



4

## Teacher's Manual

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# Explorer Science-4

## CHAPTER-1

### LEAD QUESTIONS

1. Leaves
2. Plants

### EXPERIENTIAL LEARNING-NEP 2020

Individual response.

### WORK CORNER

1. Stomata
2. Main vein or midrib
3. Chlorophyll
4. Leaf blade or lamina
5. Oxygen
6. Roots

### HOCS

Some non-green plants get their food from dead and decaying plants such as mushrooms.

### EXERCISES

#### A. Tick the correct option.

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

#### B. Name the following.

1. Veins
2. Chlorophyll
3. Glucose
4. Starch
5. Carbon di-oxide

**C. Write T for a true statement or F for a false one. Correct the false statements.**

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

**D. Very short-answer type questions :**

1. Leaves prepare food for the plant by the process called photosynthesis.
2. Extra food is stored in plants in starch form.
3. We will notice that there are many tiny openings on the underside of the leaf. These openings are called stomata (singular – stoma).
4. These help the plant to exchange gases and control water movement.
5. Carbon dioxide, water and sunlight.
6. Veins bring water and minerals to the leaf from the roots and carry food from the leaf to the other plant parts.

**E. Long-answer type questions :**

1. If we look at a leaf closely, we will see a flat part of the leaf called the leaf blade or lamina. The thick line in the middle is called the main vein or the midrib. The thin lines on the sides are called veins. Veins bring water and minerals to the leaf from the roots and carry food from the leaf to the other plant parts. Leaf also prepares food for the plants.
2. Take a potted plant and keep it in a dark room for three days. Water it regularly. After three days, pluck a leaf of this plant. Wash it well. Boil it first in water and then in alcohol (note : all work related to the use of burner should be

done ONLY in the presence of your teacher).

Remove the leaf from alcohol and wash it with cold water. Add a few drops of iodine solution on the leaf.

The colour of the iodine solution does not change to blue-black. This indicates that there is no starch in the leaf. As in the absence of sun light, no photosynthesis could take place and the leaf did not produce starch. This proves that sunlight is necessary for photosynthesis.

3. In the word ‘photosynthesis’, ‘photo’ means light and ‘synthesis’ means putting together. Leaves have a green substance called chlorophyll that gives them green colour. Roots absorb water and send it to the leaves. Carbon dioxide enters leaves through stomata. Chlorophyll in leaves absorbs sunlight. Now, carbon dioxide and water combine in the presence of sunlight and chlorophyll to form food in the form of glucose. Plants use this glucose as food and also store a part of it in the form of starch.
4. If more and more plants are cut, then animals will not get enough oxygen to breathe. Similarly, if the population of animals increases, there will not be enough food for all of them. Thus, it becomes our responsibility to protect plants and animals in order to maintain the balance in Nature.
5. To survive, animals need food to eat and oxygen to breathe. Plants give food and oxygen to animals. Animals breathe out carbon dioxide.

Plants use this carbon dioxide to make their food. Thus, plants and animals depend on each other in order to live. All animals whether plant eaters or flesh eaters depend directly or indirectly on plants for their food.

### **Activity based Learning- NEP 2020**

1. ROOTS
2. STEM
3. LEAF
4. FRUIT
5. FLOWER

## **Chapter-2 Adaptation in Plants**

### **LEAD QUESTIONS**

1. conifers
2. lotus
3. coconut

### **WORK CORNER**

1. Aquatic plants
2. Breathing roots
3. Cones
4. Coconut
5. Stems

### **WORK CORNER**

1. Floating, fixed, underwater
2. Floating plants
3. Stomata on the upper surface
4. Underwater plants

### **EXERCISES**

#### **A. Tick the correct option.**

1. Autumn
2. (a) stem
3. (c) marshy areas
4. (a) floating plants

**B. Write T for a true statement or F for a false one.**

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

**C. Give two examples of each :**

1. Duckweed, water lettuce
2. Lotus, water lily
3. Pondweed, tapegrass

**D. Short-answer type questions :**

1. A change that a living thing undergoes to become well-suited to its environment is called adaptation.
2. Plants on hill slopes, Plants in plains, Plants in deserts, Plants in marshy areas, Plants in coastal areas are the terrestrial plants. Water plants have stomata on the upper surface of leaves. Plants in hilly areas are cone shaped. Desert plants need very little water. Marshy plants have breathing roots. Coastal plants have flexible trunks.
3. The plants that grow in water are called the aquatic plants. Duckweed, water lettuce and water hyacinth are some examples.
4. The roots do not receive air for breathing and it is difficult for a plant to grow in these places. Mangrove trees can grow here easily. Their roots grow out of the soil and water to breathe. These roots are called breathing roots.
5. Trees such as pine, fir, deodar and spruce grow in cold hilly areas or on mountains. The conical shape of the trees allows snow to easily slip off the branches.

### **E. Long-answer type questions :**

1. Mountain and hilly regions are generally cold and some areas might even receive snowfall. The trees which grow in this region are cone-shaped, tall and straight. These do not bear any flowers. Instead, they have cones with seeds inside them. They have needle like leaves which protects it from losing water.
2. Cactus plants make their food in the stems. The green stems contain chlorophyll and make food by photosynthesis. The stem has a thick, waxy skin which reduces loss of water. The roots of a cactus plant spread out wide in the soil. This helps it to absorb water from a large area. The leaves have modified to spines which save water loss.
3. The roots of these plants are fixed to the bottom of the pond. Their thin, long and hollow stem support the large leaves and flowers that float on the water surface. The leaves of aquatic plants are broad with stomata only on the upper surface. They have a waxy coating on their surface to protect them from rotting.
4. The venus flytrap has leaves that are folded into two halves. The leaves have hairs along their edges. When an insect sits on a leaf and touches its hair, the leaf closes instantly, trapping the insect.
5. Cereals like maize, wheat and rice belong to the grass family. They are useful to us in many ways. They provide food to us and animals. Bamboo, a

giant grass, is used for making brooms, baskets and mats, etc. Dried grasses are used as packing materials. They conserve the soil as they hold the soil with their roots and prevent soil erosion. Various grasses are used for making paper. Paper was first made by the people of Egypt from a grass called papyrus. Paper got its name from this grass.

## Chapter-3

### LEAD QUESTIONS

1. polar bear
2. bear

### HOCS

Aestivation is a state of dormancy that some animals enter during hot or dry seasons. During aestivation, animals reduce their metabolic rate and find shelter to conserve energy and avoid dehydration. It is commonly observed in invertebrates like snails, earthworms, and certain insects.

### WORK CORNER

1. terrestrial
2. blubber
3. fur
4. Turtles, fish
5. humps

### WORK CORNER

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



## EXERCISES

### A. Tick the correct option.

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

### B. Match the following.

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

### C. Write H for herbivores, C for carnivores and O for omnivores.

1. H
2. C
3. H
4. O
5. C
6. O

### D. Give reasons for the following.

1. The mountain goat has strong hooves to help it walk and run easily on rocks.
2. Because they store fat in their humps and water in their blood stream.
3. Because fish have fins.
4. Because frog is an amphibian.
5. Because vulture has a strong eyesight.

### E. Short-answer type questions:

1. Inactivity of some animals during winter months is called hibernation.
2. Herbivores have strong teeth to cut and bite leaves and stems. Their sharp biting and cutting teeth and strong grinding teeth help them to chew the food.
3. Carnivores have very strong and sharp teeth to catch their prey and tear its flesh.
4. Deer runs very fast with the help of their strong

legs to save themselves from lions and tigers. Snails have hard shells on their bodies.

5. The chameleon changes its body colour to match its surroundings.
6. Mass movement of birds and animals from a one place to a another place is called migration.
7. Animals that have disappeared from the earth are called extinct animals. Animals that are not extinct, but are likely to be extinct if not protected are called endangered animals.
8. The Government of India has set up national parks and wildlife sanctuaries to protect these animals.

**F. Long-answer type questions:**

1. Animals living in water are called aquatic animals. Fish and crabs have gills to breathe in oxygen dissolved in water. Whales and dolphins do not have gills. They have lungs to breathe. They come up to the surface from time to time to breathe. Streamlined bodies help them swim in water. Turtles have flippers to swim.

The animals that fly and spend a lot of time in the air are called aerial animals. Insects and birds (all birds except flightless birds) fly with the help of their wings. One set of the limbs (of an insect or a bird) has been modified as wings. These animals have light-weight bodies.

The land animals that spend most of their lifetime living on trees are called arboreal animals. They have sharp claws that help them to climb up trees. Their powerful legs and tails help them to hold onto branches.

2. Polar regions are covered with snow throughout the year. Animals such as polar bears, Arctic foxes, seals and penguins are found here. The polar bear has a thick layer of fur over its body which protects it from cold. Each of these animals has a thick layer of fat under its skin, called blubber, to keep it warm.

3. **Herbivores**

Herbivores have strong teeth to cut and bite leaves and stems. Their sharp biting and cutting teeth and strong grinding teeth help them to chew the food. Elephants have long trunks to pull out grass and leaves. Giraffes have long neck to reach for leaves from tall trees. Butterflies have tube-like mouths so they suck nectar from flowers.

**Carnivores**

They have very strong and sharp teeth to catch their prey and tear its flesh.

**Omnivores**

They have sets of flat and sharp teeth to eat both plant and animal parts. Human beings, crows and bears are omnivores.

**Parasites**

These live on the host body and suck blood while tapeworm and roundworm live inside the host body.

**Scavengers**

These animals feed on the flesh of dead animals. Vultures have strong eyesight and sense of smell to locate a dead animal.

4. Some animals develop certain adaptations to protect themselves from their enemies. Some of these examples are discussed below —
  - a. The body colour of some animals mixes with the background. Due to this, they cannot be noticed easily by their enemies. This is called camouflage. For example, the leaf insect merges well with the colour of the leaf. Stripes on the body of the zebra help it to blend with the surroundings. The white colour of a polar bear's fur helps it to merge well with the snow-covered background. The chameleon has the ability to change its body colour to match its surroundings.
  - b. Elephant and hippopotamus have thick skins which protect them from the hot climate.
  - c. Tortoises and snails have hard shells on their bodies. They go into their shells when faced with danger.
  - d. Porcupines and hedgehogs have sharp spines that save them from their enemies.
  - e. Deer run very fast with the help of their strong legs to save themselves from their predators.

### **Activity based Learning- NEP 2020**

1. migration
2. habitat
3. gills
4. aerial
5. flippers
6. trunk

## Chapter-4 Creaky - Craw lies

### LEAD QUESTIONS

1. 6 legs
2. housefly

### HOCS

**The main differences between butterflies and moths are as follows:**

Butterflies often have bright and vibrant colors, while moths are typically duller and more camouflaged. Butterflies usually have slender bodies, club-shaped antennae, and thin wings with intricate patterns. Moths, on the other hand, often have plump bodies, feathery or comb-like antennae, and broader wings.

### WORK CORNER

1. Grasshoppers have six legs.
2. Two pair of wings
3. Green

### WORK CORNER

1. Dragonfly
2. Glow-worm
3. aphids
4. Centipedes

### HOCS

- Malaria is caused by the Plasmodium parasite transmitted by female Anopheles mosquitoes.
- Dengue is caused by the dengue virus transmitted by Aedes mosquitoes.

## EXERCISES

### A. Tick the correct option.

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

### B. Name the following.

1. Wasps and ants
2. Ladybirds and earthworms
3. Crickets and cockroaches
4. Dragonfly
5. Spider

### C. Short-answer type questions.

#### 1. Housefly:

- Houseflies are insects with three body segments: head, thorax, and abdomen.
- They have six legs.
- Houseflies have two wings, allowing them to fly.

#### Spider:

- Spiders are arachnids with two body segments: cephalothorax and abdomen.
  - They have eight legs.
  - Spiders may have either no wings or vestigial wings, and they do not fly.
2. Fireflies are also called glow-worms, but they are not worms. Instead, they are beetles. They are black or brown in colour and can 'light up' at night because of chemical reactions in their stomachs that take place with the help of oxygen.
  3. Tiny brown long creatures with many legs are

called centipedes. Centipedes may have up to twenty or thirty pairs of legs. They eat insects and other creepy-crawlies.

4. A worm's body is divided into many segments. Each segment usually has a pair of legs that help the worm to walk or swim.

#### **D. Long-answer type questions.**

1. Social insects are insects that live in colonies. Honeybees, wasps and ants are social insects. Honeybees make honey and build hives. Nearly fifty to eighty thousand bees live together. Wasps are yellow in colour. They eat wood and make paper-like nests using their saliva mixed in wood paste. Adult wasps feed on flower nectar. Honeybees make beehives. About fifty to eighty thousand honeybees live together. Only one queen bee lays the eggs. Ants differ from bees and wasps as they do not fly. Worker ants gather food for winter in the underground nest. They work in an organized manner.
2. Mosquitoes, leeches and bedbugs suck blood to survive. Very small creatures like lice and dog ticks also suck blood to survive. To keep them away from us and our pets, we should make sure that we bathe ourselves and our pets regularly. Flea powders and tick powders help to keep fleas and ticks away from dogs.
3. To keep insects away, here are some effective measures:

**Cleanliness:** Keep your living space clean and free of food crumbs, spills, and garbage.

Regularly sweep, mop, and vacuum to remove potential food sources that attract insects.

Proper food storage: Store food in airtight containers to prevent access for insects. Keep fruits and vegetables in the refrigerator, and promptly clean up any food debris or spills.

Seal entry points: Seal cracks, gaps, and openings around windows, doors, and foundation to prevent insects from entering your home. Install door sweeps and repair damaged window screens.

Remove standing water: Mosquitoes and other insects breed in stagnant water. Eliminate sources of standing water, such as in flower pots, bird baths, and gutters, to reduce their breeding grounds.

Maintain outdoor cleanliness: Trim bushes, shrubs, and grass regularly, as overgrown vegetation can attract insects. Keep outdoor areas clean and remove any potential hiding places, such as piles of wood or debris.

4. Snails have hard shells on their bodies. They go into their shells when faced with danger and close it with a muscular structure. This keeps the snails safe some snails camouflage. It also releases a slippery distasteful mucus trail to deter predators.
5. Snails move by sliding along a layer of mucus through their foot gland. This mucus reduces friction and provides a smooth surface for gliding. The snail extends its large muscular



foot on the surface it wants to glide. The snail glides by contracting its foot muscles which causes rippling motion.

## **Activity based Learning- NEP 2020**

**B. What should we do to protect ourselves from diseases spread by flies? Here are a few sentences. Read and mark tick or cross.**

1. Cross
2. Tick
3. Tick
4. Cross
5. Cross

## **TEST YOURSELF**

**A. Fill up the boxes to show the process of photosynthesis.**

Plants absorb water through its roots, breathe carbon dioxide from air, perform photosynthesis, With the help of sun rays.

**C.** 1. Frog, 2. Vulture, 3. Fox- terrestrial, 4. Monkey, 5. Giraffe- terrestrial

## **Chapter-5 Reproduction in Animals**

### **LEAD QUESTIONS**

1. Give birth to babies
2. Tadpole

### **WORK CORNER**

1. Egg yolk
2. Tadpole
3. Spawns
4. Incubation
5. Egg
6. Egg shell
7. Water

## EXERCISES

### A. Tick the correct option.

- |        |        |        |
|--------|--------|--------|
| 1. (b) | 2. (b) | 3. (c) |
| 4. (a) | 5. (b) | 6. (b) |

### B. State T for a true statement and F for a false one.

- |      |      |      |
|------|------|------|
| 1. F | 2. T | 3. F |
| 4. T | 5. F |      |

### C. Write one word for the following.

- |                  |              |
|------------------|--------------|
| 1. Spawns        | 2. Moulting  |
| 3. Metamorphosis | 4. Egg shell |
| 5. Mammals       |              |

### D. Look at the picture and label its parts. Then write the role of each part.

1. Albumen, egg shell, egg yolk

### E. Short answer type questions.

1. All living organisms produce young ones of their own kind. This is called reproduction.
2. A complete change from the young one to an adult form is called metamorphosis.
3. A tadpole has a tail and looks like a fish. It swims in water and eats water plants. Later, it grows legs. The tail also becomes shorter and disappears finally. Gradually, the tadpole changes into an adult frog. A complete change from the young one to an adult form is called metamorphosis.
4. When the babies of cockroaches hatch, they look like the parent insects, but they do not have wings. They are called nymphs.

5. Lizards and snakes lay their eggs on the ground.
6. The process of sitting on eggs by a bird to keep them warm is called incubation.

**F. Long answer type questions.**

1. Human beings, tigers, dogs, horses and cats are some mammals. Mother animals feed their young ones on their own milk. Mothers of mammals provide food, warmth grooming, teaching skills and protection. Some mammals provide nests or dens to keep their babies safe. Mammals teach their young surviving skills.
2. The stages of development of a hen can be summarized as follows:

**Egg:** A hen starts its life as an egg. The egg is laid by the mother hen and contains all the nutrients needed for the baby chick to grow. The shell of the egg is hard and protects the developing chick inside.

**Embryo:** Inside the egg, the chick begins to develop from the embryo. The embryo gets nourishment from the yolk and starts growing body parts such as the head, wings, and legs. It also forms a protective membrane around itself.

**Hatching:** After about 21 days of incubation, the chick is ready to hatch. It pecks its way out of the eggshell using a special hard bump on its beak called an egg tooth. This is an exciting moment when the chick breaks free from the egg and takes its first breath of air.

**Chick:** Once hatched, the chick is fluffy and has soft feathers. It is small and dependent on

its mother for warmth, protection, and food. The chick learns to walk, peck for food, and starts growing feathers.

**Young hen:** As the chick grows, it becomes a young hen. Its feathers grow and develop into adult feathers, and it becomes more independent. The young hen learns to explore its surroundings and develops its own unique personality.

**Adult hen:** After several months, the young hen matures into an adult hen. It reaches its full size and develops the ability to lay eggs. The adult hen is now ready to reproduce and start the cycle again by laying eggs of its own.

3. A female frog lays hundreds of eggs in water in large clusters called spawns. When the eggs hatch, tiny baby frogs called tadpoles come out of them. A tadpole has a tail and looks like a fish. It swims in water and eats water plants. Later, it grows legs. The tail also becomes shorter and disappears finally. Gradually, the tadpole changes into an adult frog. A complete change from the young one to an adult form is called metamorphosis.

4. **Nymphs:**  
When the babies of insects such as cockroaches, grasshoppers and termites hatch, they look like the parent insects, but they do not have wings. They are called nymphs.

**Larva:**

A butterfly also shows metamorphosis like a frog. The egg of a butterfly converts into a larva

or a caterpillar which looks very different from a fully grown butterfly.

### **Activity based Learning- NEP 2020**

Eggs, Tadpole, Tadpole with legs, Adult frog

Eggs, caterpillar, pupa, butterfly

Adult hen, eggs, incubation, hatching, chick

Whose young ones/eggs are these? Write in the space provided.

- |            |         |
|------------|---------|
| 1. Hen     | 2. Cat  |
| 3. Human   | 4. Lion |
| 5. Cricket | 6. Frog |

No, all the young ones do not resemble their parents.

## **Chapter-6. Food and Its Preservation**

### **LEAD QUESTIONS**

Pulses

Salt

### **WORK CORNER**

- 1) Nutrients
- 2) Energy-giving foods
- 3) Fats
- 4) Proteins
- 5) Vitamins and Minerals

### **HOCS**

If we eat only protein-rich foods and neglect other essential nutrients, it can lead to various health issues. Protein is an important nutrient for our body as it helps in growth, repair, and maintenance of tissues. Short of energy foods

vitamins and minerals will make us sick. All body functions need energy to work. Vitamins and minerals are needed by our bones, blood, eyes etc.

## WORK CORNER

- |                  |             |
|------------------|-------------|
| 1) Balanced diet | 2) Roughage |
| 3) Water         | 4) Iron     |

## HOCS

Jiya should choose the bottle of jam that has the ‘Best before’ date mentioned on it. Here’s why:

**Quality and Freshness:** The ‘Best before’ date indicates the recommended period during which the product is expected to retain its quality, taste, and freshness. By purchasing the jam with a specified ‘Best before’ date, Jiya can ensure that she is getting a product that is within its optimal quality range.

**Safety and Shelf Life:** The ‘Best before’ date is also an indication of the product’s shelf life. It helps consumers determine the period during which the food is likely to be at its peak quality and safe for consumption. Without a ‘Best before’ date, Jiya may not have clear information about the shelf life of the jam.

**Quality Assurance:** The presence of a ‘Best before’ date shows that the manufacturer has followed proper food labeling regulations and has provided necessary information to the consumer. It reflects a level of commitment to quality and consumer safety.

## EXERCISES

### A. Tick the correct option.

1. (a)                      2. (a)                      3. (a)

### B. Write two examples for each of the following.

1. Cereals, potatoes
2. Eggs, fish
3. Fresh fruits and green vegetables
4. Green leafy vegetables, apples
5. Raw fruits, salads

### C. Give reasons.

1. When we chew bread for a while, the enzymes in our saliva break down the complex carbohydrates present in the bread into simpler sugars. This process is called enzymatic digestion. As a result, the taste of the bread changes, and it may start to taste sweeter.
2. A rickshaw puller needs a carbohydrate-rich diet because carbohydrates provide the energy required for physical activities, such as pulling a rickshaw. Carbohydrates are converted into glucose, which is the primary source of energy for our body. Therefore, consuming a diet rich in carbohydrates helps to sustain the energy levels needed for the physically demanding job of a rickshaw puller.
3. The water in which pulses are soaked should not be thrown away because it contains valuable nutrients and minerals that get released during the soaking process. These nutrients, such as

vitamins and minerals, dissolve in the water and can be beneficial for our health. By using the soaked water in cooking, we can retain these nutrients and make the most out of the pulses we consume.

4. Washing fruits before peeling them helps remove dirt, pesticides, and other contaminants, making them safer to eat.
5. Overcooking food can lead to the loss of nutrients, making it less healthy to consume.
6. Chewing food properly before swallowing it helps with digestion and allows our bodies to absorb nutrients more effectively.
7. Left-over food is kept in the refrigerator to prevent the growth of harmful bacteria and to maintain its freshness and quality for a longer period of time.
8. Eating food at fixed hours helps establish a regular and balanced eating routine, which is important for maintaining a healthy metabolism, digestion, and overall well-being.

**D. Write T for a true statement and F for a false one.**

- |          |          |
|----------|----------|
| 1. False | 2. False |
| 3. True  | 4. True  |

**E. Short-answer type questions.**

1. Food is our basic need. We cannot survive without food. Food gives us energy to work and play; it repairs our body and protects us from diseases. Food also keeps us strong and helps us to grow.



2. We should drink at least 6-8 glasses of water every day. It helps in the proper functioning and removal of waste from the body.
3. Carbohydrates provide energy to the body. Fats provide more energy than carbohydrates.
4. Proteins are needed by our body for building muscles, and for growth and repair.
5. The amount of nutrients in each food-item differs. Thus it is important to eat a variety of foods. Eating a variety of foods reduces the risk of nutrient deficiencies. Some nutrients are more abundant in certain food groups than others.

6. **Nutrient:**

The food we eat contains substances that are necessary for our body. These substances are called nutrients.

**Balanced Diet:**

A diet that contains all nutrients in the right amount, along with enough water and roughage, is known as a balanced diet.

**Roughage:**

Roughage is the fibrous part of the food which cannot be digested by our body. It is usually plant parts. It helps in proper bowel movement and protects from constipation.

**Food Preservation:**

If we do not store food properly, it gets spoiled. Therefore, we need to preserve it so that it may be used for some time.

7. Roughage adds bulk to our food. It does not contain any nutrients, but helps in digestion and

removal of waste from the body.

## F. Long-answer type questions.

1. There are various ways of preserving food which are as follows :

**Deep freezing:** Meat, ice cream, vegetables and fish can be stored for a long time in a freezer, at very low temperatures.

**Pickling and jelling:** This is a method of preserving fruits and vegetables. Fruits and vegetables are mixed with salt and oil to make pickles. Fruits are also mixed with sugar to make jams and jellies to preserve them.

**Boiling:** Milk is boiled and then cooled to preserve it for a day or two.

**Drying:** Some food items such as grapes (to get raisins) and milk (to get milk powder) are dried to remove the water-content. After drying, these food-items can be stored for a long time.

**Refrigeration:** The food is stored in refrigerators to preserve it for a day or two. We keep milk, cooked food and raw fruits and vegetables in a refrigerator.

**Canning:** Sauces, jams and juices are stored in cans and bottles. Chemical preservatives are added to them to keep them fresh for a long time.

2. The different types of nutrients present in our food are carbohydrates, fats, proteins, vitamins and minerals.

### **Carbohydrates**

Food items rich in carbohydrates are called

energy giving foods. Food items such as cereals, potatoes and bread give us energy as they all contain carbohydrates.

### **Fats**

Fats are also energy-giving foods and they provide more energy than carbohydrates. Oils, butter, nuts, ghee, cream and cheese contain fats. Fats not only give us energy, but also keep our body warm. We need fats only in a small quantity.

### **Proteins**

Milk and milk products (cheese, curd), eggs, fish, meat and pulses are rich in proteins and hence are called body-building foods. They are needed by our body for building muscles, and for growth and repair. Young children need more proteins than adults because they are still growing.

3. A diet that contains all nutrients in the right amount, along with enough water and roughage, is known as a balanced diet. We should always take a balanced diet. Excess or lack of any nutrients in the body is harmful. We must have enough food from each food-group every day. Food pyramid should be individual response.
4. We must cook the food properly. Improper cooking methods can destroy nutrients present in the food. For example, vitamin C is easily destroyed by high temperature. It is good to eat cucumbers, carrots, radishes and tomatoes raw. When rice, pulses or vegetables are boiled in

water, the nutrients from these foods mix with the water. These nutrients are lost if the water is thrown away. Hence we must not throw away the water in which food has been boiled. Freshly prepared food is safe and clean. Cooking kills germs and makes food safe to eat. If cooked food is left unused for a few hours in a warm place, it can become stale. Stale food has harmful germs growing in it. Therefore, it can make us feel sick.

## Chapter-7. Our Teeth

### LEAD QUESTIONS

1. Yes
2. Front teeth

### EXERCISES

#### A. Tick the correct option.

1. (a)
2. (a)
3. (b)
4. (b)

#### B. Short-answer type questions.

1. Milk teeth and temporary teeth are actually the same thing. They are the first set of teeth that children develop, also known as primary teeth or baby teeth. They are called “milk teeth” because they typically emerge when a child is still being breastfed or consuming milk. These teeth eventually fall out, making way for the permanent teeth, which are the second set of teeth that will last into adulthood.
2. Incisors, canines, premolars, molars.
3. Foods that have to be chewed for a long time

give exercise to the teeth and gums. Green vegetables, milk, oranges, lemons, bananas and fish are good for your teeth. These food-items will keep your teeth and gums healthy.

4. In an adult, four more teeth grow at the end of the jaws. These are called wisdom teeth.

**C. Long-answer type questions:**

- 1) Individual response.
- 2) Make sure that the movement of the brush is in both upward and downward directions.

Use a dental floss to clean the food particles stuck between teeth.

Brush your tongue lightly. Wash and rinse your mouth after every meal. Avoid eating too many sweets and having soft drinks.

Eat food such as fruits and vegetables that are rich in vitamin C as they are healthy for teeth and gums. Visit your dentist at regular intervals for dental check-ups.

- 3) Based on their functions, there are four different types of teeth in a permanent set of teeth.
  - a. Incisors are eight in number, four in each jaw. These have sharp edges which are used for cutting and biting the food. Herbivores have well-developed incisors.
  - b. Canines are four in number, two in each jaw. One canine lies on each side of the incisors. These are pointed, sharp teeth which are used for tearing the food. These are bigger and sharper so that tearing flesh may be easier. Carnivores have well developed canines.

- c. Premolars are eight in number, four in each jaw. These are broad and flat teeth. Two premolars lie next to each canine. Their main function is to crush the food and break it into smaller pieces.
- d. Molars are 12 in number, six in each jaw. These are big, flat and broad teeth which grind the food well. Of the 12 molars eight grow first and four appear later after the age of 20 years. These four teeth are called wisdom teeth. Herbivores also have well developed premolars and molars to chew plant parts.

## TEST YOURSELF

**A. Individual response.**

**B. Tick the ones which you feel are correct and cross the ones which are incorrect.**

- |     |     |
|-----|-----|
| (✓) | (X) |
| (✓) | (✓) |
| (✓) | (✓) |
| (✓) | (✓) |

**C. Look at the pictures of various kinds of teeth. Identify what kind of tooth each is.**

Molar

Premolar

Incisor

Canine

## TEST PAPER-1 (For Chapters 1 to 7)

### A. Tick the correct option.

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

### B. Fill up the blanks.

1. Glucose
2. Solids
3. Chlorophyll
4. hilly
5. marshy

### C. State 'T' for a true statement and 'F' for a false one.

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

### D. Answer these questions.

1. Foods rich in proteins are called body-building foods because proteins are essential for the growth and repair of body tissues, including muscles, bones, and organs.
2. Green plants make their food through a process called photosynthesis, in which they use sunlight, water, and carbon dioxide to produce glucose (a type of sugar) and oxygen.

## Chapter-8. How our Body Works

### LEAD QUESTIONS

1. digestive
2. lungs

### WORK CORNER

- |                            |                 |
|----------------------------|-----------------|
| 1st row Digestive system   | Skeletal system |
| 2nd row Respiratory system | Nervous system  |

3rd row Excretory system  
Circulatory system

Muscular system

## HOCS

When the stomach is full of food and its walls contract, it helps in the process of digestion. The muscular contractions, known as peristalsis, aid in mixing the food with stomach acids and enzymes, breaking it down into smaller particles. This movement also helps propel the partially digested food towards the small intestine for further digestion and absorption of nutrients.

## WORK CORNER

1. Oxygen
2. Respiratory system
3. Nose, windpipe, lungs
4. Windpipe
5. Lungs

## EXERCISES

### A. Tick the correct option.

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. (b) | 2. (c) | 3. (b) | 4. (a) |
| 5. (b) | 6. (d) | 7. (b) | 8. (c) |

### B. Match the following.

- |        |        |        |        |
|--------|--------|--------|--------|
| 1. (d) | 2. (e) | 3. (g) | 4. (f) |
| 5. (c) | 6. (b) | 7. (a) |        |

### C. Mark each of the following as true or false.

- |          |          |
|----------|----------|
| 1. False | 2. True  |
| 3. False | 4. False |
| 5. True  | 6. True  |



## **D. Short-answer type questions.**

1. Each organ performs a special function. We can see some of them, for example, our sense organs (the eyes, ears, nose, tongue and skin), hands and feet. They are called external organs. Some other organs are inside the body, for example, the heart, lungs and stomach. We cannot see them. These organs are called internal organs.
2. A group of different organs that work together to do one or more tasks in the body is called an organ system.
3. Digestion starts in the mouth.
4. The squeezes of the stomach mixes the food with stomach juices which digest the protein in our food that we have eaten.
5. Tips:
  - a. It is important to eat proper meals at the same time every day.
  - b. Eat a healthy balanced meal.
  - c. It is important to go to the toilet at the same time every day.
  - d. Do not eat snacks between meals.
  - e. Enjoy your food, but do not overeat.
6. Water and minerals are absorbed in the large intestine. Some parts of our food cannot be digested. These are stored and later pushed out of the body through the anus.
7. The respiratory system consists of the nose, windpipe and a pair of lungs.
8. The air that we breath has oxygen. It enters the lungs where it is absorbed by the blood. This

blood goes to the heart. The heart pumps this oxygenated blood to all parts of body through blood vessels called arteries.

9. The process of removing waste products from our body is called excretion.
10. The urinary bladder stores the urine. When urine is stored in the bladder, its walls get stretched and we feel the urge to urinate.

### **E. Long-answer type questions.**

1. Digestion starts in the mouth, while we chew our food. Our teeth grind it into a paste. Our saliva makes the food soft and moist. Saliva contains an enzyme which works on starchy foods. They get changed into simple sugars. It is important to chew our food well. This gives the saliva in our mouth time to act on the starchy food we eat.

Our tongue helps to roll the food into a round ball which is easy to swallow. It goes down the food pipe into our stomach. Our stomach is like a muscular bag. It contracts or becomes smaller and relaxes many times. This squeezes and mixes the food with stomach juices. These stomach juices begin to digest the protein in our food.

From the stomach, the food goes into the small intestine. This is a long tube where the food is mixed with more digestive juices. Some of these are made in the small intestine. One special digestive juice, called bile, is made in the liver. Bile helps to digest fats. It breaks up big drops of oil into tiny droplets. It is then easier for the

enzymes to act on them. The digestion of our food is completed in the small intestine. It is not in the form of simple foods which can be absorbed by the walls of the small intestine.

Finally, the food passes into the large intestine. Water and minerals are absorbed here. Some parts of our food cannot be digested. These are stored and later pushed out of the body through the anus.

2. The process by which the body uses oxygen to get energy from food is called respiration. The organ system that helps in respiration is called the respiratory system. The respiratory system consists of the nose, windpipe and a pair of lungs. The nasal hair and mucus filter the air we breathe in by trapping dust and germs.

From the nose, the air goes to the windpipe. At the end of the windpipe, there are two tubes. The tube on the left enters the left lungs and the tube on the right enters the right lung. Lungs are the main organs of the respiratory system. They are soft and spongy and are inside the ribcage. The ribcage protects the lungs from any injury.

The lungs are covered with blood vessels and tiny air sacs. When we take in air through the nose, it enters the lungs and reaches the tiny air sacs. The air sacs allow oxygen from the air to pass into the blood vessels. The blood carries this oxygen to all parts of the body. When the body uses this oxygen to break down food to get energy, carbon dioxide is produced. The blood

carries this carbon dioxide back to the lungs. The air that we breathe out contains this carbon dioxide.

3. The organ system which helps our body to remove the waste products formed in our body is called the excretory system. The process of removing waste products from our body is called excretion. The various organs of excretory system are: a pair of kidneys, a pair of ureters, a urinary bladder and a urethra.

### **Kidneys**

Kidneys are a pair of bean-shaped organs which filter the blood. The harmful and toxic products are filtered out from blood as it passes through the kidneys. These waste products along with water form urine. So, the formation of urine takes place in the kidneys.

### **Ureters**

The tubes which carry urine from the kidneys to the urinary bladder are called ureters. Our body has a pair of ureters.

### **Urinary Bladder**

The urinary bladder stores the urine. When urine is stored in the bladder, its walls get stretched and we feel the urge to urinate.

### **Urethra**

Urethra is the opening through which the urine is removed from the body.

## Chapter-9. States of Matter

### LEAD QUESTIONS

Yes

liquid

### HOCS

No, light, sound, and electricity are not considered matter. Because they do not have mass and volume. Neither they occupy space.

### WORK CORNER

1. Liquid, gas
2. Gas, liquid
3. Liquid, solid
4. Solid, liquid

### HOCS

Water is called a universal solvent because it can dissolve many different substances. It has special properties that allow it to break apart and disperse molecules or ions, making it an effective solvent for both polar and non-polar solutes.

### HOCS

Water is called a universal solvent because it can dissolve many different substances. It has special properties that allow it to break apart and disperse molecules or ions, making it an effective solvent for both polar and non-polar solutes.

#### A. Tick the correct option.

1. (c)
2. (a)
3. (d)
4. (a)

**B. Name the following.**

- |                |           |
|----------------|-----------|
| 1. Evaporation | 2. Solute |
| 3. Sublimation | 4. Liquid |
| 5. Filtration  |           |

**C. Short-answer type questions.**

1. Three states of matter: solid, liquid and gas.
2. Solid
3. Gases do not have a fixed shape because their molecules are far apart and the molecules do not have any force of attraction among themselves. They occupy the entire space in the container in which they are kept in.
4. Petrol is a liquid state of matter. It does not have a definite shape. It takes the shape of container it is kept in.
5. Wax is a solid state of matter. When it is heated it changes its state and comes into liquid state.
6. The solid which gets dissolved in a liquid is called a solute. The liquid in which the solute is dissolved is called the solvent.

**D. Long-answer type questions.**

**1. Solid**

The particles of a solid are packed very close to one another. The particles of a solid cannot move around. Solids have a fixed shape. The shape of your book does not change. The shape of some solids can be changed by pressing or stretching. We can press a piece of sponge or mould a mound of clay. Some solids can be broken by applying force. For example, glass

breaks easily if dropped. Wood, paper, metal rod and table are solids.

### **Liquid**

The particles of a liquid are loosely packed. The particles of a liquid can move around, but not to a large extent. Liquids do not have a fixed shape. Liquids take the shape of the container in which they are poured. If we pour milk into a bowl, it will take the shape of the bowl. If we pour it into a glass, it will take the shape of the glass. So, liquids do not have a fixed shape. Examples of liquids are water, juice and paint.

### **Gases**

The particles of a gas are very loosely packed. The particles of a gas can move around freely. Gases do not have a fixed shape. They occupy the entire space in the container in which they are kept. If you light an incense stick in one corner of the room, it will produce smoke which is a gas. The smoke will spread all around the room as gas molecules move across freely. Air is the most common example of gaseous state or matter. It is actually a mixture of various gases such as oxygen, nitrogen and carbon dioxide.

2. Heat can change the state of matter from a solid to a liquid to a gas. The process by which solid changes into liquid, is called melting. A solid melts into liquid when heated to a certain temperature. Ice and wax, for example, melt when heated. The process by which a liquid changes into a gas is called evaporation. A

liquid mostly changes into a gas when heated. Water changes into water vapour when heated. The process by which gas changes into a liquid, is called condensation. On cooling, a gas mostly changes into a liquid, for example, when water vapour is cooled, it changes to liquid water. The process by which liquid changes into solid is called freezing. A liquid can be frozen into a solid on cooling. Water, for example, turns into ice on cooling.

### **Activity-based Learning- NEP 2020**

- (a) Solid, liquid, gas
- (b) When solids are heated its atoms or molecule gain energy, start vibrating and move away from each other with little force of attraction which keeps them together when liquid is heated, it gains energy to overcome force of attraction and move far away from each other.

## **Chapter-10. Force Work And Energy**

### **LEAD QUESTIONS**

- 1. push them
- 2. more force

### **WORK CORNER**

- 1. True
- 2. True
- 3. False
- 4. True

### **WORK CORNER**

- 1. WD
- 2. WND
- 3. WND



## HOCS

Solar and wind energy are called renewable and eco-friendly because they are sustainable and don't harm the environment.

## HOCS

Without the sun, Earth would become dark, extremely cold, and life would not be sustainable.

## WORK CORNER

- |                      |                |
|----------------------|----------------|
| 1. Work              | 2. Energy      |
| 3. sun               | 4. windmill    |
| 5. mechanical energy | 6. heat, light |

## EXERCISES

### A. Tick the correct option.

- |        |        |               |
|--------|--------|---------------|
| 1. (c) | 2. (b) | 3. (b) and(d) |
| 4. (a) | 5. (b) |               |

### B. Encircle the odd one out.

- |            |             |
|------------|-------------|
| 1. Sun     | 2. Windmill |
| 3. Gravity | 4. Force    |

### C. Name the form of energy in each of the following.

1. Electrical energy
2. Heat energy
3. Wind energy
4. Light energy
5. Geothermal energy

### D. Match the following:

- Matchsticks – (d) Frictional force  
Solar panels – (b) Solar energy

Mixer – (c) Electrical energy

Windmill – (a) Wind energy

**E. Short-answer type questions:**

1. The act of pulling or pushing is called force.
2. Gravitational force, magnetic force, frictional force.
3. The effects of force include:
  - a. Changing the shape or size of an object.
  - b. Changing the speed or direction of an object's motion.
  - c. Stopping a moving object.
  - d. Starting the motion of a stationary object.
  - e. Applying pressure or compression.
  - f. Pulling or pushing objects.
4. Solar energy is used by plants to make their food.
5. It is used to rotate windmills. When a windmill rotates, it moves machines called turbines which generate electricity. It is a clean way of generating electricity. It is also used for grinding grain and for pumping water out of a well. The energy of wind also helps boats to sail.
6. Fans, washing machines, refrigerators work on electricity.

**F. Long-answer type questions:**

1. When you throw a ball, a stone or a piece of chalk with force, you observe that it rises up quickly, then stops and immediately falls back to the ground. It does not keep going upwards. This happens due to the gravitational force or gravity is a natural force exerted by the earth

which attracts all objects towards itself. We are held to the surface of the earth due to its gravity.

2. Work is said to be done when force moves an object in the direction of the force applied. If the object does not move on applying force, then no work is done. For example, if you push a wall and it does not move, then no work is done. If you kick a football and it moves from its place, then work is said to be done.
3. Energy is the capacity of a body to do work. A man can push a door open or carry heavy load from one place to another because he has energy in his muscles. He gets this energy from the food he eats.

Different forms of energy are:

Solar energy, wind energy, electrical energy and heat energy.

4. The sun is the source of energy for all living beings on the earth. The energy that we get from the sun is called the solar energy. The sun gives us energy in the form of heat and light. We convert solar energy into electrical energy with the help of a solar cell or a solar panel. Plants use solar energy to carry out photosynthesis in order to make food in their green leaves.

## Activity-based Learning- NEP 2020

**A. Read each of the situations given below.**

**Write 'F' if force is applied.**

- |      |      |      |      |
|------|------|------|------|
| 1. F | 2. F | 3. - | 4. F |
| 5. F | 6. F | 7. - | 8. - |

**B. Tick (✓) the sentence which indicates that work is done.**

1. –                      2. –                      3. –  
4. (✓)                    5. (✓)

## TEST YOURSELF

**A. Label the parts of the excretory system and write one use of each.**

Individual response.

**B. Classify the following as solid, liquid and gas.**

1. Gas                      2. Gas                      3. Solid  
4. Liquid                    5. Solid                    6. Liquid  
7. Solid                    8. Gas                    9. Liquid

**C. Tick the actions that involve a push and a pull.**

1. (✓)                      2. (✓)                      3. (✓)

## Chapter-11. Simple Machines

### LEAD QUESTIONS

1. scissors  
2. a knife

### HOCS

To make her work easier, Renu can:

1. Use a cake server or knife.  
2. Chill the cake.  
3. Use a spatula or fork.

All the above articles are simple machines which make work easier.

## WORK CORNER

1. easier, faster
2. grooved wheel, rope
3. axle
4. Pulley
5. Hammer, scissors
6. Car steering wheel, a door knob

## HOCS

**Without machines, we would face difficulties such as:**

1. Increased physical effort and manual labour.
2. Slower and more time-consuming tasks.
3. Limited productivity and efficiency.
4. Inability to perform complex tasks or achieve precision.
5. Reduced ability to transport heavy objects or travel long distances.
6. Limited access to modern conveniences and advancements.

## EXERCISES

**A. Tick the correct option.**

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

**B. Short-answer type questions.**

1. Simple machines are basic mechanical devices that operate with few or no moving parts. Complex machines are composed of multiple simple machines working together to perform complex tasks.

2. Simple machines make our work easier by reducing the force or effort required. Two examples are using a lever to lift heavy objects and using a pulley to lift or move loads.
3. A pulley has a grooved wheel and a rope running between the groove of the wheel. It pulls a heavy object easily.
  - b. When an inclined plane is coiled around a cylinder that has a sharp pointed end, it forms a screw. It looks like a nail which has grooves cut into it. It fits between objects and holds them together.
  - c. A sloping surface on which a heavy object can be easily lifted or rolled down is called an inclined plane. It is easy to move a heavy object over an inclined plane. You must have seen that patients are carried to hospitals on stretchers or wheel chairs using a ramp which is an inclined plane. Heavy cartons are loaded into trucks using inclined planes.
4. When two inclined planes meet at a sharp and pointed end, a wedge is formed. It is used for splitting open an object. For example, the head of an axe and the cutting edge of a knife are the examples of wedges.

### **C. Long-answer type questions.**

#### **1. Lever**

The basic structure of a lever comprises a rod which can move freely about a fixed point. The force is applied and work is done. Levers

are used for lifting weights, cutting things and opening the lids of tin cans. Hammer, scissors, stapler, nut-cracker and see-saw are some examples of levers.

### **Wheel and Axle**

Two wheels are attached to a rigid rod called axle, present at the centre. A wheel rotates around the rod of axle. As the axle rotates, the wheels also rotate. Thus, the movement of axle makes moving of heavier objects, such as a car easier. A car steering wheel, a door knob and a screw-driver are the examples of wheel and axle.

### **Inclined Plane**

A sloping surface on which a heavy object can be easily lifted or rolled down is called an inclined plane. It is easy to move a heavy object over an inclined plane. You must have seen that patients are carried to hospitals on stretchers or wheel chairs using a ramp which is an inclined plane. Heavy cartons are loaded into trucks using inclined planes.

2. A pulley has a grooved wheel and a rope running between the groove of the wheel. It pulls a heavy object easily. Examples of pulleys are seen over wells and at flag poles.
3. Aim: To show that a screw is a rolled inclined plane.

Materials required: Origami sheet, a pair of scissors, black marker and a pencil.

Method: 1 Take a square piece of origami sheet.

1 Cut it into two equal halves using a pair of scissors as shown in the figure. 1 Darken the longest side of the triangular piece obtained using a black marker. Slowly roll the paper around the pencil as shown in the picture.

Observation: You will see that the longest marked side of the triangle looks like a screw.

### **Activity based Learning—NEP 2020**

- |                       |                 |
|-----------------------|-----------------|
| 1. A pair of scissors | 2. Nut-cracker  |
| 3. Tongs              | 4. Stapler      |
| 5. Pliers             | 6. Screw driver |

## **Chapter-12. Air, Water and Weather**

### **LEAD QUESTIONS**

1. land
2. evaporation

### **WORK CORNER**

H  
C  
W

### **HOCS**

The hottest place on Earth is Death Valley, located in California, USA. The coldest place on Earth is Antarctica, specifically the interior regions of the continent.

### **WORK CORNER**

1. Atmosphere
2. Climate
3. Heat



4. Breeze
5. Night

## EXERCISES

### A. Tick the correct option.

- |        |        |        |
|--------|--------|--------|
| 1. (a) | 2. (d) | 3. (b) |
| 4. (c) | 5. (b) | 6. (b) |

### B. Write 'T' for a true statement and 'F' for a false one.

- |      |      |      |
|------|------|------|
| 1. F | 2. F | 3. T |
| 4. F | 5. F |      |

### C. Name the following.

1. Breeze
2. Thunderstorms
3. Evaporation
4. Condensation
5. Water cycle

### D. Short-answer type questions.

1. At night, the land surface cools down faster than the surface of the sea. Therefore at night, the air above the sea is warmer, so it rises. To take the place of the rising warm air, cool air from the land blows towards the sea. This wind is known as land breeze.
2. When water is heated, it changes into vapour. In Nature, water vapour is formed all the time. The water in the oceans, rivers, lakes and ponds changes into water vapour due to the heat from the sun. When water changes into water vapour, it is known as evaporation of water.

3. During the day, the land surface gets heated much faster than the surface of the sea. As the land gets heated up, the air above it gets hotter, so it rises. The cool air above the sea then rushes towards the land to take the place of the rising warm air. Thus, a cool breeze blows towards the land during the day. This wind is known as sea breeze.
4. When air becomes cold, the water vapour in the air cools and changes back into water droplets. This is called condensation of water.
5. A cloud is a collection of billions of tiny water droplets of ice crystals.
6. In winter, nights are cold. So, the water vapour in the air condenses into tiny drops of water. These drops of water are known as dew.
7. Filtration, sedimentation and decantation are some of the methods of water purification.

**E. Long-answer type questions.**

1. The sun plays a major role in changing the temperature of the air of a place. Different places get different amounts of sunlight. The places that get more sunlight are hotter than the places that get less sunlight. The heat of the sun causes the wind to blow and water to change to water vapour. Water vapour forms clouds that bring rain.
2. At night, the land surface cools down faster than the surface of the sea. Therefore at night, the air above the sea is warmer, so it rises. To take the place of the rising warm air, cool air from the

land blows towards the sea. This wind is known as land breeze. During the day, the land surface gets heated much faster than the surface of the sea. As the land gets heated up, the air above it gets hotter, so it rises. The cool air above the sea then rushes towards the land to take the place of the rising warm air. Thus, a cool breeze blows towards the land during the day. This wind is known as sea breeze.

3. When water is heated, it changes into vapour. In Nature, water vapour is formed all the time. The water in the oceans, rivers, lakes and ponds changes into water vapour due to the heat from the sun. When water changes into water vapour, it is known as evaporation of water.  
When air becomes cold, the water vapour in the air cools and changes back into water droplets. This is called condensation of water.
4. The formation of clouds and rainfall or snowfall is due to the processes of evaporation and condensation. These events occur continuously in a cycle and form the water cycle.
5. Water containing solid impurities can also be removed by the process of sedimentation and decantation. In this process, water is allowed to stand for some time. The solid impurities being heavier settle at the bottom. This is called sedimentation. The water is then slowly poured out into another vessel. This is called decantation.

## Activity-based Learning- NEP 2020

- C. 1. Weather, 3. Hot, 4. Ocean, 9. Land, 8. Heat, 6. Vapour, 2. Evaporation, 5. Dew, 7. Water cycle

### Chapter-13. Our Solar System

#### LEAD QUESTIONS

1. Mars
2. Planet

#### WORK CORNER

1. Smaller
2. Eight
3. Gases
4. Venus
5. Jupiter

#### HOCS

Some nights are darker than others due to factors such as the moon phase, cloud cover, light pollution, and atmospheric conditions.

#### HOCS

No tilt means no seasons and a more consistent climate throughout the year.

#### EXERCISES

##### A. Tick the correct option.

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

##### B. Fill up the blanks.

1. Solar system
2. Orbit
3. Core
4. Rotation
5.  $365 \frac{1}{4}$

**C. Match these two columns.**

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

**D. Answer these questions.**

1. Stars look like tiny points of light because they are very far away from us. They are numerous and cannot be counted by naked eyes. Stars are big and bright balls of burning gases. They produce heat and light. The solar system is made up of the Sun and all the objects that move around it. The eight large round objects that move around the Sun are called planets.
2. The solar system is made up of the Sun and all the objects that move around it. The eight large round objects that move around the Sun are called planets. The planets move around the Sun in their fixed paths. The fixed path of a planet is called its orbit. The size of a planet is much smaller than that of a star. A planet does not give out heat or light on its own. It shines because it reflects the light of the Sun. Our Earth is a planet. Besides the Earth, there are seven other planets which move around the Sun.
3. The first four planets (Mercury, Venus, Earth and Mars) are called the inner planets. They have solid surfaces. The last four planets are called the outer planets. These planets are mainly made up of gases.
4. The Earth is the only planet that has life-supporting elements. It is surrounded by a layer of air called the atmosphere. The atmosphere

contains oxygen. All living things need it to live. The atmosphere also contains other gases such as nitrogen, carbon dioxide and water vapour. Nearly three-fourths of the Earth is covered with water and one-fourth with land. Water and land are present on the outermost layer of the Earth. This part is called the crust. It is the layer we live on. Below the crust, there is a layer of molten rocks called the mantle. The innermost layer is called the core. It is made up of hot molten metals. It is the hottest layer of the Earth.

5. The movement of the earth on its axis is called rotation. It takes 24 hours to complete one rotation. The rotation of the earth on its tilted axis causes day and night. The half that faces the Sun has day while the other half that is away from the Sun has night.
6. The seasons are caused due to the revolution of the Earth and the tilt of its axis. In fact, the tilt of its axis is what makes seasons occur. Because of the tilt of the Earth's axis, when one hemisphere faces towards the Sun, the other hemisphere is farther from the Sun. So, one hemisphere gets more sunlight than the other hemisphere. The hemisphere that is nearer to the sun gets summer season while the hemisphere which is farther gets cold season.

## Chapter-14. Taking Case of The planet Earth

### LEAD QUESTIONS

1. Planting trees
2. Human beings

### HOCS

Cities have banned the use of polythene bags to protect the environment and reduce pollution.

### WORK CORNER

1. Waste materials that can naturally break down and decompose over time, such as food scraps and plant matter.
2. Waste materials that do not easily decompose in the environment, such as plastics and metals.
3. Large designated areas where waste is disposed of and buried underground, with measures in place to prevent environmental contamination.
4. Facilities that burn waste at high temperatures to reduce its volume and generate energy, often used for the disposal of non-biodegradable waste.

### EXERCISES

#### A. Tick the correct option.

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

#### B. Write one example of each of the following.

1. Emission of harmful gases from vehicles and factories polluting the air.
2. Discharge of untreated sewage or industrial waste into rivers, contaminating the water.
3. Improper disposal of waste materials or dumping of hazardous substances onto the ground, causing soil pollution.

**C. State whether the following statements are true and false.**

- |          |          |
|----------|----------|
| 1. True  | 2. True  |
| 3. False | 4. False |

**D. Answer the following questions.**

1. Wastes from industries should be made harmless before being released in water bodies and the soil. Similarly, smoke released from automobiles and industries should be made harmless before releasing it in the air.

We should try to reduce waste generation.

We should try to reuse waste bags, clothes and bottles before throwing them.

We should not waste paper. Instead, we should sell it to the junk dealer who sends it for recycling. To produce fresh paper, trees are cut, which is an environmental hazard.

Waste should be neither burnt nor thrown into rivers.

Regular checking of vehicles helps to control release of poisonous smoke in the air.

We should practise healthy living habits to save fuel (by carpool or use of public transport), electricity and water.



We should encourage the use of CNG in our vehicles.

2. The most important and effective method of protecting our environment is planting of trees. Planting many trees in an area is known as afforestation.

Trees hold the soil and prevent soil erosion.

Trees maintain the temperature and keep the surroundings cool.

Trees convert carbon dioxide into oxygen by the process of photosynthesis. This oxygen is used by all living things.

The wood of trees absorbs noise from the surroundings and controls it.

3. If we cut trees, it can lead to negative consequences such as soil erosion, loss of habitats for animals, and climate change.

Planting trees is useful for the Earth because they provide oxygen, absorb carbon dioxide, prevent soil erosion, support wildlife habitats, and contribute to a healthier environment.

4. To reduce the dirtying of air, water, and land, we should:

**Air:** Use cleaner sources of energy, reduce vehicle emissions, and plant more trees.

**Water:** Treat and dispose of waste properly, avoid dumping chemicals into water bodies, and conserve water.

**Land:** Practice proper waste management, reduce, recycle and reuse waste materials, and avoid littering or illegal dumping.

5. **Reduce, Reuse and Recycle:** Remember the three R's — Reduce, Reuse and Recycle. Reduce your needs. Do not buy things you do not need. Do not accumulate more things than you need. The more things you have, the more wastes you produce. Buy things which can be used again and again over a long period of time. Avoid disposable things which have to be thrown away after every use. Recycling is converting waste into reusable material. A number of wastes like old newspapers, empty glass bottles, plastics and tins can be recycled and turned into new products. Talk to your friends and relatives about the importance of three R's.

## TEST YOURSELF

- A. Match the following simple machines with their names.**

**Left Column**

Top - (d) lever

Bottom - (c) Scissors

**Right Column**

Top - (a) inclined plane

Bottom - (b) screw

## TEST PAPER-2 (For Chapters 8 to 14)

- A. Tick the correct answers.**

1. (c)                      2. (c)                      3. (d)  
4. (c)                      5. (b)

- B. Fill up the blanks.**

1. Gravity                2. Neptune                3. Rotation  
4. High-pressure zone to low pressure zone  
5. Revolution

**C. State 'T' for a true statement and 'F' for a false one.**

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

**D. Answer these questions.**

1. When you throw a ball, a stone or a piece of chalk with force, you observe that it rises up quickly, then stops and immediately falls back to the ground. It does not keep going upwards. This happens due to the gravitational force or gravity. This is a natural force exerted by the earth which attracts all objects towards itself. We are held to the surface of the earth due to its gravity.
2. Energy is the capacity of a body to do work. A man can push a door open or carry heavy load from one place to another because he has energy in his muscles. He gets this energy from the food he eats. The various forms of energy are:  
Solar energy  
Wind energy  
Electrical energy  
Heat energy
3. Mars has red soil and rocks. So, it is also called the red planet.
4. The formation of clouds and rain or snow is due to the processes of evaporation and condensation. These events occur continuously in a cycle and form the water cycle.  
For diagram, individual response is needed.