

1 Food Exercise

- **Answer the following questions:**

- What are nutrients?

Ans:

The substances in food that we eat benefit our health. Such substances are called nutrients. Main nutrients are:

- **Carbohydrates** : Carbohydrates are food items that give us energy. They contain high amount of sugar and are called energy-giving food such as Bread, Rice, Noodles and Oats. People doing physical activity should eat these items.
- **Proteins** : Proteins are building blocks of our body and help us grow. They build muscles and repair worn-out tissues and cells. Eggs, Meat, Milk and Fish are body-building food. Children in their growing ages need protein rich food.
- **Vitamins and Minerals:** Vitamins and Minerals provide us essential nutrients and help us fight diseases and germs. They protect us from falling sick. They are called Protective Food. Green leafy vegetables and fresh fruits give us vitamins and minerals like Calcium and are good for bones and teeth.
- **Fats** : Food items like butter, oil, ghee and margarine are sources of fats. They give more energy than carbohydrates. Over-consumption of fat-rich items is not good for health. Fat give us warmth. Stores fat in body is used up when we need energy. Animals like Penguin and polar bear have a layer of fat under their skin called blubber that keeps them warm in icy cold weather.
- **Roughage** : Some portion of food that we get from plants is not digested, but help in digestion. Such food items are roughage or dietary fibres and are found in fruits, vegetables, grains and legumes.
- **Water** : Water is essential part of diet and helps us in many ways. It helps in digestion and maintains body temperature. At least 8 glasses of water should be taken every day.
- **Balanced Diet:** A diet that has all the nutrients in right

amount is called a Balanced Diet. We should always eat a balanced diet.

- Why do we need to eat food?
Ans: We need to eat food gain energy and grow and survive. The energy that we get from food helps us to do our work, play, study and grow and survive. It keeps us healthy and strong. We should eat different kinds of food items to stay healthy.
- What are energy giving foods?
Ans: Carbohydrates are food items that give us energy. They contain high amount of sugar and are called energy-giving food such as Bread, Rice, Noodles and Oats. People doing physical activity should eat these items.
- What is a balanced diet?
Ans: A balanced diet is that diet which has all the nutrients in right amount. We should always eat a balanced diet.
- Describe any two methods of food preservation.
Ans: Two methods of food preservation are:
 - Drying : In drying method, water content of food is removed. Fruits and vegetables are cut into thin slices and kept under sun to dry. So, they don't spoil. They are further cooked to make them edible. Tomato and Grapes are dried.
 - Refrigeration : By keeping food items at low temperature in a fridge, no bacteria grow in food. Items like milk, vegetables and fruits are kept in fridge to preserve them.
 - Freezing : Food can be stored at lower temperature than refrigeration. Meat and certain corns are preserved by keeping them in freezers.
 - Pasteurization : In it, items like milk is boiled to a very high temperature, then brought down rapidly and again raised to

boiling temperature. This kills all germs present in milk.

- **Canning** : In this, food items are packed in tin cans to prevent spoilage. Tins are sterilized first and then food items are packed inside them. Cans are sealed and made airtight. It is very effective and food can be stored for months. Once opened, it should be however consumed immediately as it can no longer be preserved.
- **Pickling** : Pickling has been used since ancient times. Fruits and vegetables are cut and immersed in oil containing a high amount of salt. The high content of salt and sugar prevents growth of bacteria. So, food items can be preserved for long.

- **Fill up the blanks:**

Ans:

- *Carbohydrates* are rich in sugar.
- *Proteins* are called body-building foods.
- *Roughage* helps in the digestion of food.
- *Balanced Diet* is the right amount of all kinds of food groups.

- **Match the following:**

Ans:

- | | |
|-----------|-------------------|
| • Bread | (e) Carbohydrates |
| • Milk | (c) Proteins |
| • Cabbage | (b) Vitamins |
| • Apple | (a) Minerals |
| • Salt | (d) Roughage |

- **Give one word for each:**

Ans:

- Food rich in energy. - Carbohydrates
- Food rich in calcium - Minerals
- Right amount of all nutrients - Balance

Diet

- It helps maintain the temperature of our body - Water

• Group the food items into respective columns:

Ans:

Carbohydrates	Proteins	Vitamins & Minerals	Fats
Bread	Eggs	Green leafy vegetables	Butter
Rice	Meat	Fresh fruits	Oil
Noodles	Milk	Calcium	Ghee
Oats	Fish		Margarine

Work it out!

- Circle the vegetables which you cannot eat raw:

Ans:

- Potato
- Bitter-Gourd.

Thinking Cap

- Who needs to eat more carbohydrates: a rickshaw puller or a software engineer? Why?

Ans: A rickshaw puller needs more carbohydrates because he does the physical work and needs more energy. Carbohydrates in food items give us energy. They contain high amount of sugar and are called energy-giving food such as Bread, Rice, Noodles and Oats. Rickshaw puller doing physical activity should eat these items.

Create Something New:

- Ans: Do it yourself.
- Ans: Do it yourself.

Value Tip

- You forgot to keep your sandwich in the fridge at night. The next morning, the sandwich smelt bad and tasted sour. What would you do?

Ans:

- Throw the sandwich. ()
- Give the sandwich to your brother.

- Eat the sandwich yourself.
- You kept some grapes out in the sun. After a few days, the grapes had dried and shriveled. What would you do?
Ans:
 - Throw away the grapes. ()
 - Eat them.
- What would be your advice?
Ans:
 - Atul who eats only chips. *Eat other items too.*
 - Muskaan who eats only bread. *Eat other items too.*
 - Anjali who does not eat any vegetables. *She must take vegetables.*

Find out

- Aman is playing football. Mohit is reading a book. Who would need more energy?
Ans: Aman would need more energy because he is doing the physical work.

Worksheet

Find out the names of ten food items in the word-search given below. Also, write them below:

Ans:

- PANEER
- NUTS
- CURD
- PULSES
- POTATOES
- BREAD
- MILK
- RICE
- EGGS
- GHEE

2 **Teeth**

Exercise

- **Answer the following questions:**

Ans:

- What is the function of teeth?

Ans: The function of teeth is:

- They help us to chew the food we eat.
- They give shape to our face.

- What are the different types of teeth?

Ans: There are 4 types of teeth as follows:

- Incisors : There are 8 Incisors: 4 on each jaw. They are placed at front. They help bite food we eat.
- Canines : There are 4 Canines: 2 on each jaw. A canine is placed next to Incisors on either side. They are used to tear off flesh. Carnivores like tigers, wolves and dogs have very sharp and pointed Canines.
- Premolars : There are 8 Premolars: 4 on each jaw and 2 on either side. They are placed between Canines and Molars. They are broad and strong. They are used to chew food.
- Molars : There are 12 Molars: 6 on each jaw and 3 on either side. They are flat, broad and strong teeth that help grind food. They are placed at back after Premolars on each side.

- Differentiate between molars and premolars.

Ans: Difference between molars and premolars is as follows:

Premolars : There are 8 Premolars: 4 on each jaw and 2 on either side. They are placed between Canines and Molars. They are broad and strong. They are used to chew food.

Molars : There are 12 Molars: 6 on each jaw and 3 on either side. They are flat, broad and strong teeth that help grind food. They are placed at back after Premolars on each side.

- How do you take care of your teeth?

Ans: We take care of our teeth as follows:

- Brushing our teeth twice daily.
- Using toothbrushes with soft bristles so that teeth gum are not damaged.
- Brushing gently with a vertical and circular motion.
- Rinsing mouth thoroughly to wash away all toothpaste.
- Avoiding eating too many sweets and junk food.
- Eating a calcium-rich diet. Calcium is good for teeth.
- Visiting a dentist every six months.

- Briefly explain the structure of a tooth.

Ans: The structure of a tooth is as follows:

There are two main parts of a tooth – the Crown and Root. Top part of tooth visible above gum is called **Crown**. Part of tooth below crown inside gum is called **Root**. Root holds tooth to its place.

There are three layers of a tooth:

- Enamel : It is the outer white layer. It is the hardest substance in a human body.
- Dentine : It lies below the enamel. It is slightly yellow in colour. It is not as hard as the enamel.
- Pulp : It is the innermost layer of tooth. It is soft and consists of blood vessels and nerves. It sends signals to the brain.

- **Fill in the blanks:**

Ans:

- An adult human has **32** numbers of teeth.
- The four types of teeth are **Incisors, Canines, Premolars and**

Molars.

- *Canines* are sharp and pointed teeth.
- *Temporary* teeth fall at the age of six.
- Temporary teeth are also called *Milk* teeth.

• **Write true or false:**

- Molars are used for tearing off food. Fal
se
- Tigers have sharp and pointed canines. Tr
ue
- Eat too many sweets and junk food. Fal
se
- The root region starts below the dentine. Tr
ue
- We should brush our teeth twice daily. Tr
ue

• **Match the following:**

Ans:

- | | | |
|-------------------|-----|-----------------------------|
| • Milk teeth | (e) | Set of 20 teeth |
| • Carnivores | (d) | Sharp canines |
| • Enamel | (b) | Hardest for teeth and bones |
| • Calcium | (c) | Good for teeth and bones |
| • Permanent teeth | (a) | 32 in number |

• **Name the types of teeth shown below. Also write their functions:**

Ans:

- Canines
- Molars
- Incisors
- Premolar

Work it out!

- Ans: Do it yourself.

Thinking Cap

- Why do we say that a virus is a living as well as a non-living organism?
Ans: Virus is both living and non- living. It is living inside the body of another organism and non-living outside it.

Create Something New:

- Ans: Do it yourself.

Value Tip

- You had a very bad toothache. When you went to a doctor, he said you had lots of cavities in your teeth. What would you do?
Ans:
 - Eat lots of sweets.
 - Avoid eating sweets. ()
 - Brush twice daily. ()
 - Brush once in two days.
 - Also clean your tongue. ()

Find out

- Ans: Do it yourself.

Worksheet

Label the different parts of the tooth given below:

Ans: The different parts of tooth are:

- Enamel
- Dentin
- Pulp cavity
- Gum
- Root
- Blood vessels
- Nerve
- Cementum
- Periodontal fibre
- Jawbone
- Crown

3 The Digestive and Excretory Systems

Exercise

- Answer the following questions:

Ans:

- Explain the process of digestion.

Ans: Process of digestion of food is as follows:

- When we eat food, teeth start breaking it into smaller pieces which is called mechanical digestion. Saliva in mouth mixes with food to make it soft and easy to swallow.
 - Food then enters food pipe which pushes it down to stomach.
 - In stomach, acid and other gastric juices are released which digest food. Liver and Pancreas also secrete juices and help in digestion. Food is then called Bolus.
 - Bolus is passed onto small intestine and further digestion takes place. Useful nutrients are absorbed by body.
 - Undigested food is passed onto large intestine. Water is absorbed from food. Food then passes out of body by Anus.
-
- What are the benefits of chewing food?

Ans: The benefits of chewing food are:

 - Chewing helps swallow in food easily.
 - Chewing secretes saliva which makes our food softer and easier to digest.
 - Chewing strengthens our teeth, gums and jaws.
 - It helps in release of proper digestive enzymes which make the process of digestion easy.
-
- What is digestion?

Ans: The Digestive System carries out the process of digestion. It starts in the mouth when food is eaten. The food travels through food pipe to stomach. It is churned and digested there. Food is then pushed to small intestine where further digestion takes place. It then enters large intestine where water is absorbed by body. The undigested food is then passed out of the body through the anus.
-
- What is excretion?

Ans: Excretion system throws out waste products from our body. Process of removal of wastes from our body is called excretion.

Excretion system consists of following organs:

- Kidneys
- Ureters
- Urinary Bladder
- Urethra

- Describe the different parts of excretory system.

Ans: Different parts of Excretory System are as follows:

- Kidneys : These are main organs of Excretory System. They are a pair of bean-shaped organs. They filter blood and remove waste products to form urine. Urine contains harmful substances that are formed inside body.
- Ureters : Ureters are thin muscular tubes that connect kidneys to urinary bladder. They transport urine from kidneys to urinary bladder.
- Urinary Bladder : Urinary bladder is a hollow muscular organ that stores urine.
- Urethra : Urethra is a duct which releases urine out of body. It is smaller in a female as compared to a male.

- Make a list of any five healthy eating habits.

Ans: Five healthy eating habits are:

- Eat fresh food at fixed intervals.
- Eat a balance diet.
- Do not eat junk food.

- Chew the food properly.
- Drink a lot of water daily.

- **Tick () the correct option:**

Ans:

- The Process of digestion starts in
(c) mouth ()
- The Process of digestion is completed in
(c) anus ()
- Which of these is an organ of the excretory system?
(b) Kidneys ()
- What carries the nutrients from the food to the different parts of our body?
(a) blood ()

- **Fill in the blanks:**

Ans:

- We eat both **cooked** and **raw** food.
- We cook food to make it **digestable**.
- The **tongue** helps to mix the saliva with food.
- **Kidneys** are the main organs of the excretory system.
- In an adult, the length of a ureter is **25-30** cm.

- **Match the following:**

Ans:

- | | |
|-------------|--|
| • Esophagus | (d) Food pipe |
| • Faeces | (a) The final part of the large intestine |
| • Rectum | (c) Waste product |
| • Kidneys | (b) A pair of bean-shaped organs |
| • Urethra | (e) A duct which release urine out of our body |

- **Write true or false:**

Ans:

- | | |
|---------------------------------------|-------|
| • We should chew our food properly. | True |
| • The liver produces digestive juice. | True |
| • Eat a balance diet. | True |
| • Eat stale food. | False |
| • Do not eat junk food. | True |

Work it out!

- **Label the following diagrams:**

Ans: **1st Picture:**

Clock-wise organs are:

- Mouth
- Esophagus
- Stomach
- Pancreas (under stomach)
- Small Intestine
- Rectum
- Large intestine
- Gallbladder
- Liver

2nd Picture:

Clock-wise organs are:

- Aorta
- Renal Artery
- Kidney
- Bladder
- Urethra
- Ureter
- Renal Vein
- Vena Cava

Thinking Cap

- It is important to release urine from the body. Give reasons.

Ans: Urine is a waste product and contains harmful substances that are formed inside the body. Therefore, it is important to release urine from the body.

Create Something New:

- Do it yourself.

Ans:

Value Tip

- A man is going to eat his food. How should he eat?

Ans:

- Chew food properly. ()
- Eat fast.
- Drink a lot of water. ()

Find out

- Ans: Do it yourself.

Worksheet

Tick () the correct option:

Ans:

- 1st Picture : Chocolates
- 2nd Picture : Fruits ()
- 3rd Picture : Vegetables ()
- 4th Picture : Spices
- 5th Picture : Milk ()
- 6th Picture : Ice-creams

4 Adaptations in Animals

Exercise

- **Answer the following questions:**

Ans:

- What is adaptation?

Ans: Adaptation is the phenomenon in which organisms change physically to adapt themselves to their habitat and surroundings.

- What are the different types of adaptations animals show?

Ans:

The different types of adaptations animals show are as follows:

- **Terrestrial:** Terrestrial animals live on land. They have well developed legs to walk, run, hop and jump. They have lungs to breathe and highly developed sense organs to sense even slightest change in surroundings. Penguin and Polar Bear live in extreme cold regions and have thick layer of fat under their skin called Blubber. Bears also hibernate i.e. sleep whole winter to skip harsh cold weather. Snake has scales to

crawl on ground. Camel has long legs to be safe from heat. It has hoof to walk on loose sand. It can live without water for many days.

- Aquatic : Aquatic animals live in water. Fish have fins to swim. Turtles and Whales have paddle-like flippers to move forward. Fish and Crabs have gills to breathe.
 - Amphibians: Animals that live both on land and in water are Amphibians. Frogs have limbs with webbed feet to swim. Then breathe through lungs when on land and through the moist skin when in water.
 - Arial : Arial animals spend most of their time in air. They have wings to fly. Most birds and insects can fly. Birds have streamlined bodies to cut through air while flying. They have hollow bones making bodies light for flight. They have feathers to assist in flying. Bats are the only mammals that can fly.
 - Arboreal : Arboreal Animals live on trees. Monkey, Squirrel and Opossum are examples. They have tails to climb and jump from tree to tree.
- What adaptations do animals show for food?
Ans: All animals show adaptations for food as follows:
 - Carnivores : Carnivores Animals eat the flesh of other animals. They have sharp and pointed canines to tear off flesh. They have strong and broad teeth to chew and grind flesh.
 - Herbivores : Herbivores Animals eat only plants. They have broad and flat teeth to chew and grind plant parts. Giraffes have long necks to chew off leaves from tall trees.
 - Parasites : Parasites are organisms that live inside other living hosts from which they derive nutrition. Mosquitoes, Hookworms, Lice and Bugs are parasites. They have sucking tubes as their mouth parts to suck blood from their hosts.

- What is camouflage?

Ans: Camouflage is adaptation by animals to their surrounding or mixing with background surrounding in order to protect themselves from their enemies or danger. Cockroaches can sense slightest change due to which they swiftly escape. Zebras and Tigers have stripes on their bodies which help them mix with their background because of which they are very difficult to spot. Arctic foxes usually have brown fur but during winter they grow white fur due to which they cannot be spotted against white snow. Chameleons change their colour to mix with their surroundings.

- What happens to the animals that cannot adapt? Explain with an example.

Ans: The animals that cannot adapt themselves to their changing environment will disappear, die and become extinct like Dinosaurs. Dinosaurs could not adapt to their changing environment and it led to their extinction.

- **Fill up the blanks:**

Ans:

- Penguins have *thick layer of fat* under their skin that keep them warm.
- Blubber is a layer of *fat* that provides warmth.
- Camels have flat *hooves* that help them easily walk on sand.
- *Camouflage* is changing the colour of your body accordingly to match the surrounding.
- The *stripes* of a tiger help them hide along the tall grasses.

- **Mention what adaptation each of these animals shows:**

Ans:

- Penguin : Penguins have thick layer of fat under their skin that keep them warm. This is called Blubber.
- Polar Bear : Polar Bear lives in extreme cold regions and have thick layer of fat under their skin called Blubber.
- Arctic fox : Arctic foxes usually have brown fur but

during winter they grow white fur due to which they cannot be spotted against white snow.

- Camel : Camel has long legs to be safe from heat. It has hoof to walk on loose sand. It can live without water for many days. Camel is desert animal and can survive in very hot conditions.
- Chameleon : Chameleons change their colour to mix with their surroundings. It is difficult to spot a chameleon because of camouflage.
- Stick insect : Stick insect protects itself by remaining motionless for hours. Sometimes, it gently sways back and forth like a small branch being blown by wind. It holds its legs tightly along its body and looks like a stick or twig. The surrounding vegetation makes them almost invisible to predators.

- **Give reasons:**

Ans:

- Some animals hibernate.

Ans: Some animals like bears hibernate i.e. sleep whole winter to skip harsh cold weather.

- It is easy for zebras to hide in grass.

Ans: It is easy for zebras to hide among grasses. The stripes on their bodies mix with the background surrounding in order to protect themselves from their enemies or danger.

- It is difficult to spot a chameleon.

Ans: Chameleon changes its colour to mix with its surroundings and cannot be spotted easily.

- **Spot the error:**

Ans:

- Once there was a Polar Bear who lived in the *desert*. He was friends with a *camel* who lived in the *polar region*. The polar bear felt *hot* even though he had *thin* skin. The camel felt *cold* even though he had thick fur. The polar bear had *hooves* with which he could easily walk on the *loose sand*.

Work it out!

- What is wrong with these pictures?

Ans:

1. 1st picture : Camel is desert animal and cannot survive in snowy area.
2. 2nd picture : Fish is an aquatic animal and can survive only in water. It can't survive on land.

Thinking Cap

- What will happen to a polar bear if you leave it in a desert?

Ans: Polar Bear, if left in the desert, will die within a day or in a day or two because of the change of its natural environment.

Create Something New

- Do you know what origami is?

Ans: Origami is an art of paper folding which is often associated with Japanese culture. In modern usage, it is used as an inclusive term for all folding practices regardless of their culture of origin.

- Identify the places shown in the pictures below. Name one animal that lives in each place. Also write one feature of that animal:

Ans:

Place : Desert, Rajasthan
Animal : Camel
Its feature : Camel is desert animal and can survive in hot conditions.

Place : Arctic
Animal : Polar Bear
Its feature : Polar Bear lives in extreme cold regions and have thick layer of fat under their skin called Blubber.

Place : Uttarakhand
Animal : Tiger
Its feature : Have stripes on its body and feeds on deer and other animals.

Place : Plains
Animal : Cow
Its feature : Milk giving domestic animal.

Value Tip

- Ans: Noted.

Find out

- What are amphibians? How do they survive in their environment?
Ans: Amphibians are animals that live both on land and in water. They breathe through gills in water and through lungs on land. Frogs, toads, salamanders are some of the amphibians.

Worksheet

Ans: Do it yourself.

5 Adaptations in Plants

Exercise

- **Answer the following questions:**
Ans:
 - Where do plants grow?
Ans: Plants grow on the mountain slopes, on hill, in deserts, in marshes and even in water beds. The plants that grow in these different places differ from one another as they have features that help them to survive in their respective habitats.
 - Write about the plants that grow on mountains.
Ans: Plants that grow on mountains are tall, straight and cone-shaped. These plants are also needle-shaped which allow snow and rain to slide down easily so that leaves may not rot. These trees bear cones. Pine, Fir, and Spruce are examples.
 - Write about the plants that grow on plains.
Ans: Plants that grow on plains are evergreen and they need a lot of water. Trees have many branches and can bear the heat of the plains. They shed their leaves only during winter season. Neem, Mango, Banyan, Gulmohar and Peepal are examples.
 - Write about the plants that grow in the desert.
Ans: Plants that grow in the desert do not require much water as there is scarcity of water in a desert area

covered with sand. Plants can store little water that they get. Cactus and Date Palm are examples. Cactuses have thick, fleshy stems that store water. The leaves are modified into prickly spines or thorns that prevent the loss of water. The green fleshy stem contains Chlorophyll that helps the plant to carry out photosynthesis.

- Write about the plants that grow in water.

Ans: Plants that grow in water are called aquatic plants.

Aquatic plants are mainly of 4 types as follows:

- Floating : Floating plants are small and light in weight. They cover surface of water when they grow. They protect other aquatic life from heat of sun. Duckweed, Pondweed and Water Hyacinth are examples.
- Fixed : Fixed Plants grow on surface of water, but roots are fixed to water bed. Leaves are broad, thick and fleshy. Leaves have a waxy coating that prevents them from rotting. Leaves have Stomata only on their upper surface. Lotus and Water Lily are examples.
- Duckweeds : Duckweeds cover surface of water when they grow. They protect other aquatic life from heat of sun. Duckweed, Pondweed and Water Hyacinth are examples.
- Submerged : Submerged Plants grow completely under water. Their roots are fixed in water bed. They have long, narrow and flat ribbon like leaves and breathe through their entire body. They take Carbon Dioxide from water to clean water for other aquatic life. Kelp is an example.

- **Fill up the blanks:**

Ans:

- The plants that grow in the desert have thick fleshy *stems*.
- The plants that grow in the *mountains* are tall and cone-shaped.
- The plants growing in marshes develop *breathing* roots.
- The trees in the plains are *evergreen* throughout the year.
- *Submerged* plants grow under water.

- **Match the following:**

Ans:

- Mountain plants (d) cone-shaped
- Plain plants (c) lots of leaves
- Desert plants (e) spikes
- Coastal plants (b) long leaves
- Marshy plants (a) breathing roots

- **Read the names of the plants and write where they grow:**

Ans:

Mountain	Plains	Desert	Coastal Area	Water
Pine	Banyan	Cactus	Coconut Tree	Duckweed
Fir	Lotus	Date Palm		Hyacinth
	Gulmohar			Pondweed
	Neem			Tape grass

- **Give two examples for each:**

Ans:

- Plants growing on mountains - Pine and Fir
- Plants growing on the plains - Mango and Banyan
- Plants growing in a desert - Cactus and Date Palm
- Plants growing on marshes - Mangrove
- Plants growing on coasts - Palm tree and Coconut tree

Work it out:

- Look at the water body shown below. Write the types of the water plants these are:

Ans:

- Duckweed
- Pondweed
- Water Hyacinth
- Lotus
- Water Lily

- Identify the kinds of places shown below. Write the names of any two plants that grow in these places:

Ans:

1. 1st picture : Mountain
Place : Himalayan Region
Plants : Pine, Fir, and Spruce
2. 2nd picture : Desert
Place : Rajasthan
Plants : Cactus and Date Palm
3. 3rd picture : Plains
Place :
Plants :
4. 4th picture : Hilly
Place : Uttarakhand
Plants : Pine, Fir
5. 5th picture : Plains
Place : Mango, Banyan
Plants :
6. 6th picture : Coastal Areas
Place : Kerala
Plants : Palm, Coconut, Rubber

Thinking Cap

- Do cacti have leaves?

Ans: Desert is an area of sand where there is scarcity of water. Plants here need very little water. Here plants can store little water they are able to get. Cacti and date palms are examples

of plants that grow here. Cacti have thick, fleshy stem that store water. The leaves are modified into prickly spines or thorns that prevent loss of water. Green fleshy stem contains chlorophyll that helps the plant to carry out photosynthesis.

Create Something New:

- Do it yourself.

Ans:

Value Tip

- Ans: Noted.

Find Out

- Touch a touch-me-not plant and see what happens.

Ans: Do it yourself.

Worksheet

Write the features of these plants that help them survive in their environment:

Ans:

1st Picture : **Desert Plants:**

Desert is an area of sand where there is scarcity of water. Plants here need very little water. Here plants can store little water they are able to get. Cactuses and date palms are examples of plants that grow here. Cactuses have thick, fleshy stem that store water. The leaves are modified into prickly spines or thorns that prevent loss of water. Green fleshy stem contains chlorophyll that helps the plant to carry out photosynthesis.

2nd Picture : **Fixed Plants:**

Fixed water plants grow on surface of water-body, but their roots are fixed to water-bed. Leaves of such plants are broad, thick and fleshy. Leaves have waxy coating that prevents leaves from rotting. Leaves have stomata only on their upper surface. Lotus and Water Lily are examples of fixed plants. Stem of Lotus plant is hollow so that it may keep flowers afloat on surface.

3rd Picture : Insectivorous Plants:

Plants usually make their own food. But some rare plants depend on others for food. Insectivorous Plant is such an example. These plants trap small insects which they digest and derive nutrition from. Pitcher Plant and Venus Flytrap are examples of insectivorous plants. Pitcher Plant is in the shape of a pitcher. Its opening has a flap-like structure. When insect sits on its edge, it slips inside because of mucus. Flap shuts and traps the insect inside.

6 Plants Around Us

Exercise

- **Answer the following questions:**
 - Write any three functions of roots.
Ans: Three functions of roots are:
 - Roots keep plant fixed to the soil.
 - They absorb water and minerals from soil and pass them to stem.
 - Roots of a few plants like radish, carrot, turnip and beetroot store food in them. That's why they plants are thick and fleshy. We eat these roots as vegetables. Roots bind soil and prevent soil erosion.
 - Write any three functions of stem.
Ans: Three functions of stem are:
 - Stem hold the plant upright.
 - Stem carries water and minerals from roots to other parts of plant. Stem transports food prepared by leaves to other parts of plant.
 - Stems of some plants like potato, ginger and sugarcane store food in them. That's why these plants are swollen. We eat these stems as food.
 - Write any three functions of leaf.
Ans: Three functions of leaf are:
 - Leaves prepare food for plant using water, minerals, carbon dioxide, sunlight and chlorophyll. They are called 'Kitchen of Plant' as food for plant is

prepared in leaves.

- Leaves give out oxygen and take in carbon dioxide during photosynthesis.
- In some plants, leaves store extra food.

- Define photosynthesis,

Ans: The word 'photosynthesis' is derived from two words 'photo' meaning light and 'synthesis' meaning put together. The process by which green leaves prepare food using water, carbon dioxide and minerals in the presence of sunlight and chlorophyll is called photosynthesis. For photosynthesis, a plant obtains different raw materials in following manner:

- Leaves absorb sunlight with the help of chlorophyll.
- Leaves take in carbon dioxide from air with the help of stomata.
- Roots absorb water and minerals from the soil. The absorbed water and minerals are carried by the stem to the leaves.

- What is transpiration?

Ans: The process by which plants release water in the form of water vapour through stomata is called transpiration. In this process, large amount of water evaporate from surface of plant. Transpiration provides a cooling effect to the plant.

- **Tick () the correct option:**

Ans:

- Which of these has a tap root?
(c) Tomato ()
- Which of these has a weak stem?
(a) Money Plant()
- It attaches the leaf to a branch or a stem.
(d) Leaf Stalk ()
- This plant is used for making paper.
(a) bamboo ()

- **Fill in the blanks:**

Ans:

- **Taproot** consists of a thick main root.
 - **Fibrous Root** consists of a many thin roots.
 - Thick, woody and strong stems of trees are called **trunk**.
 - Leaves are green because of the presence of a substance called **chlorophyll**.
 - Plants such as **Tulsi** and **Neem** have medical values.
- **Match the following:**

Ans:

- | | | |
|------------------------|-----|------------|
| • Leaf stalk | (d) | petiole |
| • Leaf blade | (e) | lamina |
| • Midrib | (c) | mid-vein |
| • Stomata | (a) | tiny pores |
| • Kitchen of the plant | (b) | leaves |

- **Name the following:**

Ans:

- | | | |
|-----------------------------------|---|---|
| • Plants which have fibrous roots | : | Grass, Onion,
Wheat,
Sugarcane |
| • Plants which have tap roots | : | Carrot, Pea,
Hibiscus,
Tomato and
Rose |
| • Plants which give us oil | : | Coconut,
Sandalwood
and Neem |
| • Plants which give us medicine | : | Tulsi, Neem,
Ginger,
Eucalyptus |
| • Plants which give us furniture | : | Teak,
Sheesham, Pine,
Deodar. |

Work it out!

- Label the different parts of the plant shown below:

Ans:

- Flower
- Fruit
- Root

- Stem
- Bud

Thinking Cap

- Name the plants from which we obtain rubber and gum.

Ans:

- Rubber is obtained from the latex of rubber plant.
- Gum is obtained from Acacia tree.

Create Something New:

- Do it yourself.

Ans:

Value Tip

- After a windy day, there were lots of dry leaves near your house. Can you make use of these dry leaves?

Ans:

- Yes, I would crush them and put them in the flower pots. ()
- No, I would throw them away.
- Yes, burying these leaves with other vegetable wastes would create manure. ()

Find out

- What would happen if there were no plants on the earth?

Ans: If there were no plants, there would be no oxygen in the air without which no animal and human being would survive.

Worksheet

Search the names of ten things obtained from plants in the word-search given below:

Ans:

- MEDICINE
- FIBRE
- FAT
- ZEERA
- FURNITURE
- SUGAR
- TABLE

- NEEM
- FUR
- TEA

Test Paper - I

Exercise

- **Tick () the correct option:**

Ans:

- Which of these is rich in fats?
(a) butter ()
- How many permanent teeth do we have?
(c) 32 ()
- How many kidneys are there in our body?
(b) 2 ()
- Which of these is/are arboreal animals?
(d) all ()
- Which of these has fibrous root?
(d) sugarcane ()

- **Fill in the blanks:**

Ans:

- **Water** helps to maintain body temperature.
- **Enamel** is the hardest substance in the body.
- Digestion starts from the **mouth**.
- Fish and crabs **gills** to breathe.
- **Roots** absorb water and minerals from the soil.

- **Write true or false:**

Ans:

- Raisins are actually grapes that have been dried. [True]
- Babies are born with teeth. [False]
- Kidneys filter blood and remove waste products. [True]
- Camels can live without water for many days.

- ue] [Tr
- Palm and coconut trees grow in coastal areas. [Tr
- ue]
- We get fibre from Tulsi plant. [Fa
- lse]

- **Define the following:**

Ans:

- **Balanced diet** : A meal that has the right amount of different kinds of food is called a balanced diet. We should eat a balanced diet every day as it is healthy. We should also drink plenty of water.
- **Milk teeth** : The set of 20 teeth in babies is called Milk Teeth. *Temporary* teeth fall at the age of six.
- **Excretion** : Excretion system throws out waste products from our body. Process of removal of wastes from our body is called excretion. Excretion system consists of following organs:
 - Kidneys
 - Ureters
 - Urinary Bladder
 - Urethra
- **Parasites** : Parasites are organisms that live inside other living hosts from which they derive nutrition. Mosquitoes, Hookworms, Lice and Bugs are parasites. They have sucking tubes as their mouth parts to suck blood from their hosts.
- **Aquatic plants** : Plants that grow in water are called aquatic plants. Aquatic plants are mainly

of 4 types as follows:

- Floating Plants which are small and light in weight. Duckweed, Pondweed and Water Hyacinth are examples.
- Fixed Plants that grow on surface of water, but roots are fixed to water bed. Lotus and Water Lily are examples.
- Duckweeds that cover surface of water when they grow. Duckweed, Pondweed and Water Hyacinth are examples.
- Submerged Plants which grow completely under water. Their roots are fixed in water bed. Kelp is an example.

- **Transpiration** : The process by which plants release water in the form of water vapour through stomata is called transpiration. In this process, large amount of water evaporate from surface of plant. Transpiration provides a cooling effect to the plant.

- **Match the following:**

Ans:

- | | |
|--------------------------|----------------------|
| • Drying | (e) Preserving Food |
| • Canines | (a) Teeth |
| • Liver | (f) Digestive juices |
| • Zebra and tigers | (b) Stripes |
| • Submerged plant | (d) Kelp |
| • Cotton and jute plants | (c) Fibre |

- **Answer the following questions:**

Ans:

- Explain any two methods of food preservation.

Ans: Two methods of food preservation are:

- **Drying** : In drying method, water

content of food is removed. Fruits and vegetables are cut into thin slices and kept under sun to dry. So, they don't spoil. They are further cooked to make them edible. Tomato and Grapes are dried.

- Refrigeration : By keeping food items at low temperature in a fridge, no bacteria grow in food. Items like milk, vegetables and fruits are kept in fridge to preserve them.

- Write any three ways to take care of your teeth.

Ans: Three ways to take care of our teeth are as follows:

- Brushing our teeth twice daily.
- Avoiding eating too many sweets and junk food.
- Eating a calcium-rich diet. Calcium is good for teeth. Also, visiting a dentist every six months.

- Name the different organs of the Digestive System:

Ans: The different organs of Digestive System are:

- Mouth : The Digestive System starts the process of digestion in the mouth when food is eaten.
- Stomach : The food travels through food pipe to stomach. It is churned and digested there.
- Small Intestine: Food is then pushed to small intestine where further digestion takes place.
- Large Intestine: It then enters large intestine where water is absorbed by body.
- Anus : The undigested food is then passed out of the body through the anus.

- What are Amphibians?

Ans: Animals that live both on land and in water are

Amphibians. Frogs have limbs with webbed feet to swim. They breathe through lungs when on land and through the moist skin when in water.

- Describe the adaptations of Cactus Plants in deserts.

Ans: Plants that grow in the desert do not require much water as there is scarcity of water in a desert area covered with sand. Plants can store little water that they get. Cactus and Date Palm are such plants which grow in desert. Cactuses have thick, fleshy stems that store water. The leaves are modified into prickly spines or thorns that prevent the loss of water. The green fleshy stem contains Chlorophyll that helps the plant to carry out photosynthesis.

- Explain the process of Photosynthesis.

Ans: The word 'photosynthesis' is derived from two words 'photo' meaning light and 'synthesis' meaning put together. The process by which green leaves prepare food using water, carbon dioxide and minerals in the presence of sunlight and chlorophyll is called photosynthesis. For photosynthesis, a plant obtains different raw materials in following manner:

- Leaves absorb sunlight with the help of chlorophyll.
- Leaves take in carbon dioxide from air with the help of stomata.
- Roots absorb water and minerals from the soil. The absorbed water and minerals are carried by the stem to the leaves.

- **Label the picture given below:**

Ans:

- Esophagus (Food Pipe)
- Stomach
- Pancreas (under stomach)
- Small Intestine
- Rectum
- Large Intestine
- Gall Bladder
- Liver

- Mouth

7 Air Exercise

- **Answer the following questions:**

- Name the components of air.

Ans: Air is a mixture of gases. It contains oxygen, carbon dioxide, nitrogen, other gases and water vapour. We breathe in oxygen and breathe out carbon dioxide. Plants use carbon dioxide to prepare food. Air also contains smoke, dust and germs. Vehicles and factories emit smoke that mixes with air. Germs are tiny living organisms that can cause diseases. Smoke, dust and germs make air dirty.

- Mention the properties of Air.

Ans: Properties of Air are:

- **Air occupies space:**

If we push an empty bottle into a vessel full of water, we see that bubbles start coming out of water. These are bubbles of air that were present inside the bottle as space.

- **Air can change shape of things:**

As air occupies space, it can be filled into things like balloons, tyres, etc. When air is filled into a football or a tyre, their shapes also get changed.

- **Air has weight:**

If we take a weighing scale and put a deflated football on it, the weight is slightly noticed. If we fill air into football and put it on weighing scale again, weight increases. So, it proves that air has weight.

- **Air has no colour:**

Air is colourless. We cannot see it. We can just feel it when it moves.

- Write any three uses of air.

Ans: Three uses of air are:

- We breathe in air (oxygen).
- Air helps birds to fly.
- Air helps burn the things.

- Define breathing.
 Ans: The process by which air is taken in and given out of body is known as breathing. Animals need air to breathe. Different animals have different breathing organs as follows:
 - Fish breathe through their gills.
 - Frogs breathe through their lungs and moist skin.
 - Birds and reptiles breathe through their lungs.
 - Insects breathe through tiny holes on their body called spiracles.
 - Human beings breathe through their lungs.
- Define air pollution.
 Ans: The addition of harmful and undesirable substances in the air is called air pollution.
- Give two causes, effects and preventive measures of air pollution.
 Ans: Two causes, effects and preventive measures of air pollution are:

Causes:

 - Smoke, harmful gases released by factories, industries pollute the air. Harmful gases and chemicals from vehicles also pollute the air.
 - Smoke released from burning of solid wastes like wood pollutes air.

Effects:

 - Air pollution causes diseases such as asthma and lung cancer. It causes breathing problems, coughing, sneezing, headaches, etc.
 - Air pollution even destroys Ozone Layer in atmosphere.

Preventive measures:

 - Use CNG (compressed natural gas) instead of petrol or diesel. Do not burn garbage, leaves and wood. Factories and industrial units should remove harmful pollutants before smoke is released in air.

- Plant more and more trees.

- **Tick () the correct option:**

Ans:

- What does air contain?
(d) All ()
- Moving air is called
(a) Wind ()
- Fish breathe through their
(d) gills ()
- Which of these prevents air pollution?
(a) CNG ()

- **Fill in the blanks:**

Ans:

- **Germ**s are tiny organisms that can cause diseases.
- A gentle wind is called a **breeze**.
- Frogs breathe through their lungs and **moist skin**.
- Insects breathe through the tiny holes called **spiracles**.
- Air pollution may even destroy the **ozone** layer in the atmosphere.

- **Write true or false:**

Ans:

- We cannot live without air. True
- We can see air. False
- Dirty air can make us feel sick. True
- Air is colourless. True
- Air helps burn things. True

- **Name the following:**

Ans:

- The gas we breathe in Oxygen
- The gas plants use to prepare food Carbon Dioxide
- Breathing organs of birds and reptiles Lungs
- Breathing organs of human beings Lungs

- Three things that release smoke in the air
 - Burning of leaves
 - Burning of wood
 - Smoke from vehicles

Work it out!

- Ans: Do it yourself.

Thinking Cap

- Why should we cover our mouth while sneezing or coughing?
 Ans: We should cover our mouth while sneezing or coughing in order to prevent smoke, dust, dirt and harmful germs from entering into our body.

Create Something New:

- Do it yourself.
 Ans:

Value Tip

- What will you do if you find some dried leaves and grass?
 Ans:
 - Burn them.
 - Make a compost of them and use them for plants. ()
 - Throw them away.

Find out

- Why do people use masks over their mouth and nose?
 Ans: People use masks over their mouth and nose to prevent smoke, dust, dirt and harmful germs from entering into their body.

Worksheet

- Ans: Do it yourself.

8 Materials and Solutions

Exercise

- **Answer the following questions:**
 - Why is water called a universal agent?
 Ans: Water is called a universal solvent because most substances dissolved in water.

- How is salt obtained from sea water?

Ans: Salt is obtained from sea water by the process of evaporation. Sea water evaporates due to the heat of the sun and salt is left.

- Explain the process of filtration for separating substances.

Ans: By Filtration, we can separate insoluble substances from a liquid. In this process, liquid containing insoluble substances is passed through a filter paper. This filter paper is placed inside a funnel. The liquid seeps through filter paper and insoluble substances are left on the filter paper. A mixture of sand and water can be separated by filtration. Water seeps through filter paper and sand particles are left on filter paper.

- Describe the process of sedimentation and decantation.

Ans: Sedimentation is a process in which insoluble impurities settle down. The liquid containing insoluble impurities is allowed to remain undisturbed for some time. The insoluble impurities settle down at the bottom of container as sediments.

After sedimentation, the clear liquid is slowly poured out into a separate container. Thus, the process in which water is gently poured out after sedimentation is called Decantation. The mixture of mud and water can be separated by Sedimentation and Decantation process.

- **Fill in the blanks:**

Ans:

- Water changes into water vapour on **heating**.
- Water vapour changes into **water (liquid)** on cooling.
- Water changes into **ice (solid)** on cooling
- Ice changes into water on **heating**.
- When two miscible liquids are mixed, the **lighter** liquid float on the top of the **heavier** liquid.

- **Give two examples of each of the following:**

Ans:

- Soluble substances : Salt and Sugar
- Insoluble substances : Sand and Wood
- Miscible liquids : Milk and Water
- Immiscible liquids : Oil and Water

• **Define the following:**

Ans:

- Solution : When two or more substances dissolve or merge into a liquid, they form a Solution. Example: Sugar and water make sugary solution.
- Solute : Solute is that substance that dissolves in a liquid to form a solution. Example: Sugar.
- Solvent : Solvent is that substance in which solute dissolves to form a solution. Example: Water.
- Soluble substances : Those substances that completely dissolve in a liquid to form a solution. Example: Salt, Sugar, Detergent, Glucose, etc.
- Insoluble substances : Those substances that do not dissolve in a liquid. Example: Sand, Wood, Glass, Plastic, Metal, etc.

Work it out!

- Group the following into soluble and insoluble substances.

Ans:

<i>Sugar</i>	<i>Flour</i>	<i>Wax</i>	<i>Cement</i>	<i>Glucose</i>	<i>Plastic Sand</i>
Soluble Substances			Insoluble Substances		
Sugar			Wax		
Flour			Plastic		
Cement			Sand		
Glucose			Oil		

Detergent	Chalk
	Wood
	Glass

Thinking Cap

- What is loading in the context of separation of substances?

Ans: Loading is used to separate suspended impurities. Loading is a process in which chemical substances like Alum is added to liquid to help the suspended particles of liquid to form a sediment of solid.

Create Something New:

- Do it yourself.

Value Tip

- We must drink clean and pure water.

Mohan's friend is sick. The doctor has advised him to drink a lot of water. Tick () the right option;

Ans:

- He should drink boiled water. ()
- He should drink tap water.
- He should drink chilled water.

Find out

- To separate tea leaves from the prepared solution, which method of separation is used at home?

Ans: Filtration

Worksheet

Given below are mixtures of some substances. Observe them and answer the questions that follow:

Ans:

- Name the soluble substance : Salt, flour
- Name the insoluble substance : Sand, Beans
- Which mixture is a solution? : Mixture of Salt and water.

9 Light Exercise

- **Answer the following questions:**

- Differentiate between luminous and non-luminous objects.

Ans:

Luminous Objects are those that emit light of their own. For example – sun, candles, electric bulbs, etc.

Non-luminous Objects are those that do not have their own light. These objects reflect the light falling on them and hence, become visible. For example – chair, toy, moon, etc.

- How do non-luminous objects become visible?

Ans: Non-luminous objects become visible by the light that falls on them through luminous objects and then is reflected by them.

- How can you say that light travels in a straight line? Show with an activity.

Ans: We take a candle and light it. We take a rubber tube and look at the flame of candle through it. We can see the light through it. Now we bend the rubber tube and then see the candle through the tube. We now cannot see the candle this time. This shows that light travels in a straight line.

- What is a shadow?

Ans: A shadow is formed because of the following:

- An object - to block the path of light.
- A source of light - to reflect on the object.
- A screen - for a shadow to form on

- **Tick () the correct option:**

Ans:

- Which of the following is a natural source of light?
(b) Sun ()
- Which of these is a luminous object?
(d) Bulb ()
- Light travels in a
(a) Straight Line ()

- Formation of a shadow is the longest
(d) both b and c (in the morning and evening) ()

- **Fill in the blanks:**

Ans:

- *Sun* is the main source of light on earth.
- We cannot see things in the *dark*.
- Light travels at a very *fast speed*.
- Light travels in all *directions* from its source.
- A shadow is always formed on the *opposite* side of the light.

- **Write true or false:**

Ans:

- We can see things without light. False
- Artificial objects are man-made. True
- The moon does not have its own light. True
- Light is an invisible form of energy. True
- Our shadows do not move along with us. False

- **Define the following:**

Ans:

- Natural sources of light : The sources of light that give off light and are not man-made are called natural sources of light. The sun is the main source of light. Star and fireflies are other natural sources of light.
- Artificial sources of light : The sources of light that emit light and are man-made are called artificial sources of light e.g. candle, lamp, torch, bulb.
- Transparent objects : The objects that allow light to pass through them completely are called Transparent Objects. Example: glass, clean water, cellophane.
- Translucent objects : The objects that allow only some light to pass through them are called Translucent

Objects. Example: Tracing Paper, Smoked Glass, Tissue Paper.

- Opaque objects : The objects that do not allow any light to pass through them are called Opaque objects. Example: Wood, Stone, Cardboard, Coal.

Work it out!

- Ans: Do it yourself.

Thinking Cap

- When light passes through a prism, it splits into seven colours. Name these seven colours.

Ans:

- Red
- Orange
- Yellow
- Green
- Blue
- Violet



Create Something New:

- Do it yourself.

Value Tip

- You visit your friend in the evening. You see that he/she is doing his/her homework in a dim light. What will you tell him/her to:

Ans:

- to continue his/her work.
- to stop his/her work.
- to ask him/her to do the work in the bright light. ()

Find out

- A straw appears bent when immersed half in water. Find out the reason.

Ans: The first half portion of the straw that is in the air receives light from all its sides. But when second half of straw, that is immersed in water, the light gets reflected by water. The light

passes through two different mediums. So, the angle formed is also different. Therefore, the straw appears bent when immersed half in water.

Worksheet

Look at the pictures given below. Classify them as transparent, translucent and opaque:

Ans:

- 1st Picture : Translucent
- 2nd Picture : Opaque
- 3rd Picture : Opaque
- 4th Picture : Transparent
- 5th Picture : Opaque
- 6th Picture : Transparent

10 Measurement Exercise

- **Answer the following questions:**
 - What do you understand by measurement?
Ans: By measurement, we understand how long, how heavy or how much an object is.
 - Why do we need a standard unit to measure things?
Ans: We needed a standard unit to get an accurate measurement of things. The different units to measure things are as follows:
 - Length : metre - to measure cloth, distance.
cm - for smaller units
km - for bigger units
 - Weight : kg - to measure light/heavy things
gm - for smaller units
 - Capacity : litre (*l*) - to measure capacity
ml - for smaller units
kl - for bigger units
 - Time : sec - to smaller units
min - for a little bigger unit
hr - for bigger units

- Temperature : degree Celsius - to measure hotness

- How can you say that a person has fever?

Ans: The normal temperature of our body is 37⁰C (98.6⁰F).
A temperature higher than this means the body has fever.

- How do we measure time?

Ans: Time is the measurement of time between the occurrences of two events. We measure time in degrees Celsius. It is measured with a Thermometer. The normal temperature of our body is 37⁰C (98.6⁰F).

- Can you convert one unit of measurement to another?

Ans: Yes, we can convert one unit of measurement to another.

- **Fill in the blanks:**

Ans:

- *Metre* (m) is the unit for measuring length.
- *Degree Celsius* (⁰C) is the unit for measuring time.
- *Litre* (l) is the unit for measuring capacity.
- *Kilogram* (kg) is the unit for measuring weight.
- The lower unit for measuring weight is *gram* (g).

- **Complete the blanks:**

Ans:

- Distance between two cities is measured in _____
(km) kilometers
- Length of cloth is measured in _____
(m) metres
- Length of a pencil is measured in _____
(cm) centimeters
- Amount of milk is measured in _____ litres (l)
- Amount of blood is measured in _____
(ml) millimeters

- Amount of cough syrup is measured in (ml) - millimeters
- Duration of a light is measured in (min, hr) - time (sec,
- Duration of a TV programme is measured in (min, hr) - time

• **Match the following:**

Ans:

- Higher unit of time (d) hours
- Lower unit of time (c) seconds
- Higher unit of length (e) kilometres
- Lower unit of length (b) centimetre
- Higher unit of weight (a) kilograms

• **Look at the pictures and write the units of measurement in each:**

Ans:

- Glass - millimeters (ml)
- Potato - Kilogram (kg)
- Tank - litres (l)
- Bed - metres (m)
- Cloth - metres (m)

Work it out!

• **Measure the length of the objects shown below:**

Ans:

- 1st measurement: 5 cm
- 2nd measurement : 4 cm
- 3rd measurement : 8 cm
- 4th measurement : 14 cm
- 5th measurement : 9 cm

Thinking Cap

- Is 1 litre equal to 1 kilogram? Find out.

Ans: 1 litre of water has a mass of almost exactly equal to 1 kilogram when measured at its maximal density which occurs at about 4⁰C. The mass equals 1 kg if and only if density is 1 kg/litre.

Create Something New:

- Ans: Do it yourself.
- The clocks show the time when the activities were started. Read the clues and write the correct time.

Ans:

- It is 1:30 p.m.
It took me 15 minutes to clean my room. Now what time is it?
It is 1:45 p.m.
- It is 4:05 p.m.
We went to the park for 30 minutes. Now what time is it?
It is 4:35 p.m.
- It is 5:10 p.m.
It took me 20 minutes to do my homework. Now what time is it?
It is 5:30 p.m.
- It is 6:35 p.m.
It took me 10 minutes to wash the dishes. Now what time is it?
It is 6:45 p.m.

Value Tip

- You are late for school because you woke up late in the morning. What would you do?
Ans:
 - Tell your teacher that you are sorry and would be on time the next time. ()
 - Lie to your teacher and tell him that you fell down on the way.
 - Be happy that you are late for school.

Find out

- Name the instrument for measuring the intensity of the earthquakes.
Ans: Seismograph.

Worksheet

Write the correct unit of measurement for the following.

Ans:

- 1st Picture : Juice - *ml, l*
- 2nd Picture : Cloth - *cm, m*
- 3rd Picture : Time - *sec, min, hr*
- 4th Picture : Potato- *kg*
- 5th Picture : milk - *ml, l*
- 6th Picture : length- *cm, m, km*

11 Force Exercise

- **Answer the following questions:**
 - What is force?
Ans: A push or a pull applied on an object is called Force.
 - Write any three effects of force.
Ans: Three effects of force are:
 - A force can move an object.
 - A force can stop a moving object.
 - A force can change the direction of the moving object.
 - Name the two poles of a magnet.
Ans: The two poles of a magnet are:
 - North Pole
 - South Pole
 - Who was the first person to have discovered the force of gravity?
Ans: Sir Isaac Newton was the first person to have discovered the force of gravity or Gravitational Force.
- **Fill in the blanks:**
Ans:
 - While closing a door, we **push** it forward.
 - Bullocks **pull** a cart.
 - A force can **change** the direction of a moving object.
 - Like poles of a magnet **repel** each other.
 - Unlike poles of a magnet **attract** each other.
- **Write true or false:**

Ans:

- A force can move an object.
True
- A force cannot stop a moving object.
False
- A magnet has two poles.
True
- Friction always acts in the opposite direction of the movement of the objects.
True
- Smooth surfaces produce less friction than rough surfaces.
True

- **Give an example of each of the following:**

Ans:

- Muscular Force: It is power of our muscles to do different activities. Example: Lifting a bucket.
- Magnetic Force: It is the force exerted by a magnet on other objects. Example: Iron objects attracted towards a magnet.
- Gravitational Force: It pulls every object towards centre of Earth. Example: When we throw up a ball, it falls down back.
- Frictional Force: It is an opposing force. If 2 objects are moving and touch each other, one object exerts a certain force that opposes motion of another.

- **Define the following:**

Ans:

- Muscular Force: Muscular Force is power of our muscles to do different activities. Any work done by any part of our body involves Muscular Force.

Examples: Carrying a book, lifting a bucket, mopping and blinking eyes.

- **Magnetic Force:** Magnetic Force is the force exerted by a magnet on other objects. The forces pull the objects towards magnet. Objects that are attracted towards a magnet are Magnetic Objects.
- **Gravitational Force:** Gravitational Force pulls every object towards centre of Earth. When we throw up a ball, it falls down back due to Gravitational Force.
- **Frictional Force:** Friction is opposing force. If 2 objects are moving and touch each other, one object exerts a certain force that opposes motion of another. This slows down motion of moving body. This is Frictional Force.

Work it out!

- Look at the pictures shown below. Write the names of the forces:

Ans:

- 1st Picture : Muscular Force
- 2nd Picture : Muscular Force
- 3rd Picture : Gravitational Force
- 4th Picture : Muscular Force

Thinking Cap

- We slip easily when we walk or run over a banana peel. Give reasons. Write a few lines in support of your answer.

Ans: We slip easily when we walk or run over a banana peel because the banana peel is a very soft item and thus is having very low frictional force. When we move, our weight needs higher amount of frictional force like the road below the banana peel which offers higher frictional force.

Create Something New:

- Ans: Do it yourself.

Value Tip

- Ans: Noted.

Find out

- Ans: Do it yourself.

Worksheet

Look at the actions given below. Write 'push' or 'pull' below each of the pictures:

Ans:

- 1st Picture : A boy flying a kite. Pull
- 2nd Picture : A boy hammering a nail into wood. Push
- 3rd Picture : A girl opening the door. Pull
(outward) Push
(inward)
- 4th Picture : A boy drinking juice with a straw. Pull
- 5th Picture : A girl closing the window of a room. Push
- 6th Picture : A boy typing on a keyboard. Push

12 Friction As a Force

Exercise

- Answer the following questions:

- What is meant by the force of friction?

Ans: A force that acts when two different objects come in contact with each other is called the force of friction. Friction either slows down or stops the moving object. Our hands become warm on rubbing due to friction. A match-stick burns due to friction.

- Write any three uses of friction.

Ans: Three uses of friction are:

- Friction helps us to stop moving vehicles by applying brakes.
- We walk because of friction between our feet and ground.
- Friction helps hold things.

- Write any two difficulties caused by friction.

Ans: Two difficulties caused by friction are:

- Friction makes difficult to slide a heavy object across the floor.
 - Friction wears out the soles of shoes, tyres and machine parts.
- What kinds of substances are used for reducing friction?
 Ans: Substances used for reducing friction are:
 - Lubricants - As we apply oil on door hinges or machine parts to reduce creaking noise.
 - Powder - We sprinkle boric powder on carrom board.
 - Polishing - As walking on a wet surface or freshly mopped floor is difficult.
- **Fill in the blanks:**
 Ans:
 - Friction either *slows* or *stops* the moving object.
 - A match burns due to *frictional force* .
 - Friction is more on a *rough* surface.
 - Vehicles should have *streamlined* shapes to reduce the effect of friction.
 - We sprinkle *boric powder* on the carom board to reduce friction.
- **Write true or false:**
 Ans:
 - Friction is useful. True
 - Friction is also harmful. True
 - We are able to walk because of friction. True
 - Friction causes no damage to tyres. False
 - Polishing reduces friction. True
- **Give reasons:**
 Ans:
 - Coolants are used in cars.
 Ans: Friction gives rise to unwanted heat in cars. Coolants are used for reducing the heat. Otherwise the heat can cause damage to vehicles.

- Vehicles should have streamlined shapes.
Ans: Vehicles should have streamlined shapes in order to move at a high speed and reduce the effect of friction. Otherwise, they will burn a lot of fuel to move fast.
- We sprinkle boric powder on the carom board.
Ans: We sprinkle boric powder on carom board to reduce the friction so that the striker moves faster on its surface.

Work it out!

- Roll out a ball on different surfaces such as grass, glass top or road. Where did the ball move faster? Give the reason:

Ans:

- 1st Picture : Grass - Ball will not move fast because the grass has uneven surface which offers greater frictional force.
- 2nd Picture : Glass Top - Ball will move fastest on Glass top compared to grass surface and road surface because the Glass Top has quite even and very smooth surface which offers almost no frictional force.
- 3rd Picture : Road - Ball will move faster than grass surface but less faster than glass top surface because the roads are designed for vehicular traffic to control the frictional force required.

Thinking Cap

- Why should roads have rough surfaces?
Ans: Road must have rough surface in order to suit the speed of the vehicles. Otherwise in case of smooth surface, the vehicle

would slip and cannot achieve the desired speed required.

Create Something New:

- Do skating on ice and on the grass. Where do you find it easier to skate and why?

Ans:

- 1st Picture : Ice - It would be found easier to skate on ice compared to grass because skating requires less friction force.
- 2nd Picture : Grass - It wouldn't be easier to skate on grass because skating requires less friction force whereas the grass offers greater frictional force due to its uneven surface.

Value Tip

- Ans: Noted.

Find out

- Look at the shoe given below. Find out why athletes and runners use such shoes.

Ans: Athletes and runners use such spiked shoes because it enables them to move faster on the surface and reduces the frictional force. So, energy is saved.

Worksheet

Ans: Do it yourself.

Test Paper - II

Exercise

- **Tick () the correct option:**

Ans:

- Air contains
(d) all ()
- Which of these is soluble substance?
(a) sugar ()

- Which of these is as a non-luminous object?
(d) Moon ()
- Distance between two cities is measured in
(c) kilometers ()
- An apple falls from a tree. Which force is applied?
(c) Gravitational ()

- **Fill in the blanks:**

Ans:

- Insects breathe through tiny holes called *spiracles*.
- Water changes into ice on *cooling*.
- The *Sun* is the main source of light.
- *Litre* is the unit for measuring capacity.
- A push or pull is called *force*.
- Polishing *reduces* friction.

- **Write true or false:**

Ans:

- Air has no colour. [True]
- Salt can be obtained from a salt solution by evaporation. [True]
- Light is a visible form of energy. [False]
- The normal temperature of our body is 37°C. [True]
- Force can change the shape of an object. [True]
- Rough surfaces have a lower friction than smooth surfaces. [False]

lse]

- **Define the following:**

Ans:

- Air Pollution : The addition of harmful and undesirable substances in the air is called air pollution.
- Condensation : Condensation is a process by which gases change into liquids on cooling. For example: Changing of water vapours into water when a lid is placed on the vessel while it is being heated.
- Shadow : A shadow is formed because of the following:
 - An object - to block the path of light.
 - A source of light - to reflect on the object.
 - A screen - for a shadow to form on.
- Measurement : By measurement, we understand how long, how heavy or how much an object is.
- Frictional Force : It is an opposing force. If 2 objects are moving and touch each other, one object exerts a certain force that opposes motion of another.

- **Match the following:**

Ans:

- Smoke (e) Air pollution
- Decantation (f) Pouring out clear water
- Tissue paper (a) Translucent
- Temperature (d) Hotness

- Unlike poles of magnet (c) Attract
- Like poles of magnet (b) Repel

- **Answer the following questions:**

Ans:

- Write any three uses of air.

Ans: Three uses of air are:

- We breathe in air (oxygen).
- Air helps birds to fly.
- Air helps burn the things.

- Differentiate between solute, solvent and solution.

Ans: The difference is as follows:

- Solute : Solute is that substance that dissolves in a liquid to form a solution. Example: Sugar.
- Solvent : Solvent is that substance in which solute dissolves to form a solution. Example: Water.
- Solution : When two or more substances dissolve or merge into a liquid, they form a Solution. Example: Sugar and water make sugary solution.

- Explain the formation of shadows at different times of the day.

Ans: When an opaque object comes in the path of light, it blocks light and forms a dark patch called shadow. Shadow is always formed on opposite side of light. Shadows always move along with us.

Length of shadow is different at different times of day. Shadows are longest in morning and evening. They are shorter in afternoon and shortest at noon when sun is overhead.

- How can you say that a person has fever?

Ans: The normal temperature of our body is 37°C (98.6°F). A temperature higher than this means the body has fever.

- Name the different types of forces.
 Ans: The different types of forces are as follows:
 - Contact Force : It is when two surfaces on which force is applied are in contact with each other. Example: Muscular force and Frictional force.
 - Muscular Force: In this, force is applied by muscles of body. Examples: A toy pulled/pushed by child, cart pulled by animals.
 - Frictional Force – It opposes motion and acts in opposite direction of force. Friction is more on uneven, rough surface and less on smooth surfaces.
 - Non-contact force: These are indirect forces. It is applied to an object by another object that is not in direct contact with it. Examples: Magnetic, Gravitational and Electronic force.
 - Magnetic Force: This is force of magnet and is called magnetic force.
 - Gravitational Force: Earth attracts everything towards it. It is called gravitational force. Examples: Water flows downwards, leaves fall the earth.
 - Electronic Force: This force acts between two charged objects or a charged and an uncharged object without being in contact with each other.
- Write any three uses of friction.
 Ans: Three uses of friction are:
 - Friction helps us to stop moving vehicles by applying brakes.
 - We walk because of friction between our feet and ground.

- Friction helps hold things.
- **Show the composition of gases in air in the given diagram:**
Ans: Do it yourself.
- Ans: Do it yourself.