lies in the northern hemisphere. When New Zealand has summer, we have winter in India. After six months, the position of the earth changes and the half which had summer, now has winter and the half which had winter earlier now has summer.

E. and F. Do yourself.

## 14. Keeping the Earth Green

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

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

C. **1.** Earth is a much warmer place than it should be. This has been due to more carbon dioxide in air because of air pollution. This carbon dioxide gas traps sun's heat and does not allow it to escape. This trapped heat warms the surface of the earth, resulting in green house effect. **2.** This is the main cause for increasing in diseases like various cancers and damage to eyes. **3.** Rain that falls down on earth also contains harmful gases in it. These gases present in the air till the rain brings them back down. Acid rain harms wildlife, buildings, surfaces and soil. **4.** Drinking polluted water causes diseases like jaundice, typhoid and gastroenteritis.

D. **1.** It is true that human beings depend on natural resources for their daily needs but excessive use of natural resources make the environment polluted. There are different types of pollution are there as : Air pollution, water pollution, soil pollution and noise pollution. **2.** Earth is a much warmer place than it should be. This has been due to more carbon dioxide in air because of air pollution.

This carbon dioxide gas traps sun's heat and does not allow it to escape. This trapped heat warms the surface of the earth, resulting in green house effect. Example : Countries like Bangladesh and island like Tuvalu and Marshal fear floods. **3.** Rain that falls down on earth also contains harmful gases in it. These gases present in the air till the rain brings them back down. Acid rain harms wildlife, buildings, surfaces and soil. **4.** Chemicals given out into the air have thinned out this layer and in some places like the north pole there is a hole in it. This means that harmful rays are now entering the atmosphere and affecting plants and animals life on the earth. **5.** Air is the mixture of many gases and dust particles. It gets polluted when there is a change in its composition. When anything is burnt, it gives out carbon dioxide and other gases into the air. Tiny solid particles like carbon may also be obtained on burning. All this reduces the oxygen in the air. This affects our breathing and vision. It also affects cloud formation. Forest fire pollutes the air in the same way. **Water pollution** is caused by human activities also. The most common human activities that causes water pollution are : ● Chemical waste from factories, household waste and sewage being dumped into ponds, rivers and lakes. ● Washing clothes and bathing cattles in rivers, streams, ponds and lakes. **6.** Air pollutants reduce vision. Dust or dirt particles remain in the air and stop light from passing through them. This can lead to accidents and breathing difficulties.

E. and F. Do yourself.