

New Science Power 4

Food Making in Plants

1

ANSWERS

Checkpoint 1

Fill in the blanks.

1. The tubes that carry water and minerals from the roots to the leaves are called Xylem.
2. Chlorophyll makes the leaves look green.
3. Stomata help in the exchange of gases during photosynthesis.

Checkpoint 2

Write True or False.

- | | |
|--|--------------|
| 1. Mushroom is a non-green plant. | <u>True</u> |
| 2. Animals get their food from plants. | <u>True</u> |
| 3. Animals breathe out oxygen. | <u>False</u> |
| 4. National parks are built to grow more plants. | <u>False</u> |
| 5. Plants and animals depend on each other. | <u>True</u> |

EXERCISES

A. Fill in the blanks.

1. The leaves are called food factories of plants.
2. The inside of leaf can be seen with the help of a microscope.
3. Oxygen and water vapour are released during photosynthesis.
4. Starch gives blue-black colour with iodine solution.

B. Give one word for the following.

- | | |
|--------------------------------------|-------------------|
| 1. The green and flat part of a leaf | <u>Leaf blade</u> |
| 2. The sugar made in the leaf | <u>Glucose</u> |
| 3. Extra food stored in plants | <u>Starch</u> |

C. Give two examples for each of the following.

- | | | |
|---|----------------------|----------------------|
| 1. Insectivorous plants | <u>Pitcher plant</u> | <u>Venus flytrap</u> |
| 2. Heterotrophic plants | <u>Mould</u> | <u>Mushroom</u> |
| 3. Plants with leaves other than green colour | <u>Croton</u> | <u>Coleus</u> |

D. Tick (✓) the correct answer.

- The green pigment in the leaves of a plant is
(a) haustoria (b) xylem
(c) chlorophyll (d) stoma
- The food made in leaves is carried to all other parts of plant by
(a) phloem (b) xylem
(c) root hair (d) flowers
- Which of these is an insectivorous plant?
(a) Cactus (b) Mushroom
(c) Money plant (d) Pitcher plant
- The process of making food in plants is called
(a) stomata (b) photosynthesis
(c) transportation (d) digestion

E. Answer the following questions.

1. What are different parts of a leaf?

Ans. Different parts of a leaf are leaf blade or lamina, leaf apex, midrib and side veins.

2. What is photosynthesis?

Ans. Photosynthesis is a process by which green plants make their food in the presence of chlorophyll and sunlight by using carbon dioxide and water.

3. What are the materials used by plants during photosynthesis?

Ans. Plants use carbon dioxide, water and sunlight during photosynthesis.

4. Write down the equation of photosynthesis.

Ans. Carbon dioxide + Water $\xrightarrow[\text{Chlorophyll}]{\text{Sunlight}}$ Glucose + Oxygen + Water vapour

5. What are the uses of the food made by the plants?

Ans. The food made by plants is used for growth and building new cells, and to repair worn-out cells.

6. Why does Venus flytrap eat insects?

Ans. Venus flytrap grows in the soil which is poor in minerals. So, it traps insects to get the required minerals.

7. How do plants and animals depend on each other?

Ans. (a) Animals breathe out carbon dioxide which is used by plants for making food while in turn, plants release oxygen which is used by animals for breathing.

(b) Animals get food from plants and when they die, they become part of the soil and make it rich in minerals which are used by plants.

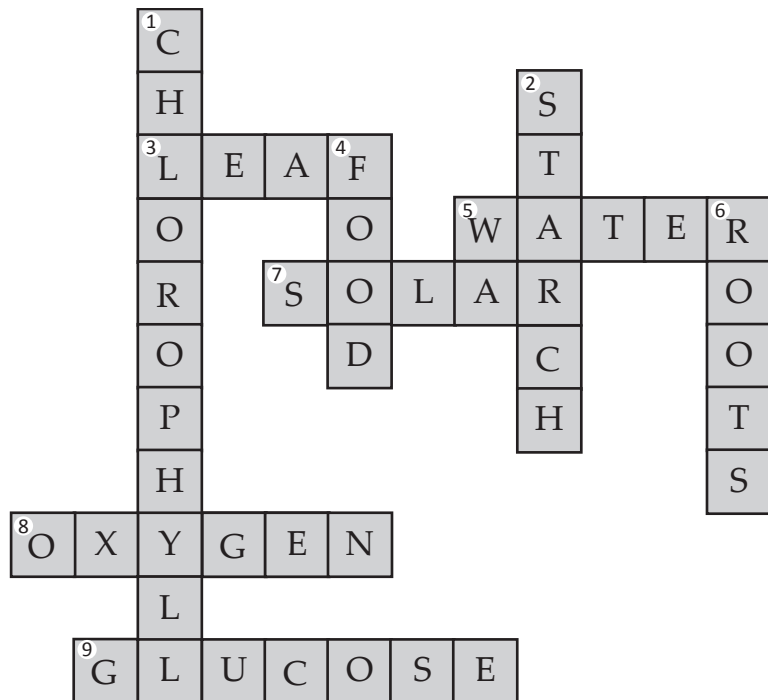
8. What will happen if there are more animals than plants in nature?

Ans. If there are more animals than plants in nature, there will be shortage of food and oxygen, and the amount of carbon dioxide will increase in the atmosphere. This increase will warm the atmosphere.

F. Complete the crossword puzzle with the help of the given clues.

Across

- 3. Plants trap energy in this part.
- 5. During photosynthesis, a plant absorbs this along with sunlight and carbon dioxide.
- 7. The sun provides this energy, which plants use to produce sugar.
- 8. This is a waste product that a plant releases while making its food.
- 9. Plants use air and water to make this sugar that is used as food.



Down

- 1. This pigment makes the leaves look green.
- 2. This is the extra food stored in the plant parts.
- 4. When leaves change their colour during autumn, they can no longer make this.
- 6. Some plants may store the extra food they make in these.

Think Zone

1. Plants and gold fish are grown together in a fishbowl. Why?

Ans. Plants give oxygen to breathe and in turn gold fish breathe out carbon dioxide which is used by plants for photosynthesis.

2. Mushrooms cannot make their own food. Why?

Ans. Mushrooms are non-green plants. They do not contain chlorophyll, therefore, they cannot make their own food.

3. The leaves of croton and coleus plants are not green, but carry out photosynthesis. How?

Ans. The leaves of croton and coleus plants carry out photosynthesis because they also have chlorophyll but, it is masked by other pigments and is not visible.


4. The yellow portion of a leaf cannot prepare food. Why?

Ans. The yellow portion of a leaf cannot prepare food because it does not contain chlorophyll.

ANSWERS

Checkpoint 1

Tick (✓) the correct answer.

- In desert plants like cactus, photosynthesis occurs in
 (a) stems (b) spines (c) roots (d) leaves
-  plant grows in
 (a) deserts (b) marshy areas (c) plains (d) hills
- Which of these plants grows on mountains and hills?
 (a) Fir (b) Banyan (c) Peepal (d) Mango

Checkpoint 2

Fill in the blanks.

- Tape grass/Hydrilla plant does not have stomata on its leaves.
- Lotus/waterlily is a plant with stomata present only on the upper surface.
- Duckweed/Water lettuce/Water hyacinth is an aquatic plant which is not rooted to the soil on the waterbed.

EXERCISES

A. Write True or False.

- The lotus flower grows on land. False
- Cacti have big and broad leaves. False
- A large number of leaves help in keeping the big trees cool in summer. True
- Trees on hills bear cones instead of flowers. True
- Babool plant grows in water. False

B. Tick (✓) the correct answer.

- The place where a plant lives and grows is called its
 (a) habitat (b) habit
 (c) plains (d) environment

2. The plants growing and living in water are called
 (a) aquatic plants (b) desert plants
 (c) marshy plants (d) hilly plants
3. Leaves of fixed-floating plants have
 (a) stomata on their upper surface (b) stomata on their lower surface
 (c) stomata on both the surfaces (d) no stomata

C. Give two examples of the following.

- | | | |
|-----------------------------|---------------|-------------------|
| 1. Hilly plants | <u>Cedar</u> | <u>Spruce</u> |
| 2. Plants with broad leaves | <u>Banyan</u> | <u>Peepal</u> |
| 3. Fixed-floating plants | <u>Lotus</u> | <u>Water lily</u> |
| 4. Desert plants | <u>Cactus</u> | <u>Babool</u> |

D. Identify the following plants.

- | | |
|--|----------------------------|
| 1. A plant which has breathing roots | <u>Mangrove plant</u> |
| 2. A plant that bears cones | <u>Pine</u> |
| 3. A plant that has spines | <u>Cactus</u> |
| 4. A plant that has no stomata | <u>Tape grass/Hydrilla</u> |
| 5. An aquatic plant that has beautiful flowers | <u>Lotus/Water lily</u> |

E. Answer the following questions.

1. What do you understand by adaptations in plants?

Ans. The special features that allow a plant to live in a particular place are called adaptations in plants.

2. What are the conditions that make plants different from each other?

Ans. Type of soil in which plants grow, temperature and rainfall of the area make plants different from each other.

3. How are terrestrial plants different from aquatic plants?

Ans. Terrestrial plants are adapted to live on many types of terrestrial habitat. They have different shapes and sizes. Their roots, stem and leaves can store food and water where required.

Aquatic plants are adapted to live in water. Most aquatic plants are small, light and have waxy coating on their leaves. They have very few or no stomata.

4. How do (a) banyan and (b) hydrilla plants adapt themselves to their habitats?

Ans. (a) Banyan grows in plains. It has big and broad leaves which help in transpiration and keep it cool-during summer. It sheds its leaves in winter and grows new leaves in spring.

(b) Hydrilla plant grows under water. It has thin and flexible stem with narrow leaves. These leaves do not have stomata. It breathes through its body surface.

5. How are free-floating plants different from fixed-floating plants?

Ans. Free-floating plants are small and not rooted to the soil on the waterbed. They have air-filled spaces in their root, stems and leaves. This makes them spongy and light which help in floating.

Fixed-floating plants are rooted to soil on the waterbed. Their stems are long, hollow and light-weight to help them float. They have broad and flat leaves with waxy coating on them. These leaves have stomata only on their upper surface.

6. What are the adaptations in a cactus plant?

Ans. Cactus grows in deserts where enough water is not available. So, to save water,

(a) Its stem becomes green, thick and fleshy.

(b) Its leaves get changed into spines.

7. What are submerged plants?

Ans. Plants growing under the surface of water are called submerged plants. For example, tape grass, hydrilla, etc.

Think Zone

1. A lotus plant cannot survive in a desert. Why?

Ans. A lotus plant is adapted to live in water. It has broad and flat leaves, long and hollow stem which do not suit to live in desert. In hot and dry habitat of desert, it will die.

2. The stem and leaves of aquatic plants do not rot. Why?

Ans. The stem and leaves of aquatic plants have waxy coating on them. So, they do not rot in water.

3. The submerged plants do not have stomata. Why?

Ans. The submerged plants breathe through their body surface. So, they do not have stomata.

4. Trees that grow in hills are conical in shape. Why?

Ans. The conical shape of the trees growing on hills helps them avoid harsh wind and saves from getting knocked down.

Adaptations in Animals

3

ANSWERS

Checkpoint 1

Fill in the blanks.

1. Camels have padded feet to walk comfortably on loose sand.
2. Penguins huddle together to keep themselves warm.
3. Frogs breathe through their skin when in water and through lungs when on land.
4. Monkeys have strong arms to swing from branch to branch.
5. Birds have hollow bones to help them fly.

Checkpoint 2

Write True or False.

1. Herbivores have sharp cutting teeth at the front. True
2. Mosquito is a parasite. True
3. A chameleon looks like a twig. False
4. Porcupine changes its colour for protection. False

EXERCISES

A. Fill in the blanks.

1. A snake has scales which help it to move.
2. Animals living in cold areas have fur on their bodies.
3. The strong arms of a monkey help it to swing on branches.
4. Parasites live on or inside the body of other animals.

B. Tick (✓) the correct answer.







1. Which of these is an adaptation of a duck to swim in water?
(a) Oily coating on feathers (b) Moist skin
(c) Webbed feet (d) Strong claws
2. Which of these animals is not an amphibian?
(a) Frog (b) Salamander (c) Zebra (d) Toad
3. The ability to merge with the surroundings is called
(a) Hibernation (b) Camouflage (c) Blubber (d) Habitat

4. Which of these animals uses scales on their bodies to move?
 (a) Bird (b) Snake (c) Tiger (d) Chameleon
5. Which of these is not a parasite?
 (a) Mosquito (b) Leech (c) Tapeworm (d) Snail

C. Write True or False.

1. A tiger can live in the desert. False
2. Birds have hollow bones filled with air. True
3. A cow is an omnivore. False
4. Fishes have gills to take in air mixed with water. True
5. Snakes hide during winter to protect themselves from extreme cold. True

D. Match the following.

1.		(a) Sharp teeth	_____	2.	
		(b) Flat grinding teeth			
3.		(c) Sharp beak	_____	4.	
		(d) Sucking tube			
5.		(e) Streamlined body	_____	6.	
		(f) Moist skin			

E. Answer the following questions.

1. Why do animals adapt themselves to their surroundings?

Ans. Animals adapt themselves to their surroundings for the survival.

2. List different groups in which animals are divided according to their habitat.

Ans. According to habitat, animals are divided into terrestrial animals, aquatic animals, amphibians, arboreal animals and aerial animals.

3. List the adaptations in a camel which help it to survive in desert.

Ans. A camel has following adaptations to survive in desert:

- (a) It has padded feet to walk easily on hot and loose sand.
- (b) It has flaps on nostrils and long eyelashes for protection from sand.
- (c) It has thick skin to protect from heat of the sun and loss of water by evaporation.
- (d) It can store large amount of water.
- (e) It has fat stored in its hump which is converted into water when needed.

4. How is the body of a fish adapted to live in water?

Ans. The body of a fish has following adaptations to live in water:

- (a) It has streamlined shape to cut through the water with less efforts.
- (b) It has gills to breathe in air dissolved in water.

(c) Its body is covered with waterproof scales to protect from rotting in water.

(d) It has fins to swim in water.

5. What are the differences between the teeth of herbivores and carnivores?

Ans. The teeth of herbivores are sharp, strong and flat for cutting and grinding of tough plant food, whereas the teeth of carnivores are long and sharp for tearing the flesh of their preys.

6. How is a chameleon able to protect itself from its enemies?

Ans. A chameleon changes its colour according to its surroundings to protect itself from its enemies.

7. What are parasites? Name some parasites.

Ans. The animals which live on or inside the body of other animals for getting food are called parasites. Mosquito, flea, louse, bug, tapeworm, roundworm, etc. are some parasites.

8. How does a polar bear survive in very cold places?

Ans. The body of polar bear is covered with thick fur. It has a layer of fat under the skin which keeps its body warm.

Think Zone

1. Why do tigers have strong legs and long sharp teeth?

Ans. Tigers have strong legs to run very fast for catching their prey. Their sharp teeth help them tear the flesh of prey.

2. Why do monkeys have long tails?

Ans. Monkeys are arboreal animals. Their long tails help them hold on to the branches.

3. Herbivorous animals have sharp cutting teeth in front and flat grinding teeth at the back. Why?

Ans. Herbivorous animals eat tough plant food which they have to cut with their front teeth and then grind it with strong teeth. So, they have sharp cutting teeth in front and flat grinding teeth at the back.

4. A polar bear is white in colour. Why?

Ans. The white colour of polar bear makes it difficult to be spotted by its enemies on the snow.

5. Why do porcupines have spines?

Ans. Porcupines have spines on their bodies to protect themselves from their enemies.

ANSWERS**Checkpoint 1****Fill in the blanks.**

1. The process by which living things produce their own kind is called reproduction.
2. Cats and dogs give birth to young ones.
3. Bat is the only mammal that can fly.

Checkpoint 2**Tick (✓) the correct word.**

1. A female bird lays eggs in **nest (✓)/water**.
2. A fish's egg is covered by **hard shell/jelly (✓)**.
3. Snakes **take/do not take (✓)** care of their babies.
4. Tadpole looks like a **fish (✓)/frog**.
5. A **cockroach (✓)/butterfly** has three stages in its life cycle.

EXERCISES**A. Fill in the blanks.**

1. A tiny growing baby in an egg is called embryo.
2. The larva of a butterfly is called caterpillar.
3. The larva of a housefly is called maggot.
4. The young one of a frog is called tadpole.
5. The shedding of old skin by a nymph is called moulting.

B. Define the following.


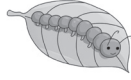


1. **Incubation**
2. **Moulting**
3. **Hatching**

Ans.

1. Sitting on eggs by parent birds to hatch them by the warmth of the body is called incubation.

- Shedding of old skin by the nymphs of insects is called moulting.
- The coming out of a young chick from an egg after it is fully grown is called hatching.

C. Different stages in the development of different animals are given on the left. Match them with the appropriate picture.

1. Nymph	(a)	
2. Eggs	(b)	
3. Pupa	(c)	
4. Larva	(d)	

D. Answer the following questions.

1. What is reproduction?

Ans. The process of producing their own kind by living things is called reproduction.

2. Why do animals reproduce?

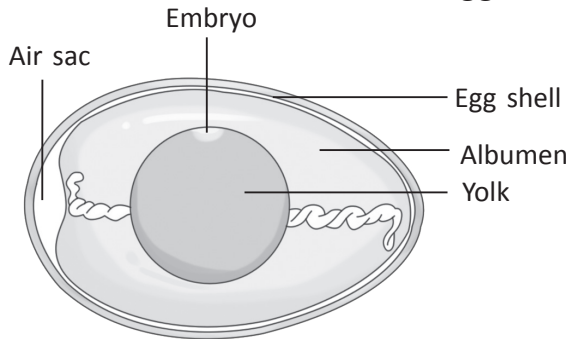
Ans. Animals reproduce to continue their own kind on the Earth.

3. What are the different ways by which animals reproduce?

Ans. Animals reproduce by giving birth to young ones or by laying eggs.

4. Draw the structure of a bird's egg and name its parts.

Ans.



5. Describe the life cycle of a butterfly.

Ans. The life cycle of a butterfly has four stages – Egg, Larva, Pupa and Adult.

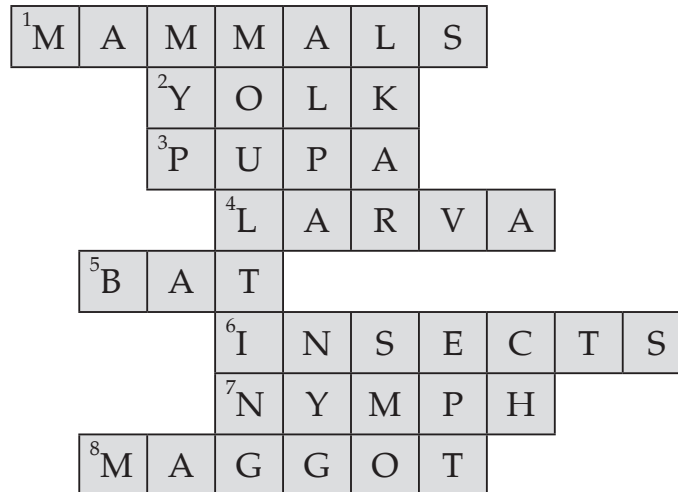
A butterfly lays eggs on the leaves of plants. An egg hatches into a larva called caterpillar. It feeds on leaves and covers itself in a cocoon. This stage is called pupa. Inside the cocoon, the caterpillar changes into an adult butterfly. The adult butterfly comes out by bursting pupa.

6. How do mammals take care of their young ones?

Ans. Mammals feed their babies. They keep them safe until they learn to look after themselves.

E. Solve the following crossword with the help of given clues.

1. Animals that give birth to young ones and feed them with their milk
2. The yellow part of an egg
3. The stage after larva in the life cycle of a butterfly
4. The worm-like stage in the life cycle of a butterfly
5. The only mammal that can fly
6. These do not take care of their babies
7. Baby cockroach that comes out of the egg
8. The larva of a housefly



Think Zone

1. **When a baby bird hatches out of an egg, there is no yolk seen. Why?**
Ans. A baby bird developing inside an egg feeds on yolk. Therefore, no yolk is seen when it hatches out of an egg.
2. **Why does the larva of a butterfly feed a lot?**
Ans. The larva of a butterfly feeds a lot because it grows rapidly and changes into a non-feeding stage called pupa. In pupa stage, it does not eat anything and changes into an adult butterfly.
3. **A tadpole has a tail and looks like a fish. Why?**
Ans. A tadpole has a tail and looks like a fish because it lives in water.
4. **Why does a fish lay thousands of eggs?**
Ans. A fish lays thousands of eggs because bigger fishes and other animals eat up many eggs and young fishes. Only a few of them grow into adult fishes.
5. **Why is the shell of a snake's egg thick and leathery?**
Ans. A snake lays eggs on the ground. A thick and leathery shell saves the eggs from breaking when laid on the ground.

ANSWERS

Checkpoint

Give one word answer.

1. Instrument used to see microbes
2. The fungi used to make bread
3. Disease-causing microbes
4. Microbes that cause typhoid

Microscope

Yeast

Germs

Bacteria

EXERCISES

A. Fill in the blanks.

1. Viruses can reproduce only inside the body of a living organism.
2. Yeast is used to make bread.
3. Bacteria help us to make curd.
4. Harmful microbes are called germs.
5. Some mushrooms are edible.
6. Microbes grow faster in warm and damp places.

B. Tick (✓) the correct answer.

1. Which of these is not a viral disease?
(a) Cholera (b) Common cold
(c) Dengue (d) Polio
2. Malaria is caused by a
(a) Bacteria (b) Fungi
(c) Protozoa (d) Virus
3. Ringworm is caused by
(a) Protozoa (b) Bacteria
(c) Fungi (d) Virus
4. Which of these microbes help us make curd and cheese?
(a) Virus (b) Fungi
(c) Bacteria (d) Protozoa

C. Match the columns.

Column A	Column B
1. Bacteria	(a) Many-celled fungus
2. Yeast	(b) Chickenpox
3. Mushroom	(c) Curd
4. Virus	(d) Bread

D. Answer the following questions.

1. What are microbes? Name different types of microbes.

Ans. The tiny organisms that cannot be seen with the naked eye are called microbes. Different types of microbes are bacteria, viruses, protozoa and fungi.

2. What are the different shapes of bacteria?

Ans. Bacteria are round, rod-shaped, spiral and comma-shaped.

3. Name a (a) one-celled fungus, (b) many-celled fungus.

Ans. (a) Yeast (b) Mushroom

4. How are microbes useful to us? State three points.

Ans. (a) Some microbes help in making ice-cream, toothpaste, glue, etc.

(b) Some bacteria help in making curd and cheese from milk.

(c) Yeast is used in making bread.

5. Which microbe turns the milk into curd?

Ans. Bacteria turn the milk into curd.

6. How are microbes harmful to us?

Ans. Many microbes cause diseases and spoil our food.

7. How are viruses different from other microbes?

Ans. Viruses cannot reproduce outside a living cell while other microbes can.

8. What are the different ways in which germs can enter our body?

Ans. Germs can enter our body through cuts and wounds; air, water and food containing germs and bite of an infected animal.

9. How can we protect ourselves from microbes? State five points.

Ans. We can protect ourselves from microbes by

(a) eating fresh and clean food.

(b) drinking clean water.

(c) washing our hands before and after eating food.

(d) keeping our body and surroundings clean.

(e) taking proper vaccines for diseases.

Think Zone

1. Rohan did not wash hands before eating his lunch. Next day, he had a stomach upset. Why did this happen?

Ans. Rohan had a stomach upset because he had his lunch with dirty hands which were carrying germs. Germs entered his stomach with food and made him sick.

2. Renu ate Golgappas from a roadside vendor. After some time, she started vomiting. Why?

Ans. Most roadside vendors sell uncovered food which carries germs. This food may be staled also. Therefore, eating such food makes us sick.

ANSWERS

Checkpoint 1

Unscramble the letters to find the names of food items. Write them in the blank spaces provided. Also, write the name of the nutrient each food item is rich in.

- | | | | | | | | | | | |
|----|---|---|---|---|---|---|---------------|----------------------|-----------------|----------------|
| 1. | A | A | S | E | Y | N | B | O | <u>SOYABEAN</u> | <u>Protein</u> |
| 2. | T | T | O | A | O | P | <u>POTATO</u> | <u>Carbohydrates</u> | | |
| 3. | T | B | R | E | T | U | <u>BUTTER</u> | <u>Fat</u> | | |

Checkpoint 2

Fill in the blanks.

1. A balanced diet contains all the nutrients in right amounts.
2. Vegetarians should eat more pulses and beans.
3. Cooking makes the food soft and tasty.
4. Cakes and biscuits are made by baking.
5. Fresh milk is preserved by converting it into cheese or yogurt.

EXERCISES**A. Write True or False.**

1. Rice and potatoes are rich in proteins. False
2. Roughage cannot be digested but it helps to keep digestive system healthy. True
3. We should eat lots of fats every day. False
4. Too much proteins in our diet make us obese. False
5. We should not wash fruits before eating them. False

B. Fill in the blanks.

1. Substances in food that keep us healthy are called nutrients.
2. Nutrients that give us energy are carbohydrates and fats.
3. A nutrient that helps in the repair of body cells is protein.
4. Vitamins and minerals protect our body from diseases.
5. Protecting food to be used later is called food preservation.

C. Tick (✓) the correct answer.

- Carbohydrates are needed for
 - growth
 - energy
 - strong bones
 - prevention of scurvy
- Growing children need more of
 - carbohydrates
 - fats
 - proteins
 - vitamins
- Minerals like iron help in the
 - formation of muscles
 - formation of bones
 - formation of blood
 - preservation of food
- Vitamins are
 - body-building nutrients
 - energy-giving nutrients
 - body-repairing nutrients
 - protective nutrients
- Cooking makes the food
 - soft
 - tasty
 - digestible
 - all of these

D. Classify the given food items on the basis of the nutrients present in them.

Rice butter bread apple egg potato fish pulses
pear meat cheese sugar spinach brinjal tomato

Carbohydrates	Proteins	Fats	Vitamins and Minerals
Rice	Egg, Cheese	Butter	Apple
Bread	Fish		Pear
Potato	Pulses		Spinach
Sugar	Meat		Brinjal, Tomato

E. Complete the table given below:

Nutrient	Food Source	Functions
Carbohydrates	<u>Sugar, Rice</u>	<u>Provide energy</u>
<u>Proteins</u>	<ul style="list-style-type: none"> ● Fish ● Soyabean 	<u>Growth, repair of body cells and build body muscles</u>
<u>Fats</u>	<u>Butter, Ghee</u>	<ul style="list-style-type: none"> ● Provide us energy ● Keep our body warm

F. Answer the following questions.

1. Why do we need food?

Ans. We need food to get energy, grow and repair damaged cells of the body and to keep our body fit, healthy and disease-free.

2. What is a balanced diet?

Ans. The diet that contains the right amount of all the nutrients is called a balanced diet.

3. Why do we need to drink water every day?

Ans. We need to drink water every day because it helps in the digestion of food, removal of waste from the body and keeps the skin healthy.

4. Why is fibre required in our diet? Give examples of foods that give us fibre.

Ans. Fibre in our diet keeps our digestive system healthy. Foods such as whole grains, spinach, lady's finger, cucumber, oats, etc. give us fibre.

5. Name any four methods of cooking food.

Ans. Boiling, frying, steaming and roasting are methods of cooking food.

6. Name the various methods of preserving food. Give one example of each.

Ans. Various methods of preserving food with examples are as follows:

(a) **Heating:** Milk is preserved by heating.

(b) **Salting:** Vegetables/fruits/meat/fish.

(c) **Pickling:** Raw mangoes/olives/green chillies.

(d) **Sweetening:** Fruits.

(e) **Drying:** Cereals/red chillies/fenugreek leaves/fish.

(f) **Freezing:** Cooked food/fruits/vegetables/fish/meat/eggs.

(g) **Canning:** Tomatoes/green peas/chillies/fruits.

(h) **Changing form:** Milk into cheese or yogurt.

7. Give the functions of the following nutrients:

(a) **Carbohydrates**

(b) **Proteins**

(c) **Fats**

(d) **Vitamins**

(e) **Minerals**

Ans. (a) Carbohydrates give us energy.

(b) Proteins help in the growth and repair of damaged cells of the body.

(c) Fats give us energy and warmth.

(d) Vitamins keep our body fit and disease-free.

(e) Minerals are required in the formation of blood, bones and teeth and in maintaining water balance of the body.

Think Zone

1. Rohan is a labourer and eats more food than Mr. Gupta who is a clerk. Why?

Ans. Rohan eats more food than Mr. Gupta because he does more physical work and hence, needs more energy.

2. Kavya's mother asks her to avoid eating samosas and pakodas. Why?

Ans. Samosas and pakodas contain mainly carbohydrates and fats. They do not provide proteins and vitamins and minerals to help grow and protect against diseases. Also, eating more of such food makes us obese.

3. Why do Dr. Rastogi advise his patients to eat a variety of foods?

Ans. Eating a variety of food provides us with all kinds of nutrients. It keeps our body fit and healthy.

4. Why should eat lemons and oranges regularly?

Ans. Lemons and oranges are rich sources of vitamin C. It protects us from many diseases.

5. Why should we take small portions of food in our plate?

Ans. We should take small portions of food in our plate to avoid the wastage of food.

ANSWERS

Checkpoint 1

Complete the following table.

Name of teeth	Shape	Location	Number in each jaw	Total	Function
Incisors	<i>Chisel</i>	Front	4	8	<i>Cut and bite food</i>
Canines	Sharp and pointed	<i>On either side of incisors</i>	2	4	Tearing food
<i>Premolars</i>	Flat and broad	Next to canines	4	8	<i>Crushing and chewing food</i>
<i>Molars</i>	Broad	<i>Towards back of mouth</i>	6	12	<i>Chewing and grinding food</i>

Checkpoint 2

Tick (✓) the correct answer.

- Which of these teeth are used for cutting and biting?

(a) Incisors <input checked="" type="checkbox"/>	(b) Canines
(c) Premolars	(d) Molars
- Which of these is not a part of a tooth?

(a) Root	(b) Shoot <input checked="" type="checkbox"/>	(c) Crown	(d) Neck
----------	---	-----------	----------
- Which of these is the hardest substance in our body?

(a) Dentine	(b) Pulp	(c) Enamel <input checked="" type="checkbox"/>	(d) Crown
-------------	----------	--	-----------

Checkpoint 3

Fill in the blanks.

- Our body uses food when it is digested.
- Saliva changes starch of food into sugar.
- No digestion takes place in large intestine.
- Small intestine is a coiled tube.

EXERCISES

A. Name the following.

1. The set of teeth in a 2-year old child Milk teeth
2. The part of a tooth that has nerves Pulp
3. Teeth used for tearing meat Canines
4. The hardest part of a tooth Enamel
5. The sac where food is digested Stomach

B. Match the following.

- | Column A | Column B |
|------------|--|
| 1. Enamel | (a) hold the teeth in place |
| 2. Dentine | (b) the outermost white layer of a tooth |
| 3. Pulp | (c) the layer below the enamel |
| 4. Gums | (d) make us feel the toothache |
| 5. Nerves | (e) the central part of a tooth |

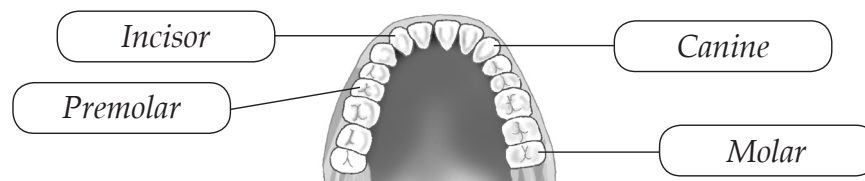
C. Tick (✓) the correct answer.

1. The number of teeth in the mouth of a 30-year old man is
(a) 20 (b) 32 (c) 40 (d) 60
2. The number of incisors in each jaw is
(a) 2 (b) 3 (c) 4 (d) 5
3. Tooth decay leads to
(a) fever (b) bad breath
(c) headache (d) shivering
4. Saliva helps in the digestion of
(a) proteins (b) fats
(c) starch (d) cellulose
5. The food is completely digested in the
(a) mouth (b) stomach
(c) small intestine (d) food pipe
6. The water from the undigested food is absorbed by the
(a) mouth (b) stomach
(c) large intestine (d) small intestine

D. Write True or False.

1. Food gets completely digested in the stomach. False
2. The visible part of a tooth is called crown. True
3. There are total eight incisors in humans. True
4. Liver and pancreas pour their juices in the stomach. False
5. Premolars are located next to incisors. False

E. Label the different types of teeth in the following figure.



F. Answer the following questions.

1. Name the different types of teeth and give their functions.

- Ans. (a) Incisors – They are used to bite the food.
(b) Canines – They are used for tearing the food.
(c) Premolars – They are used for crushing the food.
(d) Molars – They are used for grinding the food.

2. Explain the structure of a tooth.

- Ans. A tooth has three layers – enamel, dentine and pulp.
- Enamel is the white hard covering of the tooth. It protects the tooth from wear and tear during chewing.
 - Dentine is a yellow, soft and bone-like layer of tooth. It is found below enamel and supports the enamel.
 - Pulp is a soft and central part of a tooth. It contains blood vessels and nerves. It makes us feel toothache.

3. Write the ways to take care of teeth.

- Ans. (a) Brushing teeth twice a day.
(b) Rinsing mouth after every meal.
(c) Avoiding too much of sweets and aerated drinks.
(d) Getting checked by dentist regularly.

4. What is tooth decay?

- Ans. Tooth decay is the removal of enamel of a tooth by the action of acid released by bacteria growing on food bits stuck between the teeth.

5. How are milk teeth different from permanent teeth?

- Ans. The teeth that erupt between the age of six and nine months and fall off between six and twelve years of age are called milk teeth. They are 20 in number. The new set of teeth that replaces the milk teeth is called permanent teeth. They are 32 in number.

6. Write the names of different parts of the digestive system.

- Ans. Different parts of the digestive system are the mouth, food pipe, stomach, small intestine and large intestine. Apart these, liver and pancreas are digestive glands.

7. Write down the path food takes in the digestive system.

- Ans. Mouth → Food pipe → Stomach → Small intestine → Large intestine → Anus

Think Zone

1. What would happen if there were no small intestine in our body?

Ans. If there were no small intestine in our body, food would not get completely digested and taken by blood. It would not reach to all parts of the body.

2. Rita never brushes her teeth before going to bed. What do you think will happen to her teeth?

Ans. Not brushing teeth before going to bed will lead to tooth decay.

3. Shreya's parents visit a dentist, at least once in six months. Why do they do so?

Ans. Visiting a dentist once in six months helps in keeping the teeth healthy. It helps in finding a disease developing in teeth or mouth at an earlier stage.

ANSWERS

Checkpoint 1

Write True or False.

- | | |
|---|--------------|
| 1. We should touch electric wires with wet hands. | <u>False</u> |
| 2. We should not play with knives and blades. | <u>True</u> |
| 3. We should keep our toys at a proper place. | <u>True</u> |
| 4. We should take medicines on our own. | <u>False</u> |
| 5. We should cross the road at zebra crossing. | <u>True</u> |

Checkpoint 2

Fill in the blanks.

1. First aid can save someone's life.
2. A bruise is caused by pressure.
3. Keeping ice pack on insect bitten area reduces swelling and pain.

EXERCISES

A. Write True or False.

- | | |
|---|--------------|
| 1. If there is no footpath, walk in the middle of the road. | <u>False</u> |
| 2. We should play with matchsticks. | <u>False</u> |
| 3. Do not touch electrical fittings with wet hands. | <u>True</u> |
| 4. If someone gets an electric shock, switch off the mains. | <u>True</u> |
| 5. Put ice pack over the bruise to heal it up. | <u>True</u> |

B. Tick (✓) the correct answer.

1. Children should not use

(a) Books	(b) Pencils
(c) Toys	(d) Knives <input checked="" type="checkbox"/>
2. Which of these objects should be handled carefully?

(a) Glass objects <input checked="" type="checkbox"/>	(b) Wooden objects
(c) Plastic objects	(d) Rubber objects

3. One can apply baking soda paste on

(a) Blister

(b) Wasp bitten area

(c) Bruise

(d) Bleeding nose

C. Find and encircle eight words related to the chapter in the grid given below.

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

D. Answer the following questions.

1. What causes an accident?

Ans. Our carelessness while doing some work causes an accident.

2. Where and how should one cross the road?

Ans. One should cross the road at Zebra Crossing. Before crossing the road, look at both sides (left and right) one by one and cross when it is clear.

3. What should be done to a person with a nose-bleed?

Ans. A person with a nose-bleed should be made sit and lean the head forwards and closing the nose by holding it between the thumb and fingers.

4. What safety rules should we follow while handling electrical equipments?

Ans. We should follow following safety rules:

- The switch should be turned off before touching a stove, heater or lamp.
- Electrical switch, socket, wires or cords should not be touched with wet hands.
- If water is being heated in a bucket with an electric rod, do not touch the bucket while the switch is on.

5. List the safety rules to be followed at swimming pool.

Ans. ● Never go for a swim alone.
 ● Do not go up to the deep end.
 ● Never push anybody into the pool just for fun.
 ● Swim only when there is a life guard on duty.

6. What would you do if a person becomes faint?

Ans. If a person becomes faint:

- make the person lie on his/her back.
- loosen the belt and clothes.
- raise the legs of the person above the chest level.
- sprinkle some cold water on the person's face.
- do not let people crowd around the fainted person.
- let the fainted person breathe fresh air.

7. List three safety rules to be followed while in the bathroom.

- Ans.**
- Keep the floor of the bathroom dry.
 - Do not leave the soap lying on the floor.
 - Use non-slippery bath mats to prevent slipping.

8. List five safety rules to be followed in the kitchen.

- Ans.**
- Never wear loosely hanging or synthetic clothes such as nylon.
 - Do not play with matchsticks.
 - The knob of the gas should be turned off when not in use.
 - Remain at a safe distance from the gas stove when food is being cooked.
 - Electrical switches should be turned off before leaving the kitchen.

E. Look at the given pictures. Which safety rule are children not following while playing in the playground?



Do not play a rough game.



Do not hit each other.

Think Zone

1. Why should a playground be cleaned before starting to play?

Ans. A playground should be cleaned before starting to play because stone or glass pieces, pebbles, etc. littered in the playground may hurt us.

2. Teacher asked Mohit not to sharpen the pencil with a blade. What will happen if he does so?

Ans. The blade used to sharpen the pencil may cut and bleed the finger.

3. Ritu found a girl lying unconsciously on the floor. She immediately made her lie on her back and raised her legs above the heart level. Why did she do so?

Ans. The raising of legs above heart level ensures proper supply of blood to the brain.

ANSWERS

Checkpoint 1

Write the names of few clothes that we wear in winter season.

Sweater
Jacket

Scarf
Muffler

Cap
Gloves

Checkpoint 2

Write True or False.

1. A nurse wears a black coat. False
2. A lawyer wears a white coat. False
3. A firefighter's uniform protects him from heat, smoke and flames of fire. True
4. A soldier's uniform is made of a tough material. True
5. We should wear tight shoes. False

EXERCISES

A. Write True or False.

1. We wear woollen clothes in summers. False
2. Synthetic fibres are non-porous in nature. True
3. Linen fibres are obtained from animals. False
4. Polyester is a natural fibre. False
5. Delicate clothes are generally dry-cleaned. True

B. Fill in the blanks.

1. The synthetic cloth is used to make umbrellas and raincoats.
2. Silk is a natural fibre.
3. The dust makes our clothes dirty.
4. Leaves of neem are used to keep insects away from clothes.

C. Tick (✓) the correct answer.

1. Which of the following materials is used for making a raincoat?
(a) Waterproof (b) Airproof
(c) Fireproof (d) Dustproof

2. Which of these clothes prevent body heat from escaping out?

(a) Cotton	(b) Rayon
(c) Jute	(d) Woollen <input checked="" type="checkbox"/>
3. This type of cloth material is non-porous.

(a) Synthetic <input checked="" type="checkbox"/>	(b) Natural
(c) Jute	(d) Cotton
4. Which of these is not a natural fibre?

(a) Rayon <input checked="" type="checkbox"/>	(b) Jute
(c) Cotton	(d) Silk
5. Synthetic fibres are generally

(a) Stretchable	(b) Wrinkle-free
(c) Waterproof	(d) All of these <input checked="" type="checkbox"/>

D. Answer the following questions.

1. How did early man cover his body?

Ans. Early man covered his body with animal's skin, leaves and the bark of trees.

2. Why do we need clothes?

Ans. We need clothes to cover our body.

3. What do you understand by (a) casual clothes, (b) formal clothes?

Ans. (a) The clothes that we use for everyday wear are called casual clothes.

(b) The clothes that we wear at workplace are called formal clothes.

4. What are natural fibres? Name two natural fibres.

Ans. The fibres which are obtained from animals and plants are called natural fibres. Two natural fibres are cotton and wool.

5. What are synthetic fibres? Name two synthetic fibres.

Ans. Fibres made in factories are called synthetic fibres. Two synthetic fibres are nylon and rayon.

6. How are socks and shoes important to us?

Ans. Socks and shoes protect our feet from dust, heat, cold, insects, worms and germs. They protect us from getting hurt from pebbles and hard objects.

7. What special care should be taken for the clothing of a patient?

Ans. The clothes of a patient should always be disinfected with some antiseptic solution.

8. How should woollen and silk clothes be stored?

Ans. The woollen and silk clothes should be washed or dry-cleaned as required, kept in the sun for a few hours and stored with mothballs or dried neem leaves.

9. Why are cotton clothes preferred during summers?

Ans. Cotton clothes are porous. They soak the sweat easily and thus, keep the body cool.

Think Zone

1. Clothes made of synthetic fibres dry very quickly. Why?

Ans. Synthetic clothes are nonporous and do not soak water. Therefore, they dry very quickly.

2. Why are white or light-coloured clothes preferred in warm weather?

Ans. White or light-coloured clothes do not absorb much heat from the sun and thus, keep our body cool.

3. Why should we prefer wearing full-sleeve night suit?

Ans. We prefer wearing full-sleeve night suit because it protects us from insects such as mosquito bite during sleep.

ANSWERS

Checkpoint 1

Match the following:

- | | |
|--------------------------------|----------------|
| 1. Frozen dew drops | (a) fog |
| 2. Ice crystals | (b) dew |
| 3. Small round balls of ice | (c) snowflakes |
| 4. Droplets of water on leaves | (d) frost |
| 5. Cloud touching the ground | (e) hailstones |

Checkpoint 2

Fill in the blanks.

1. The water that seeps into the ground is called underground water.
2. Germs present in the water cause diseases.
3. Water fit for drinking is called potable water.
4. Chlorine tablets are used to kill germs present in water.
5. The clear liquid on the top of sediments is called decant.

EXERCISES

A. Fill in the blanks.

1. Evaporation is faster when temperature is higher.
2. The amount of water vapour present in the air is called humidity.
3. Water vapour condenses to form clouds.
4. Water table rises during the rainy season.
5. The process of settling down heavy insoluble impurities in water is called sedimentation.

B. Write True or False.

1. Water is also present inside our body. True
2. Speed of wind has no effect on evaporation. False
3. Water cycle starts with the process of evaporation. True

4. Rainwater harvesting makes water impure.

False

5. Germs present in water can make us sick.

True

C. Tick (✓) the correct answer.

1. Which of these factors decreases the rate of evaporation?

- (a) Increased temperature (b) Increased surface area
(c) Increased wind speed (d) Increased humidity

2. Which of these is not a form of precipitation?

- (a) Rain (b) Gemstone (c) Hailstone (d) Snow

3. Which of these chemicals is not used to purify water?

- (a) Chlorine (b) Baking powder
(c) Bleaching powder (d) Potassium permanganate

D. Answer the following questions.

1. **What is humidity?**

Ans. The amount of water vapour present in the air is called humidity.

2. **Why do wet clothes dry faster when they are spread out?**

Ans. When we spread out wet clothes, the surface area increases and evaporation becomes faster. Hence, clothes dry faster.

3. **What is water cycle? Explain.**

Ans. The continuous movement of water from the surface of the Earth to the air and from the air back to the surface of the Earth is called water cycle.

The Sun's heat evaporates water from the water bodies. This water vapour rises up, cools and changes into water droplets. Water droplets collect together to form clouds. When the clouds become too heavy, they give water as rain or snow.

4. **What is precipitation?**

Ans. Any form of water that falls on the Earth's surface is called precipitation. It may be in the form of rain, snow, hail, etc.

5. **What is the importance of precipitation?**

Ans. Precipitation is important because:

- Without precipitation, all the land will turn into a desert.
- It helps farmers to grow crops.
- It gives us freshwater to drink.

6. **List the harmful effects of precipitation.**

Ans. Precipitation can be harmful as:

- Too much rain can cause severe floods which can lead to loss of life and property.
- Hailstones can damage life and property.
- Freezing rain and sleet can destroy trees and power lines.

7. **How is snow formed?**

Ans. In colder regions, when temperature is very low, water vapour in the clouds freezes into ice crystals which fall down as snow.

8. What are the ways in which the germs in drinking water can be killed?

Ans. The germs in drinking water can be killed by boiling and chlorination of water and by adding potassium permanganate and bleaching powder to it.

9. What is rainwater harvesting?

Ans. Rainwater harvesting is a way to collect rainwater when it rains, store it above or under the ground for later use or to charge the underground water table.

10. What is water table?

Ans. The level of underground water is called water table.

Think Zone

1. Flights may get delayed during winter mornings. Why?

Ans. Flights get delayed during winter mornings because winter mornings are generally foggy and have reduced visibility which hinders the landing and take off of flights.

2. Why is it easier to sip tea from a saucer than a cup?

Ans. The rate of evaporation increases with increase in surface area. In saucer, evaporation is faster as it has larger surface area than a cup. So, it is easier to sip tea from a saucer than a cup.

3. Wet clothes take longer to dry in rainy season. Why?

Ans. During rainy season, the amount of water vapour in air is very high, therefore, the rate of evaporation is low. So the clothes do not dry easily in this season.

4. Why should rainwater harvesting be encouraged?

Ans. Rainwater harvesting should be encouraged to raise the level of water table. It will help to meet the demand of water during summer or at the time of water scarcity.

ANSWERS

Checkpoint 1

Give one word for the following.

1. State of atmosphere at a particular place and time
2. A person who studies Earth's atmosphere and forecasts weather
3. Study of weather
4. Average weather conditions at a place over a long period of time

Weather
Meteorologist
Meteorology
Climate

Checkpoint 2

Fill in the blanks.

1. Air is a mixture of many gases.
2. The main gases of air are nitrogen and oxygen.
3. When air becomes hot, it becomes light.
4. Land loses heat faster than water.
5. Land breeze blows at night.

EXERCISES

A. Fill in the blanks.

1. The Sun is the most important factor which controls weather.
2. Sunrays fall slanting on the Earth in morning and evening.
3. Moving air is called wind.
4. The envelope of air surrounding the earth is called atmosphere.
5. Hot air is lighter than cold air.

B. Write True or False.

1. Air is present all around us.
2. Air expands on cooling.
3. Water gets heated faster than land.
4. The land breeze blows in deserts.
5. Weather changes every day.

True
False
False
False
True

C. Match the columns.

- | | | |
|--------------------|---|----------------|
| 1. Moving air | — | (a) Daytime |
| 2. Land breeze | — | (b) Atmosphere |
| 3. Sea breeze | — | (c) Wind |
| 4. Envelope of air | — | (d) Night |

D. Answer the following questions.

1. **What is meant by weather?**

Ans. Weather is a state of the atmosphere at a particular place and time.

2. **What causes changes in weather?**

Ans. Temperature causes changes in weather. It is usually higher during the day than at night.

3. **Who is a meteorologist?**

Ans. A person who studies the earth's atmosphere and forecasts weather is called a meteorologist.

4. **What type of climate is found in deserts and Antarctica?**

Ans. Deserts have a hot and dry climate while the Antarctica has a very cold and dry climate.

5. **Which gases are present in air?**

Ans. Air contains nitrogen, oxygen, carbon dioxide, water vapour and other gases.

6. **What is sea breeze? How does it occur?**

Ans. The air which blows from sea to land in coastal areas during the daytime is called sea breeze.

During the daytime when the sun shines brightly, the land near the sea gets heated faster than the sea water. The air above the land becomes warm and rises up. The cool air from sea rushes towards the land to take the place of the warm air that has risen up. This gives rise to sea breeze.

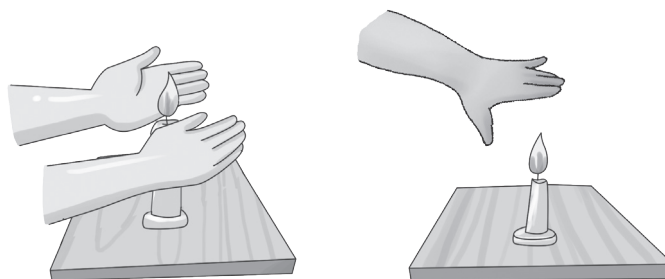
7. **What is land breeze? How does it occur?**

Ans. The air which blows from land to sea in coastal areas during night at is called land breeze.

At night after the sunset, the land near the sea becomes cool faster than the sea water. As the air above the sea is still warm, it rises up and the cool air from the land rushes towards the sea to take its place. This gives rise to land breeze.

Think Zone

1. **Look at the diagrams shown here.**



(a) Which hand feels hotter?

(b) What does this prove?

Ans. (a) The hand above the candle feels hotter.

(b) This proves that hot air is lighter and rises up.

2. We see people walking in a park early in the morning. Why?

Ans. People walk in a park early in the morning because mornings are cooler and it is optimum time for outdoor exercises as compared with later in the day. Besides this, the sunrays falling on the Earth at this time help in the formation of vitamin D in the body.

ANSWERS

Checkpoint 1

Name any three:

- | | | | |
|------------|---------------|-----------------|-----------------------|
| 1. Gases | <u>Oxygen</u> | <u>Nitrogen</u> | <u>Carbon dioxide</u> |
| 2. Solids | <u>Table</u> | <u>Sugar</u> | <u>Salt</u> |
| 3. Liquids | <u>Water</u> | <u>Milk</u> | <u>Oil</u> |

Checkpoint 2

Tick (✓) the correct word.

- Water exists in **two/three** (✓) forms.
- Water vapour is the **liquid/gaseous** (✓) state of water.
- Nephthalene** (✓)/**Chlorine** shows sublimation.
- Solute and solvent make **ice/solution** (✓).
- Lemon juice/Soda** (✓) is a gas in liquid solution.

EXERCISES**A. Fill in the blanks.**

- All matter take up some space and has mass.
- Matter is made up of small particles called atoms.
- Atoms put together form a molecule.
- Matter exists as solid, liquid and gas.
- Ice is a solid, whereas water is a liquid.

B. Write True or False.

- The process of changing from a solid state to a liquid state is called freezing. False
- A solute is made of solution and solvent. False
- Gases can flow easily. True
- When water vapour changes back to water on cooling, it is called evaporation. False
- Liquids neither have a definite shape nor a definite volume. False

C. Tick (✓) the correct answer.

- Which state of matter takes the shape of the container?
(a) Solid (b) Liquid
(c) Gas (d) Liquid and gas ✓
- Which state of matter does not flow freely?
(a) Solid ✓ (b) Liquid
(c) Gas (d) Liquid and gas
- The solid which dissolves in a liquid is called a
(a) solvent (b) solute ✓
(c) solution (d) fluid
- Which of these is not a liquid?
(a) Vinegar (b) Milk
(c) Oil (d) Water vapour ✓

D. Answer the following questions.

1. What is matter?

Ans. Anything that takes up space and has mass is called matter.

2. What are the common properties of matter?

Ans. ● A matter has mass and occupies space.
● All types of matter are formed of small particles called atoms.
● A matter can exist in different states or forms.
● A matter can be changed from one state or form to another.

3. How are molecules arranged in a solid, a liquid and in a gas?

Ans. Solid: The molecules in a solid are very tightly arranged.

Liquid: The molecules in a liquid are loosely arranged.

Gas: The molecules in a gas are very loosely arranged.

4. What is (a) evaporation, (b) condensation, (c) melting, (d) freezing?

Ans. (a) Changing of a liquid into vapour (gaseous) form is called evaporation.
(b) When water vapour changes into water on cooling, it is called condensation.
(c) The process of changing a solid into a liquid on heating is called melting.
(d) The process of changing of a liquid into a solid is called freezing.

5. What is sublimation?

Ans. The change from solid state to gaseous state, without changing into the liquid state is called sublimation.

6. What is (a) a solute, (b) a solvent, (c) a solution?

Ans. (a) A substance that is soluble in a liquid is called a solute.
(b) A liquid in which a solute can be dissolved is called solvent. Here, water is the solvent.
(c) A solution is a mixture of solute and solvent.

7. Name the solute and the solvent in the following solutions:

- (a) Lemon juice in water (b) Chocolate in water (c) Sugar in milk

Ans. (a) Solute – Lemon juice, Solvent – Water

(b) Solute – Chocolate, Solvent – Water

(c) Solute – Sugar, Solvent – Milk

E. Complete the following table.

Property	Gas	Solid	Liquid
Ability to flow	<u>Can flow easily</u>	<u>Do not flow</u>	Can flow
Shape	<u>No fixed shape, takes the shape of the container</u>	Fixed shape	<u>No fixed shape, takes the shape of the container</u>
Arrangement of molecules	Very loosely packed	<u>Very tightly packed</u>	<u>Loosely packed</u>
Volume	Not definite	<u>Definite</u>	<u>Definite</u>

Think Zone

1. When sugar is dissolved in water, the volume of water does not rise. Why?

Ans. On dissolving sugar in water, the volume of water does not rise because the molecules of sugar take the space between the molecules of water.

2. A balloon is attached to the mouth of a bottle containing club soda. The bottle is then shaken gently and left to stand for some time. The balloon gets inflated. Why?

Ans. This is because the gas formed by the shaking of the bottle of club soda takes the space inside the balloon.

3. How are we able to smell the food being cooked from a distance?

Ans. We are able to smell the food being cooked from a distance because molecules of food get far apart from each other and spread through all the space in the air.

Force, Work and Energy

ANSWERS

Checkpoint 1

Which force is being used in these situations? There might be more than one kind of force working in some situations.

- | | |
|--|----------------------------|
| 1. Opening a drawer | <u>Muscular force</u> |
| 2. Falling of rain | <u>Gravitational force</u> |
| 3. Doing your homework | <u>Muscular force</u> |
| 4. Rolling down of a stone from a hill | <u>Gravitational force</u> |
| 5. Riding a bicycle | <u>Muscular force</u> |

Checkpoint 2

Fill in the blanks.

1. Machines make our work easier.
2. Seesaw is a type of lever.
3. A door knob is an example of wheel and axle.
4. Coal is an example of fossil fuel.
5. Solar energy is obtained from sun.

EXERCISES

A. Write True or False.

- | | |
|---|--------------|
| 1. Force due to gravity is called frictional force. | <u>False</u> |
| 2. Energy is the ability to do work. | <u>True</u> |
| 3. Work is done when force is applied on an object. | <u>True</u> |
| 4. One form of energy can be changed into another. | <u>True</u> |
| 5. Coal is a renewable source of energy. | <u>False</u> |

B. Identify the kind of force in each of the following cases.

- | | |
|---|----------------------------|
| 1. The force used by a man in turning a big stone | <u>Muscular force</u> |
| 2. The force that makes an apple fall on the ground | <u>Gravitational force</u> |
| 3. The force which causes a toy car to stop after some time | <u>Frictional force</u> |

4. The force used during swimming
5. The force that makes a shuttle cock fall down after being hit

Muscular force

Gravitational force

C. Tick (✓) the correct answer.

1. During photosynthesis,
 - (a) Chemical energy is converted into solar energy
 - (b) Muscular energy is converted into solar energy
 - (c) Muscular energy is converted into chemical energy
 - (d) Solar energy is converted into chemical energy
2. The force which pulls an object towards the earth is called
 - (a) Muscular force
 - (b) Gravitational force
 - (c) Frictional force
 - (d) None of these
3. Which of the following is not a source of energy?
 - (a) Water
 - (b) Sun
 - (c) Wind
 - (d) Friction

D. Match the columns.

- | Column A | Column B |
|-------------------|------------------|
| 1. Lever | (a) Knife |
| 2. Wheel and Axle | (b) Wooden plank |
| 3. Pulley | (c) Light bulb |
| 4. Inclined plane | (d) Cranes |
| 5. Screw | (e) Seesaw |
| 6. Wedge | (f) Screwdriver |

E. Answer the following questions.

1. What is force?

Ans. Force is a pull or push that makes some change in an object.

2. When is work said to be done?

Ans. When we apply force to an object and it moves through a distance, then work is said to be done.

3. What is energy? What are its different types?

Ans. Energy is the ability to do work. Different types or forms of energy are solar energy, wind energy, hydroenergy, heat energy, geothermal energy, atomic energy and muscular energy.

4. Give one example of energy change.

Ans. When we beat a drum, the muscular energy is converted into sound energy.

5. What are fossil fuels? How are they formed?

Ans. The fuels which we get by drilling or mining from the Earth are called fossil fuels. Coal, petrol and natural gas are fossil fuels.

These fuels have been formed from the remains of dead plants and animals which got buried under the earth's crust millions of years ago.

6. What are simple machines? What are their different types?

Ans. Simple machines are the tools which make our work easier and faster by changing the direction of the applied force.

Different types of simple machines are lever, pulley, wheel and axle, inclined plane, screw and wedge.

7. What is a lever? Give its two uses.

Ans. Lever is a simple machine. It is used to cut things, move or lift heavy objects, and to open lids.

8. What is a screw? Give its two uses.

Ans. A nail with grooves in it is called a screw. A screw is used to hold objects together. It is also used in fountain pen caps, bottle caps, light bulb, jar lid, taps, etc.

9. What do you understand by

(a) Muscular force

(b) Gravitational force

(c) Frictional force

(d) Energy

Ans. (a) The force used by the muscles of the body is called muscular force.

(b) The force that the Earth exerts on objects to pull them down is called gravitational force or gravity.

(c) A force which stops a moving object is called frictional force.

(d) Energy is the ability to do work. It is needed to exert force to get the work done.

Think Zone

1. Rita finds it difficult to lift a bag full of potatoes. Why?

Ans. Rita may have little energy to apply muscular force to lift a bag full of potatoes.

2. CNG is considered a non-renewable source of energy. Why?

Ans. CNG is a non-renewable source of energy because it will be exhausted after use and may take thousands of years to form again.

ANSWERS

Checkpoint 1

Fill in the blanks.

1. A star is a huge ball of hot gases which gives out heat and light.
2. A planet does not have heat and light of its own.
3. Venus is the hottest planet.
4. Mercury is the smallest planet.
5. Earth is the only planet that has life on it.

Checkpoint 2

Fill in the blanks.

1. The Earth is the only planet which has atmosphere on it.
2. The core of the Earth is made of molten rocks.
3. The spinning of the Earth on its axis causes day and night.
4. The equator divides the Earth into two hemispheres.
5. The Earth takes 365¼ days to complete one revolution around the Sun.

EXERCISES

A. Name the following.

- | | |
|---|---------------|
| 1. A huge ball of hot gases which gives out heat and light | <u>Star</u> |
| 2. The fixed path on which a planet revolves around the Sun | <u>Orbit</u> |
| 3. A heavenly body that revolves around a star | <u>Planet</u> |
| 4. The only planet where life is possible | <u>Earth</u> |
| 5. A dwarf planet | <u>Pluto</u> |

B. Fill in the blanks.

1. The equator is an imaginary line that passes through the two poles of the Earth.
2. The hemisphere is one half of the Earth divided by equator.
3. The crust is the outermost layer of the Earth.

3. Name all the planets in order of their distance from the Sun.

Ans. Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.

4. What are the differences between inner planets and outer planets?

Ans. Inner planets: They are closer to the Sun. They are smaller, made up of rocks and do not have rings around them. They are Mercury, Venus, Earth and Mars.

Outer planets: They are away from the sun. They are larger, made up of gases and have rings around them. They are Jupiter, Saturn, Uranus and Neptune.

5. How is the crust of the Earth different from its mantle?

Ans. The crust is the outer hard surface of the Earth which is 30 kilometres thick, whereas mantle is the middle layer which is made up of rocks and is 3000 kilometres thick.

6. What is a volcano?

Ans. A volcano is a weak spot in the Earth's crust through which molten rocks (called lava) come out from inside of the earth along with smoke and gases.

7. What are rotation and revolution?

Ans. The spinning of the Earth on its axis is called rotation.

The movement of the Earth around the Sun in a fixed orbit is called revolution.

Think Zone

1. If we look up at the sky during daytime, we do not see any stars. Why?

Ans. We do not see any stars during daytime because of the bright glare of the Sun.

2. Why does the Sun appear very big star to the people on the Earth.

Ans. The Sun is the closest star to the Earth. Therefore, it appears very big.

3. Each season takes a year to come again. Why?

Ans. Change of seasons occurs due revolution of the Earth around the Sun. It takes $365\frac{1}{4}$ days or one year to complete one revolution. Therefore, each season takes a year to come again.