

# Adaptations in Animals

## Let's Begin

Name one land animal and one water animal. How are these different from each other? Let's find out.

## Adaptation to Habitat

Animals live in different habitats of land and water. To survive in a particular climatic and environmental conditions, animals bring changes in themselves. This process of changing to survive in a habitat is known as **adaptation**.

### Terrestrial animals

Animals that live on land are called **land animals** or **terrestrial animals**. They usually have legs to move on land. Most of the terrestrial animals breathe through their lungs.



Rat



Tiger



Elephant

Different land animals live on different habitats like polar regions, deserts, etc.

### Animals living in polar regions

The North Pole is an extremely cold place. It is a habitat of polar bears.

### Adaptations

- Polar bears have thick, furry coat on their body to keep them warm.
- A thick layer of fat under the skin keeps the polar bear warm. It is known as **blubber**.

### Fact!

Snakes live on land but have no legs. They crawl!





Likewise, the South Pole also is an extremely cold region. It is a habitat of penguins.

### Adaptations



Penguin

- Penguins store fat in their bodies to keep themselves warm.
- They usually sit close to each other to protect themselves from cold.



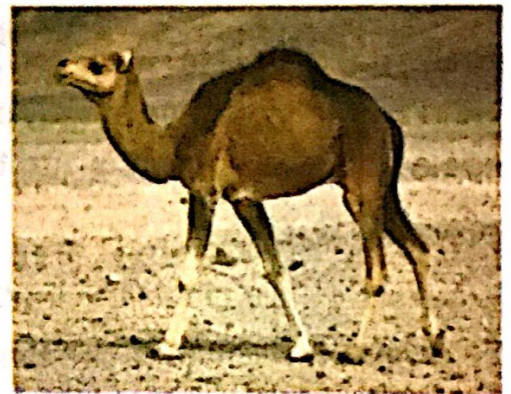
Polar bear

### Animals living in deserts

Deserts have very hot days and cold nights. There is scarcity of food and water. Camels live in deserts.

### Adaptations

- Camels have scanty body hair and thick skin that protects them from the heat.
- They have broad, flat and padded feet to help them walk on the sand.
- They can live without water and food for many days.
- They use the fat stored in their hump, when they do not get food.



Camel

### Animals living on mountains



Mountain goat

Mountain goats and yaks live on the mountains. It is very cold and it often snows on mountains.

### Adaptations

- They are good at climbing the steep hills. The small hooves help them to climb up and down the slopes.
- Their thick coat protects them against cold.



## Aerial animals

Animals like birds and bats spend a lot of time flying in the air. They are called **aerial animals**.

### Adaptations

- Birds have wings to fly.
- Their bodies are covered with feathers and are light because of hollow bones.
- Their streamlined body helps them to easily cut through the air.
- Bats have wings made of thin skin. They stretch them like arms and fingers to fly.



Bird



Bat



*Bats are classified as mammals. Can you tell why?*

## Arboreal animals

Land animals that live mostly on trees are called **arboreal animals**. Monkeys, squirrels, koala bears, orangutans and tree lizards are arboreal animals.

### Adaptations

- Lizards have claws to climb or hold on to the branches of trees.
- Monkeys have long arms and legs to move from branch to branch. They use their tail for gripping and balancing.



Monkey



Squirrel



Koala bear



Orangutan

## Aquatic animals

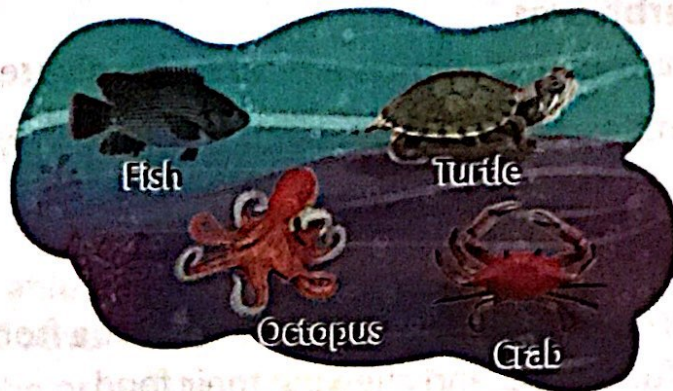
Animals that live in water are called **aquatic animals**.

Fish, turtle, octopus and crab are some of the aquatic animals.



## Adaptations

- They have fins, tail or suitable limbs for swimming in water.
- They have gills through which they take in the oxygen dissolved in water.
- The webbed feet of a duck, the paddle-like flippers of a turtle, and boat-shaped body of a fish, help in swimming.
- Dolphins and whales breathe through lungs. They come to the surface of water for breathing.



### Fact!

The skin of fish does not get affected by water. The scales on their body makes the skin waterproof.



## Amphibians

Animals that can live both on land and water are called **amphibians**.

Frogs, toads, newts and salamanders are amphibians.



Frog



Newt



Salamander

## Adaptations

- Their hind legs have webbed feet to help them swim in water.
- They breathe through their skin when in water and with their lungs when on land.
- They have limbs that are suited to move on land.

## Adaptation for Food

Different animals eat different kinds of food. They have special body parts to get and eat food.



## Herbivores

Plants eating animals are called **herbivores**.

Giraffes, cows, horses, goats and rabbits are herbivores.



Giraffe



Cow

## Adaptations

- They have sharp cutting teeth in the front for biting, and grinding teeth at the back for cutting and chewing their food.

## Carnivores

Flesh eating animals are called **carnivores**.

Lions, tigers, foxes, vultures, and eagles are carnivores.



Lion



Fox

## Adaptations

- Lions and foxes have sharp teeth in front to tear the flesh and broad teeth at the back to chew their food thoroughly.
- Eagles and vultures have sharp claws to catch their prey and hooked beaks to tear the flesh.



Bear



Crow

## Omnivores

Animals which eat plants as well as flesh of other animals are called **omnivores**.

Bears, crows, cockroaches and dogs are omnivores.

## Adaptations

- Bears and dogs have sharp cutting teeth, strong grinding teeth, and also sharp tearing teeth.
- Crows have strong beaks and claws.

## Scavengers

Some animals like hyenas, vultures and falcons feed on the flesh of dead animals. They are called **scavengers**.



Hyena



Vulture

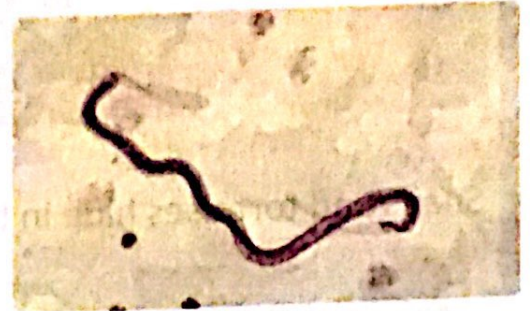


## Adaptations

- Hyenas have strong jaws to crush bones.
- Vultures have hooked beaks to tear the flesh of dead animals.

## Parasites

Some animals depend upon other animals for food. They live inside or on the body of other living organisms. They are called **parasites**. The organism in which parasites live is called host. Bedbugs, lice and tapeworms are parasites. A tapeworm can live inside a human being.



Tapeworm

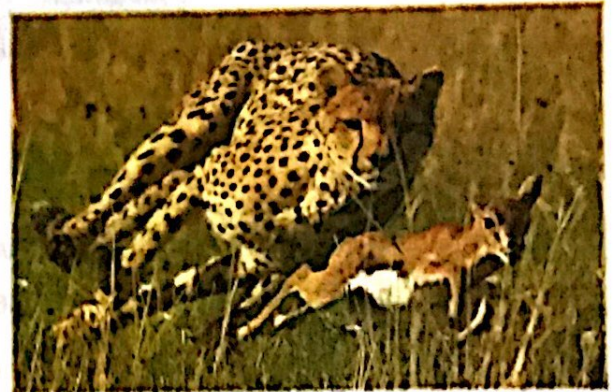
## Adaptations

- They do not have teeth.
- They suck blood of other animals using sucking tubes in their mouth.

## Adaptation for Protection

It is very important for animals to keep highly alert all the time. They show adaptations to protect themselves from their enemies.

- Some animals such as deer and gazelles have very strong legs. These animals run fast to escape from enemies.



Deer



Polar bear

- Zebras, tigers, leopards and deer have stripes or spots on their bodies which help them merge with their natural surroundings. This helps them in hiding from their enemies. Polar bears merge with snow in their surroundings and chameleons change their colour to hide themselves. This feature is called **camouflage**.



- Buffaloes, elephants, fish and birds stay in groups to protect their young ones.



Elephants

- Snails and tortoises hide in their hard shell to protect themselves during danger.



Snail



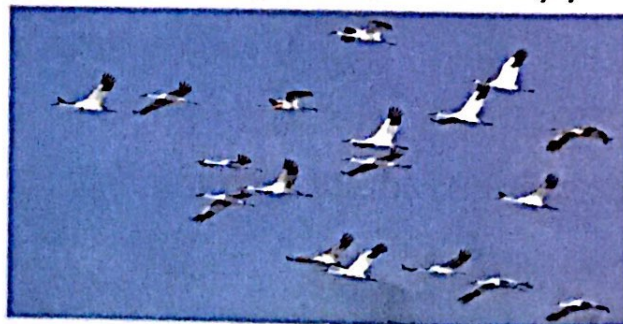
Tortoise

- Rhinoceros and buffaloes use their horns for defence.



Rhinoceros

- During winter, many animals leave the place where they live and travel every year to warmer areas. Later, when the winter is over, they come back. This long journey is called **migration**. Siberian cranes migrate every year to India from Siberia.



Siberian cranes



Frog

- Some animals like bears, some snakes, lizards, frogs and some squirrels sleep during winters to save themselves from the cold. This is known as **hibernation**. They eat a lot during summer and store the food as fat. This helps them to live during winter.



- Some animals like desert rats, crocodiles and lungfish sleep during summer months to escape the heat. This summer sleep is called aestivation.



Desert rat

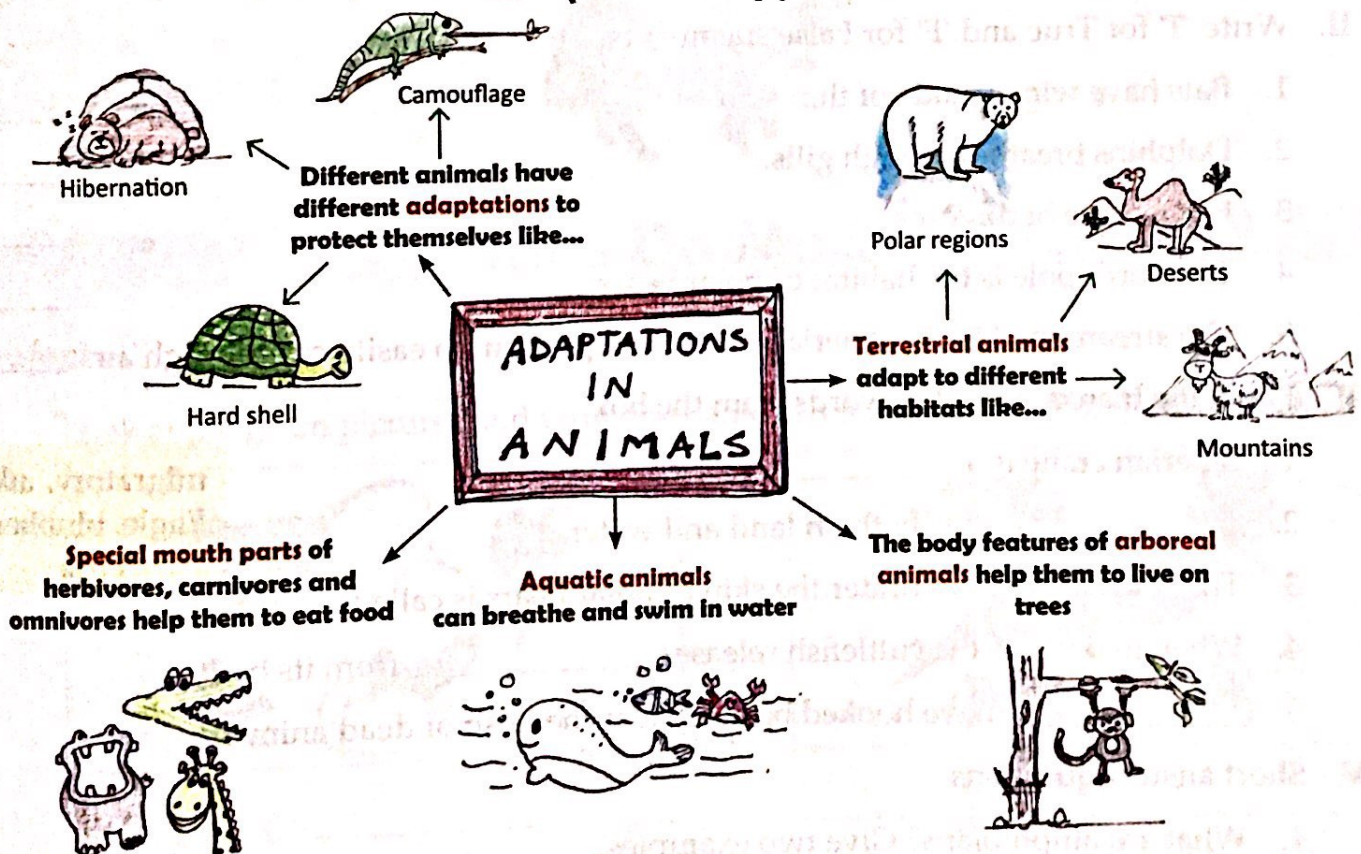


Do you know, when the cuttlefish is in danger, it releases ink from its body? The ink makes the water blue and distracts the enemy.



## Now We Know

(Mind Map)



### KEYWORDS

adaptation   habitat   blubber   protect   camouflage   aestivate  
hibernate   herbivore   carnivore   omnivore   scavenger   parasite   host



## EXERCISES

### I. Tick (✓) against the correct option. (Multiple Choice Questions)

1. Lungfish escapes the heat through:  
(a) migration ☐ (b) hibernation ☐ (c) aestivation ☐
2. Hollow bones are found in:  
(a) tigers ☐ (b) birds ☐ (c) frogs ☐
3. Parasites live in the body of:  
(a) hosts ☐ (b) omnivores ☐ (c) scavengers ☐
4. Rhinoceros and buffaloes use their horns for:  
(a) defence ☐ (b) hunting ☐ (c) eating ☐
5. Which of the following is an aquatic animal?  
(a) Camel ☐ (b) Turtle ☐ (c) Spider monkey ☐

### II. Write 'T' for True and 'F' for False statements.

1. Bats have wings made of thin skin. \_\_\_\_\_
2. Dolphins breathe through gills. \_\_\_\_\_
3. Hyenas are herbivores. \_\_\_\_\_
4. The north pole is the habitat of polar bears. \_\_\_\_\_
5. The streamlined body of aerial animals helps them to easily cut through air. \_\_\_\_\_

### III. Fill in the blanks using the words from the box.

1. Siberian crane is a \_\_\_\_\_ bird.
2. \_\_\_\_\_ live both on land and water.
3. The thick layer of fat under the skin of polar bears is called \_\_\_\_\_.
4. When in danger, the cuttlefish releases \_\_\_\_\_ from its body.
5. \_\_\_\_\_ have hooked beaks to tear the flesh of dead animals.

migratory, ink,  
Eagle, blubber,  
Frog

### IV. Short answer questions.

1. What are amphibians? Give two examples.
2. Define the term adaptation.
3. What is the difference between arboreal animals and arial animals?
4. Differentiate between parasites and scavengers.



5. Define the following:

- (a) migration                      (b) hibernation                      (c) aestivation

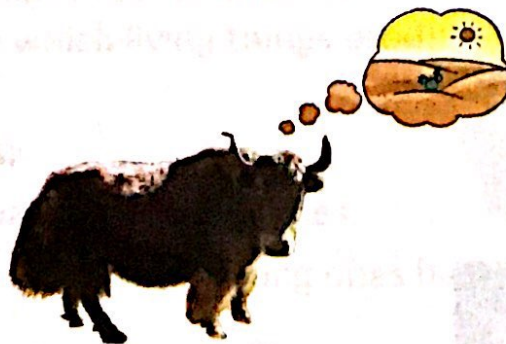
6. How do snails and tortoises protect themselves from their enemies?

V. Long answer questions.

1. What are terrestrial animals? What suitable features do they have to live on land?
2. What are the adaptations present in the camel?
3. Describe the five main groups of animals depending on the kind of food they eat.
4. Define the term 'camouflage'. How do the polar bears camouflage themselves?

VI. Think and Answer.

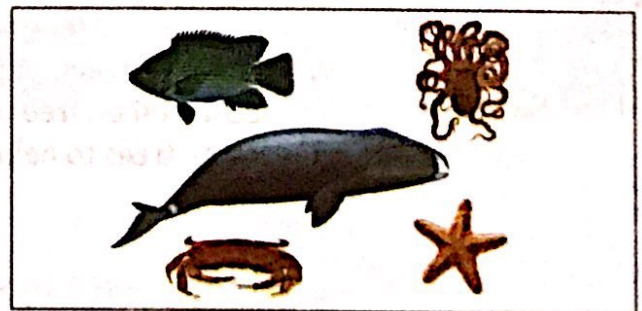
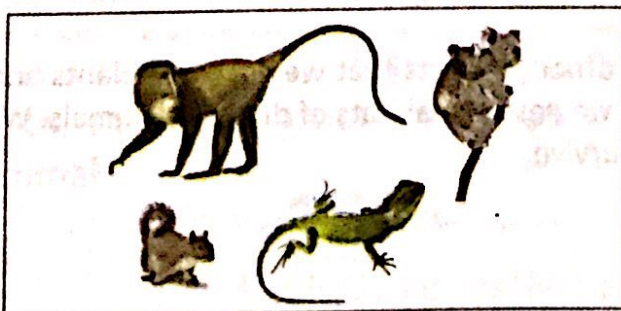
Can yaks survive in deserts? Give reason for your answer.



## LET'S DO MORE

### Project

Look at the given pictures and write the name given to the habitat of these animals.







Form a group of friends and find how the habitat of these animals is getting destroyed due to human activities. Create a poster to show various ways to save their habitats.



## Explore

Identify the given animals and fill the information about their habitat and adaptation in the given table.

	Name	Habitat	Adaptation
			
			
			
			



## LIFE SKILLS

We must use wood, paper and other products that we get from plants and trees judiciously. When trees are cut, we destroy habitats of different animals. We must grow more trees to help them survive.



## 4

# Reproduction in Animals

## Let's Begin

Which of these animals give birth to their young ones—Fish, cat, tiger, snake, crow, dog, etc. Let's know more about how animals produce their own kinds.

**Lifespan** is a period of one's life. All living things have certain lifespan. They die when their lifespan is over. Living beings produce their own kind to ensure the continuity of generations. The process by which living things produce their own kind is called **reproduction**.

Animals reproduce in two ways:

- Some animals give birth to babies or young ones.
- Some animals lay eggs from which their young ones hatch.

## Animals that give Birth to Young Ones

Animals that give birth to young ones are called **mammals**. They have hair on their body. They feed their young ones with their own milk. Most mammals live on land and breathe through lungs.

Tigers, lions, goats, dogs, elephants, horses, rabbits and human beings are mammals.



Mammals and their babies

### Fact!

Whales and dolphins are mammals. But they do not have hair on their bodies.



Before being born, the young ones grow inside the body of their mother. After the birth, the young ones need care. The parents take care of their baby. Mother feeds the baby with her milk. The babies need protection till they can take care of themselves.



### Fact!

Animals like kangaroos carry their young ones in their pouch. These animals are known as marsupials.



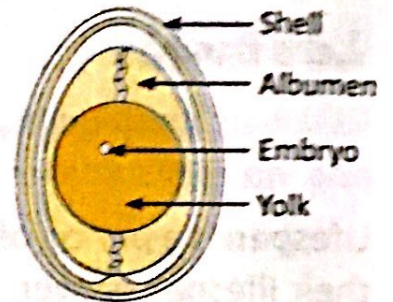
## Animals that lay eggs

Birds, fishes, snakes, frogs and insects are some animals that lay eggs. Their young ones hatch from the eggs.

### Structure of an egg

Eggs are covered by a protective hard covering called an egg shell.

The centre of an egg contains the **yolk**. The bright white spot on the yolk develops into a baby. The yolk provides nourishment to the growing baby or **embryo**. The white, watery substance surrounding the yolk is known as **albumen**. It protects the embryo from jerks and shocks.

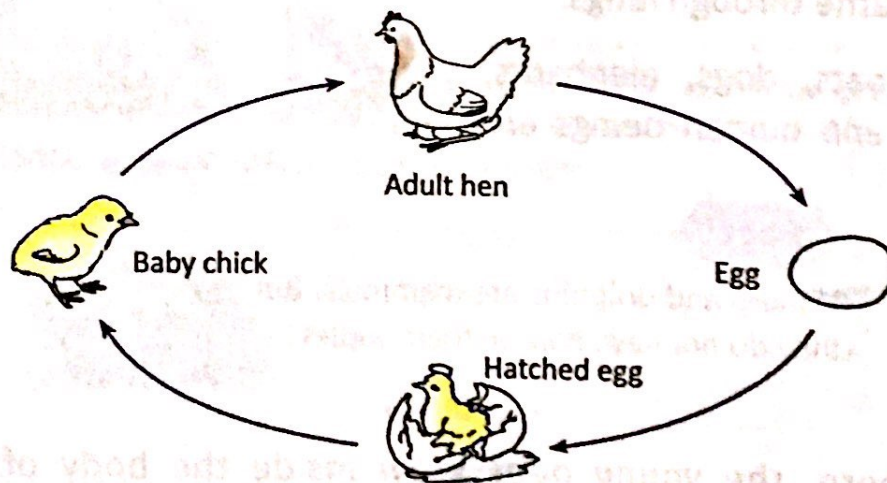


Structure of an egg

Different stages of development from an embryo to an adult is known as the **life cycle** of an animal.

### Life cycle of a bird

The adult birds keep their eggs warm by sitting on them. This process is called **incubation**. Inside the egg, the embryo goes through different stages of development. When it is fully grown, it breaks open the shell and comes out as a chick. This is known as **hatching**. The chick grows to become an adult bird.

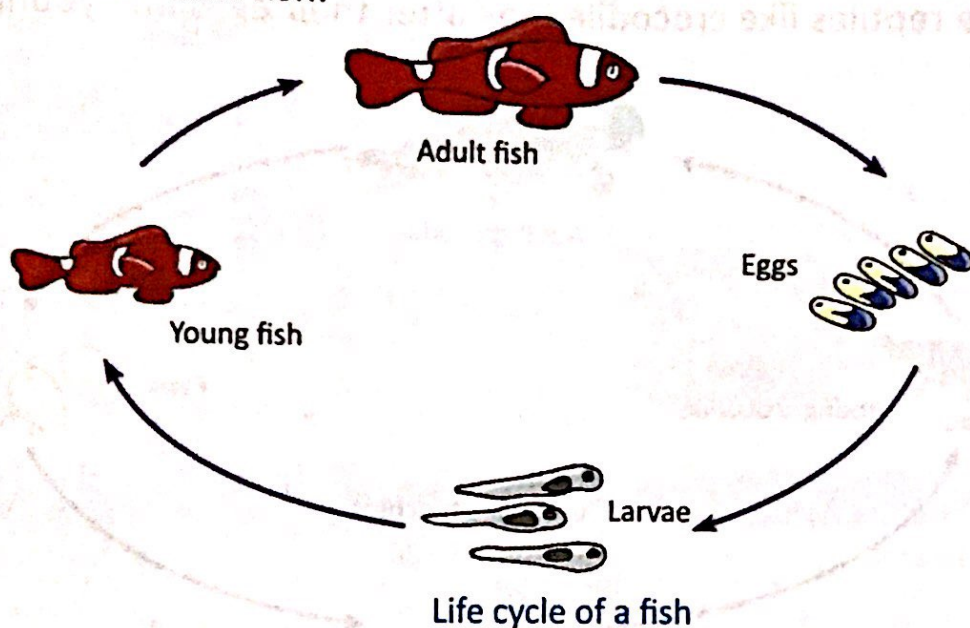


Life cycle of a hen



## Life cycle of a fish

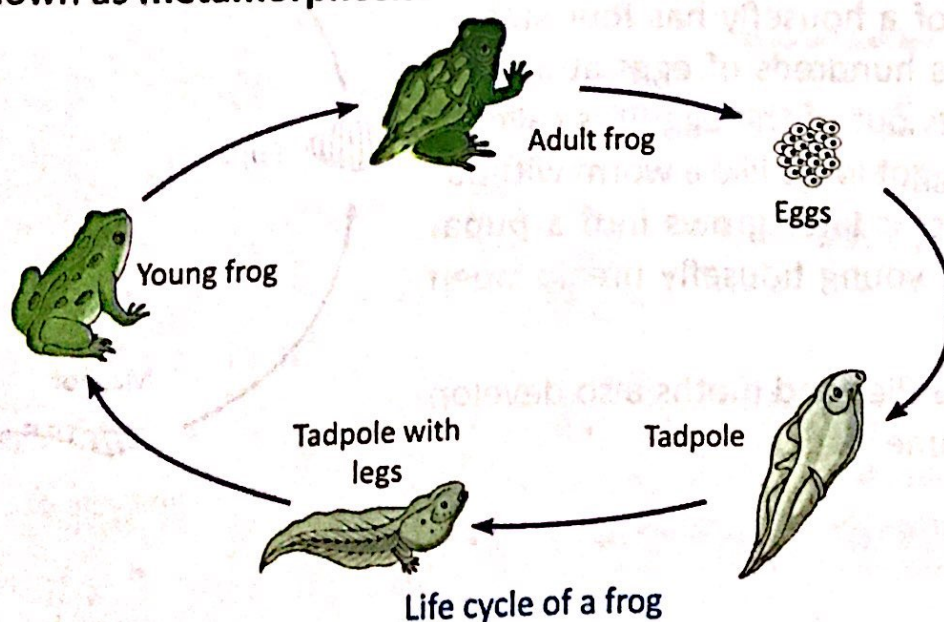
A fish lays thousands of eggs at a time. These eggs do not have shells. The eggs are surrounded by a kind of jelly which protects the eggs from water and predators. However, many eggs and young fish are eaten by bigger fish. Only a few of them grow to become an adult fish.



## Life cycle of a frog

Frogs live on land, but they lay their eggs in water. A female frog lays eggs in clusters called **spawns**. These egg are protected by a jelly-like substance. **Tadpoles** hatch from these eggs. They resemble like a small fish. These tadpoles start developing legs as they grow. In about eleven weeks, they transform into an adult frog.

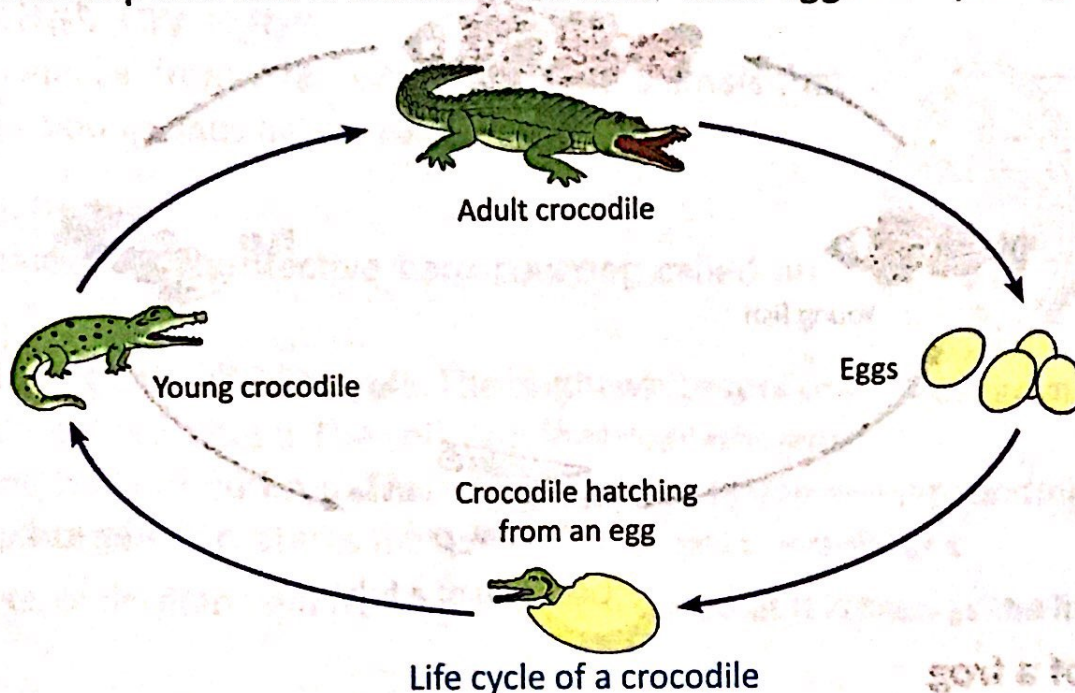
The complete change in an organism while growing through different stages of its life cycle is known as **metamorphosis**.





## Life cycle of reptiles

Reptiles like lizards, snakes, crocodiles and turtles also lay eggs. Snakes usually lay eggs on the ground, while turtles and crocodiles dig shallow pits near river banks. The eggs get warmth from the sunlight and hatch in the absence of parents. Some reptiles like crocodile look after their eggs and young ones.

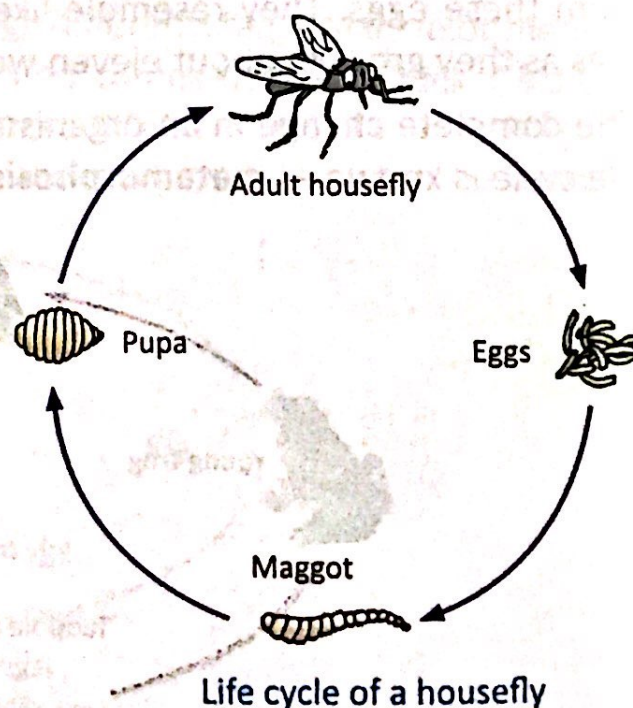


## Life cycle of insects

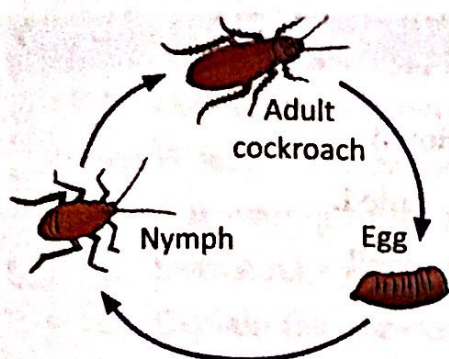
Insects lay eggs which go through several stages to become an adult insect. These stages show metamorphosis.

The life cycle of a housefly has four stages. A housefly lays hundreds of eggs at a time. A **larva** hatches out of the egg. It is called a **maggot**. A maggot looks like a worm without legs and wings. It later grows into a **pupa**. Weeks later, a young housefly breaks open the cocoon.

Similarly, butterflies and moths also develop through the same stages.







Life cycle of a cockroach

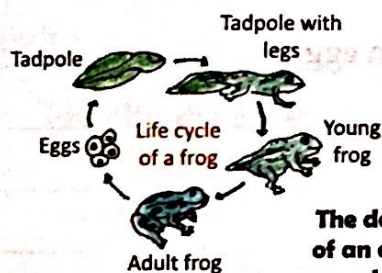
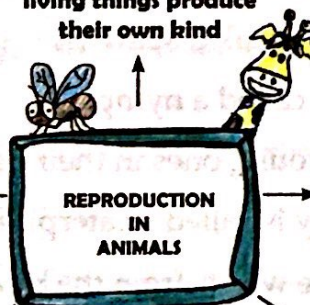
Grasshoppers and cockroaches have three stages in their life cycle. A young cockroach that develops from an egg is called a **nymph**. It does not have wings and sheds its skin several times before becoming an adult. This process of constantly shedding the old skin is known as **moulting**.

**Fact!**

The larva of a butterfly is called a caterpillar.

**Now We Know****(Mind Map)**

**Reproduction is a process by which living things produce their own kind**

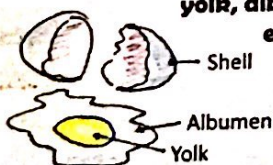


**The development of an embryo into an adult is known as a life cycle**

**Some animals give birth to babies**



**An egg contains shell, yolk, albumen and an embryo**



**Some animals lay eggs**



**Mammals take care of their young ones after birth**

**KEYWORDS**

lifespan

embryo

reproduction

albumen

marsupial

shell

incubation

yolk

metamorphosis

hatching

moulting



## EXERCISES

## I. Tick (✓) against the correct option. (Multiple Choice Questions)

1. The egg of a bird is filled with white, watery substance, called:

(a) yolk

☐

(b) albumen

☐

(c) shell

☐

2. \_\_\_\_\_ give birth to babies.

(a) Butterflies

☐

(b) Birds

☐

(c) Mammals

☐

3. The young one of a frog is called:

(a) nymph

☐

(b) tadpole

☐

(c) larva

☐

4. The complete change in an organism while growing through different stages of its life cycle is called:

(a) moulting

☐

(b) metamorphosis

☐

(c) hatching

☐

5. \_\_\_\_\_ is the hard outer covering of an egg.

(a) Albumen

☐

(b) Yolk

☐

(c) Shell

☐

## II. Write 'T' for True and 'F' for False statements.

1. The yolk protects an embryo from jerks and shocks in an egg. \_\_\_\_\_

2. A cluster of frog eggs is called spawns. \_\_\_\_\_

3. A young cockroach is called a nymph. \_\_\_\_\_

4. Dolphins carry their young ones in their pouch. \_\_\_\_\_

5. The larva of a butterfly is called a caterpillar. \_\_\_\_\_

## III. Fill in the blanks using the words from the box.

1. The larva of a housefly is called a \_\_\_\_\_.

2. The centre of an egg contains the \_\_\_\_\_.

3. Mammals have \_\_\_\_\_ on their body.

4. Animals that give birth to young ones are called \_\_\_\_\_.

5. The time period for which a plant and animal lives is known as \_\_\_\_\_.

lifespan, yolk,  
hair, maggot,  
mammals

## IV. Short answer questions.

1. Name the different ways by which animals reproduce.

2. Define the following terms:

(a) incubation

(b) moulting

(c) albumen

(d) lifespan



3. What is metamorphosis? Give three examples of animals that show metamorphosis.
  4. Differentiate between mammals and marsupials. Give one example of each.
  5. What is a life cycle?
- V. Long answer questions.
1. Define reproduction. Why do animals reproduce?
  2. Explain the different parts of an egg with the help of a well-labelled diagram.
  3. Describe the life cycle of a frog.
  4. Explain the various stages that take place in the life cycle of a housefly.
- VI. Think and Answer.

Do you know the life cycle of humans? How many steps does it have and why?

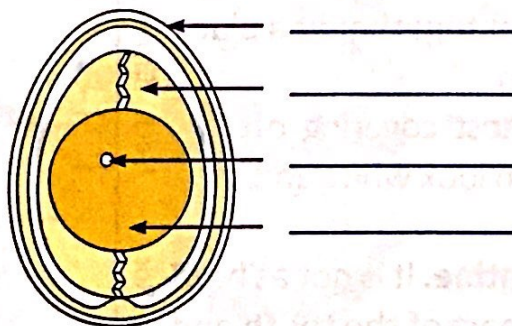
## LET'S DO MORE

### Project

How does an egg of a butterfly turn into an adult? Paste pictures or draw and label the stages of its life cycle in your scrapbook.

### Activity

Identify the different parts of an egg. Draw the same on a chart paper.



### LIFE SKILLS

Never destroy any nest of a bird. It might be having an egg or a young one who needs care. If you ever find a bird's young one alone, take care of it with the help of your elders.



# Teeth and Digestion

## Let's Begin

How many times do you brush your teeth in a day? Do you chew your food properly? Let's find out more about our teeth.

Teeth are a very important part of our mouth. They give shape to our face and help us in chewing food. Thoroughly chewed food gets easily digested. Tongue and teeth together help us to speak.

## Parts of a Tooth

Our mouth contains an upper jaw and a lower jaw. Teeth are present on both the jaws and are held with the help of gums.

The outer and visible part of a tooth is known as the **crown**. The part of the tooth embedded in the gums is known as the **root**. The root helps to keep the tooth in place.

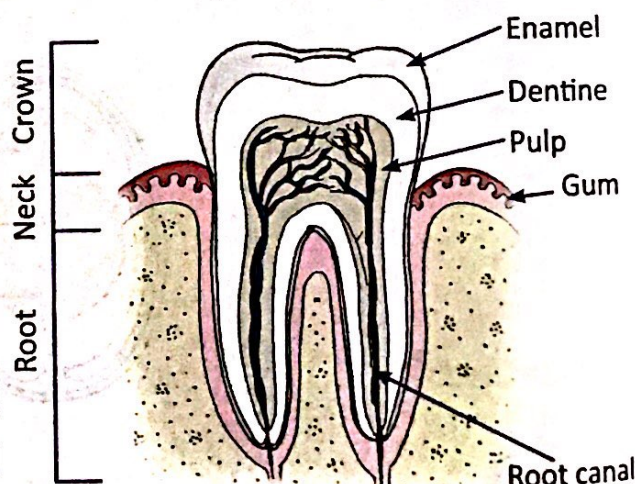
The crown and the root meet together at a place called the **neck**.

The **enamel** is the outer most covering of the tooth. It makes the crown look white and shiny.

Below the enamel is the **dentine**. It is not as hard as enamel. It is the largest part of the tooth and is yellow in colour. It supports the enamel and protects the inner most part of the tooth called the **pulp**.

The soft **pulp** that lies inside the dentine contains nerves and blood vessels. They give nourishment to the tooth. The pulp sends and receives signals from the brain.

The **cementum** helps to hold the tooth firmly to the jaw bone and between the gums. It functions just like a cement.



Parts of a tooth

## Fact!

The enamel is the hardest substance in the human body. It protects the crown from the wear and tear that occurs due to tearing, biting and chewing of food.



## Types of Teeth

A new born baby does not have teeth. A six months old baby starts getting the first tooth. Till the age of three years a child has 20 teeth. This first set of teeth is called **milk or temporary teeth**.

Around the age of six years, the milk teeth start falling one by one. Each milk tooth is replaced by a new tooth. By the age of 13, all the milk teeth are replaced by a new set of teeth called **permanent teeth**. These remain throughout the life.

Most of us grow four more teeth between the age 17-25 years. These are called **wisdom teeth**.

When we look inside our mouth, we find different types of teeth. There are four types of teeth. Each type of teeth is different in shape and functions.

### Fact!

One wisdom tooth grows at the end of each jaw. They complete the set of 32 adult teeth with 16 teeth each in the upper and lower jaw.

#### Incisors



They are chisel-shaped, flat and sharp edged front teeth.

They are eight in number with 4 teeth in each jaw.

They function like a pair of scissors and help to cut food into small pieces.

#### Canines



They are sharp and pointed teeth.

They are four in number with 2 teeth in each jaw.

They function like a fork and help to tear food into pieces.

#### Pre-molars



They are broad and flat teeth.

They are eight in number with 4 teeth in each jaw.

They function like a nutcracker and help to crush food into fine pieces to make chewing easy.

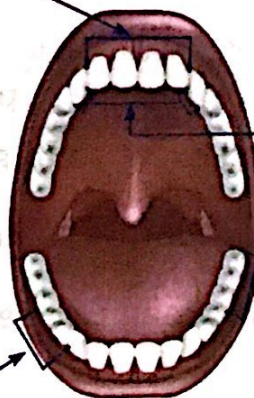
#### Molars



They are bigger and wider than pre-molars.

They are 12 in number with 6 teeth in each jaw. The wisdom teeth are the third pair of molars.

They work like a mortar and pestle to grind and chew the food.





## Healthy Teeth

When we eat, food can get stuck between our teeth. If this is not cleaned, it becomes plaque. **Plaque** is a sticky and yellowish layer of food and bacteria, formed on the teeth. The bacteria feed on the sugar present in the food particles and produces acid. This acid causes **cavities**. This further affects the nerves in the pulp leading to pain and tooth decay.

We must keep our teeth healthy by following these habits:

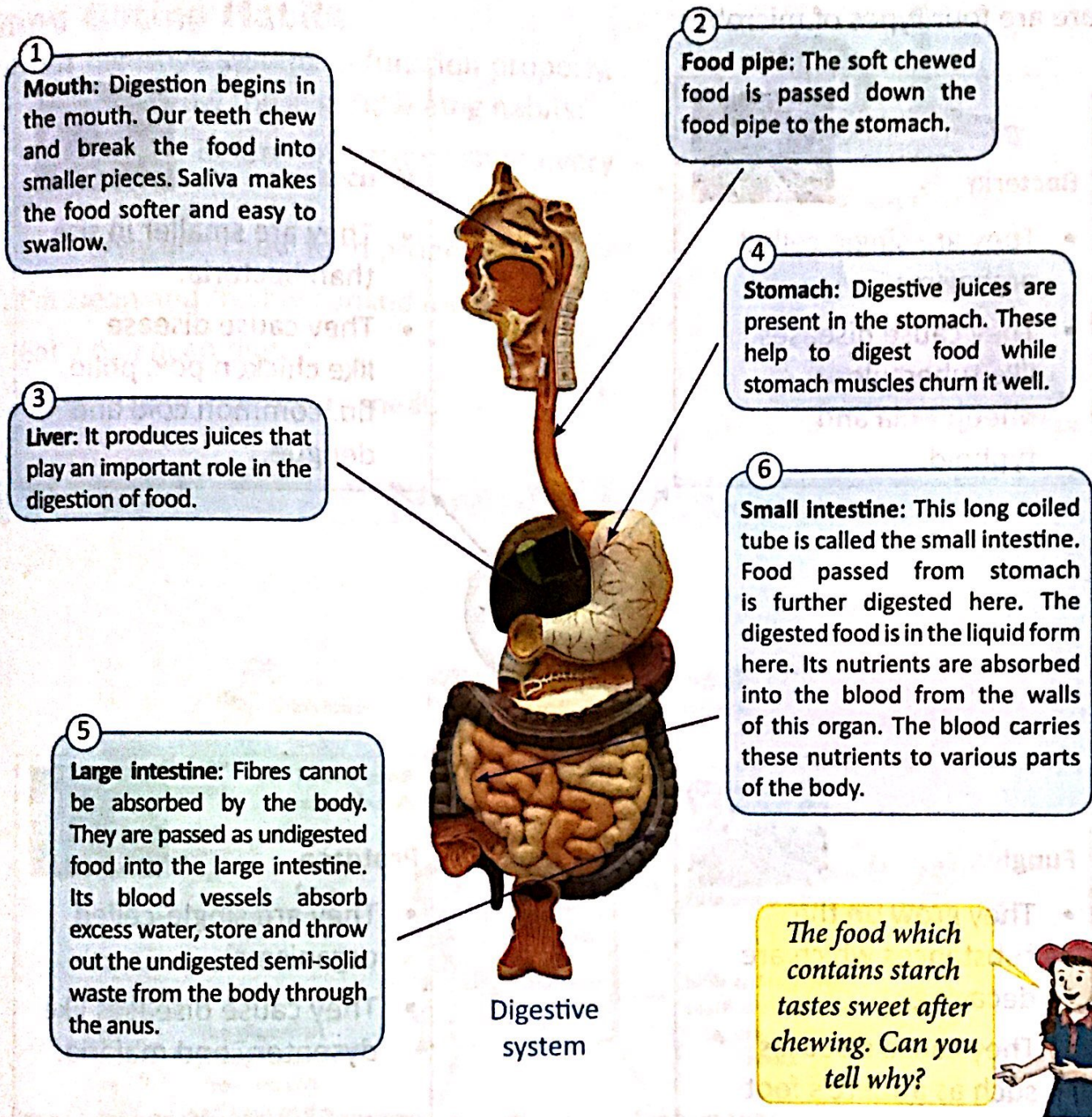
1. Drink plenty of milk to get calcium to build strong teeth.
2. Brush your teeth regularly twice a day.
3. Rinse your mouth after every meal to keep it clean.
4. Get your teeth examined by a dentist after every six months.
5. Eat enough rough and hard fruits like apple, sugarcane, carrot, radish, etc. because these provide good exercise to gums.
6. Use toothpastes containing fluoride to help remove the plaque.
7. Use dental floss to clean between two teeth.



## Digestion of Food

The food we eat cannot be digested by our body directly. It needs to be broken down into substances which can be easily absorbed by the body. The process of breaking down the food into simple form is called **digestion**.





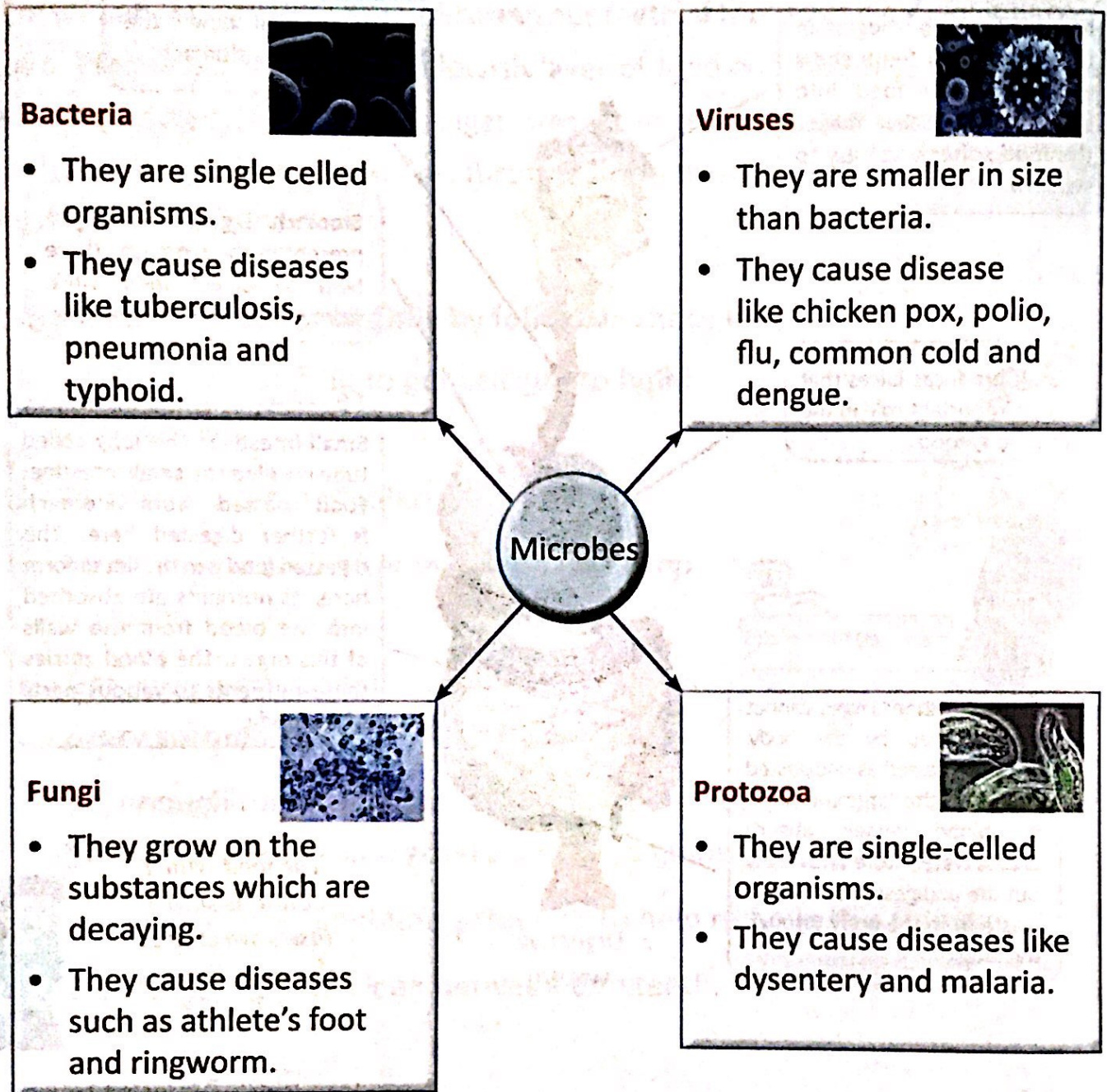
## Microbes

Unclean mouth and teeth lead to the growth of bacteria. Bacteria are a kind of microbes. **Microbes** are tiny organisms which cannot be seen with the naked eye. They grow in warm and moist conditions.

Some microbes are good and some are bad for our body. The bad microbes cause diseases and are called **germs**.



There are four types of microbes:



**Fact!**

Some bacteria are very helpful. They can change milk into curd, help in the digestion of roughage and carry out the process of rotting of dead animals and plants. Even some fungi are useful too. They are used in making bread, biscuits and medicines.



## Good Eating Habits

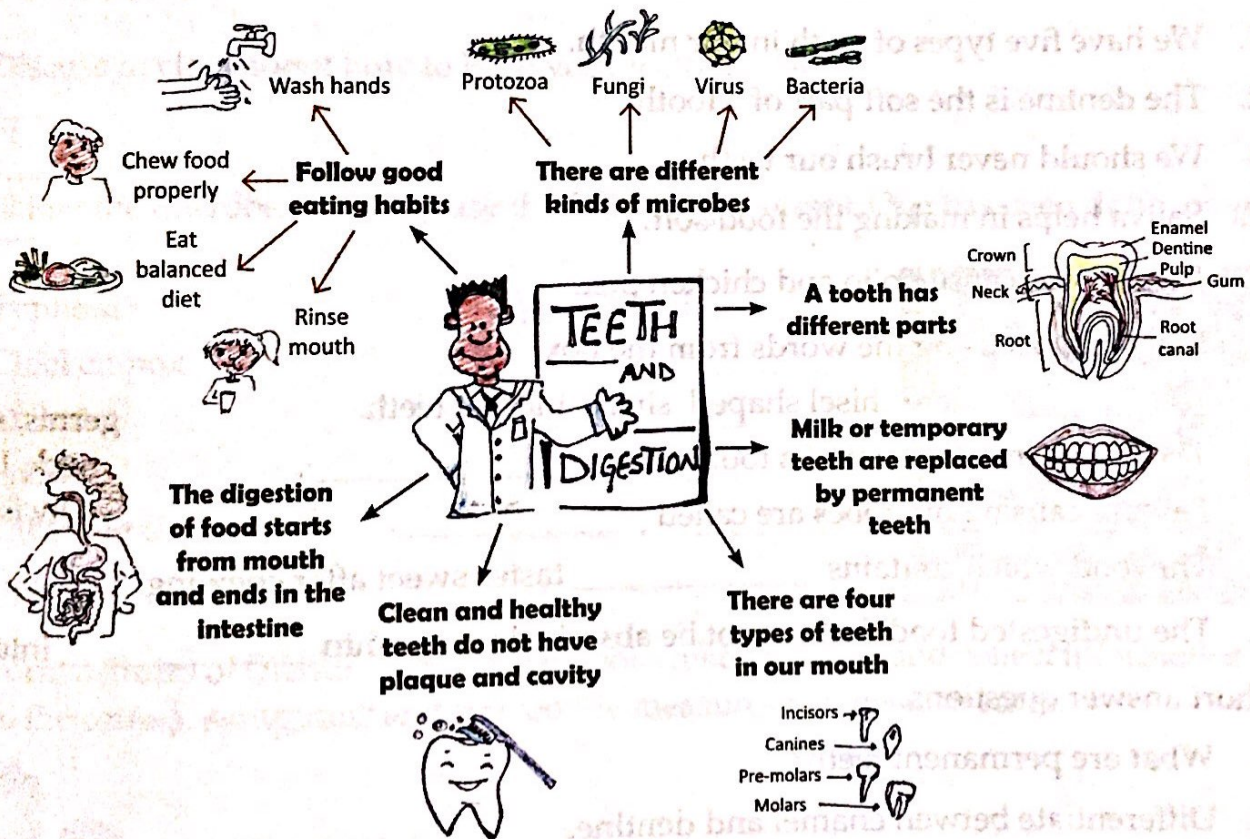
For our digestive system to function properly, we need to follow these good eating habits:

- Wash hands before and after eating every meal.
- Eat slowly and chew food properly.
- Eat clean and freshly cooked food.
- Eat a balanced diet.
- Rinse mouth after every meal.



## Now We Know

### (Mind Map)



### KEYWORDS

crown root enamel dentine pulp cementum incisor  
canine pre-molar molar plaque cavity microbe digestion



## EXERCISES

### I. Tick (✓) against the correct option. (Multiple Choice Questions)

- The digestion of food starts in the:  
 (a) mouth ☐ (b) small intestine ☐ (c) stomach ☐
- \_\_\_\_\_ holds the tooth firmly to the gums.  
 (a) enamel ☐ (b) cementum ☐ (c) dentine ☐
- The \_\_\_\_\_ connects the mouth with the stomach.  
 (a) food pipe ☐ (b) intestine ☐ (c) liver ☐
- \_\_\_\_\_ is the hardest part of a tooth.  
 (a) Enamel ☐ (b) Pulp ☐ (c) Dentine ☐
- \_\_\_\_\_ are 12 in number with 6 teeth in each jaw.  
 (a) Incisors ☐ (b) Molars ☐ (c) Canines ☐

### II. Write 'T' for True and 'F' for False statements.

- We have five types of teeth in our mouth. \_\_\_\_\_
- The dentine is the soft part of a tooth. \_\_\_\_\_
- We should never brush our teeth. \_\_\_\_\_
- Saliva helps in making the food soft. \_\_\_\_\_
- Viruses can cause polio and chicken pox. \_\_\_\_\_

### III. Fill in the blanks using the words from the box.

- \_\_\_\_\_ are chisel shaped, sharp and flat teeth.
- The crown and the root of a tooth meet at \_\_\_\_\_.
- Disease causing microbes are called \_\_\_\_\_.
- The food which contains \_\_\_\_\_ tastes sweet after chewing.
- The undigested food that cannot be absorbed passes into \_\_\_\_\_ intestine.

germs, starch,  
neck, large,  
Incisors

### IV. Short answer questions.

- What are permanent teeth?
- Differentiate between enamel and dentine.
- What is plaque?
- Define pulp. What is the main function of it in a tooth?
- What are microbes? Name the four main types of microbes.
- Name the four types of teeth.



## V. Long answer questions.

1. Describe the various parts of a tooth.
2. Write three differences between canines and pre-molars.
3. Write any four tips for keeping the teeth healthy.
4. Can microbes be useful to us? Explain.
5. Mention any five healthy eating habits.
6. Explain the process of digestion in human.

## VI. Think and Answer.

Sahil loves to eat chocolates and sweets but does not like to brush his teeth. He is now having severe toothache. What do you think has happened to him?



## LET'S DO MORE

## Group Discussion

Discuss in class about how to keep your teeth healthy.

## Project

Name the microbes which cause the following diseases. One has been done for you.

Typhoid

Bacteria

Chicken pox

Malaria

Polio

Tuberculosis

Dysentery



Form a group of friends. Visit your school's medical room and collect information related to the causes, symptoms and preventive measures for these diseases.



## LIFE SKILLS

Visit your dentist every six months and take care of your teeth and digestive system by following the healthy eating and proper brushing habits.



# Our Food

## Let's Begin

Different activities of our daily lives include eating, working, playing, walking, running and talking. To do these activities, our body needs nourishment. We get nourishment from the food we eat. Food is very important for all living beings to stay alive, work, grow, reproduce and stay healthy.

## Nutrients

Food contains special substances which are useful for our body. These substances are called **nutrients**. The nutrients are necessary for our life and growth.

There are five types of nutrients or food groups. These are: carbohydrates, fats, proteins, vitamins and minerals. Different amounts of nutrients are present in different types of food. Food also contains water and roughage other than these nutrients.

### Carbohydrates



Banana

Carbohydrates are **energy-giving nutrients**. Banana, potato, sugar, rice, wheat and maize are sources of carbohydrates. The food items like idli, chapattis and bread are rich in this nutrient.



Wheat



Potato



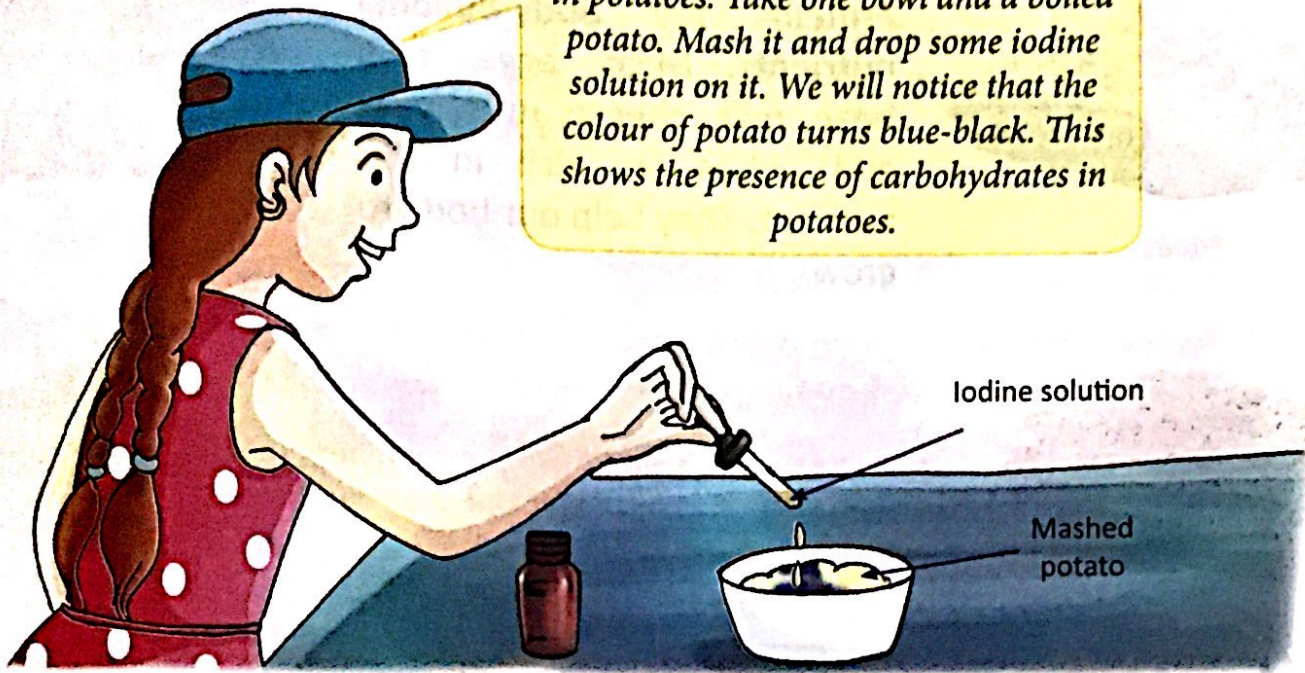
Rice



Sugar



We can test the presence of carbohydrates in potatoes. Take one bowl and a boiled potato. Mash it and drop some iodine solution on it. We will notice that the colour of potato turns blue-black. This shows the presence of carbohydrates in potatoes.



### Fats



Cashewnuts

Fats are also **energy-giving nutrients**. They give us more energy than carbohydrates. Cream, oil, ghee, cheese, butter, almonds, groundnut and cashewnuts are rich in this nutrient.



Oil

When these are eaten in large amount, extra fat gets stored in our body for future use.



Butter



Ghee

Do you know many hibernating animals store fat in their bodies when they hibernate? Can you name such animals?





## Proteins



Meat

Proteins are **body-building nutrients**. Meat, eggs, soya bean, milk, cheese, nuts, peas and pulses are rich in this nutrient. They help our body to grow.



Eggs



Beans

### Fact!

Our body cells keep growing in number all the time. For example, our hair and nails keep growing.



Cheese

## Vitamins and minerals



Orange

Vitamins and minerals are **protective nutrients**. Food items like carrot, broccoli, nuts, spinach, orange, papaya, milk, fish and meat contain different types of vitamins and minerals.



Papaya



Spinach

These nutrients help us to fight diseases and stay healthy.

Foods like milk, curd, almonds and cheese are rich in a mineral called **calcium**. Calcium helps in the formation of bones and teeth.



Fish



Carrot

Foods like green leafy vegetables, carrot, beetroot and apple are rich in a mineral called **iron**. Iron helps in the production of haemoglobin and red blood cells in our body.



Milk



## Roughage

Roughage is that part of our food which we cannot digest. It is obtained from leafy vegetables, fruits, salads and cereals. It helps our body to get rid of undigested food.



Roughage

## Water



Water

Water is the most abundant substance in our body. About 70 per cent of the human body is made up of water. Water helps in digestion and removal of wastes from the body.

It regulates the body temperature. It is found in most of the foods. Everyday our body loses some amount of water. To replenish this, we should drink about 8-10 glasses of water daily.

### Fact!

A balanced diet has the right amount of nutrients, roughage and water. Its daily consumption keeps us healthy.

*There are certain foods which we can eat raw, but many are eaten in a cooked form. Cereals, pulses, meat and vegetables need to be cooked to make them softer, tastier and easier to digest. Cooking also kills germs in food. Most of the fruits and some vegetables are eaten raw. Vegetables such as cucumber, carrot, onion and radish are eaten raw.*



*Boiling, frying, baking, roasting, steaming are different ways of cooking food.*



Boiling



Frying



Roasting



Steaming



## Food Preservation

Food like vegetables, fruits, dairy products and meat get spoiled easily in air and moisture. This happens due to the presence of microbes in the air. The process of protecting food from getting spoiled and keeping it safe to eat for longer time is called **preservation of food**. Food can be preserved by the following ways:

### Drying

It is the process of removing water content from food. For example, drying grapes to get raisins.

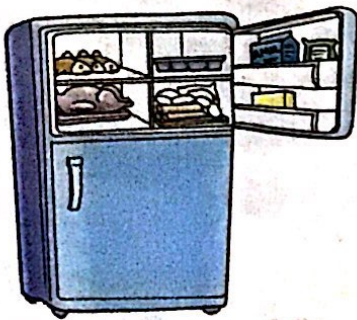


### Pickling

It is the process of mixing fruits and vegetables with salt and oil. For example, mixing mango, lime and other vegetables with oil and salt.

### Refrigerating

It is a process of keeping food in the refrigerator to preserve it for a short time. For example, keeping cooked food and fresh vegetables in the refrigerator.



### Deep freezing

It is a process of keeping food in the freezer to preserve it for a long time. For example, keeping meat and fish in the freezer.

### Canning and bottling

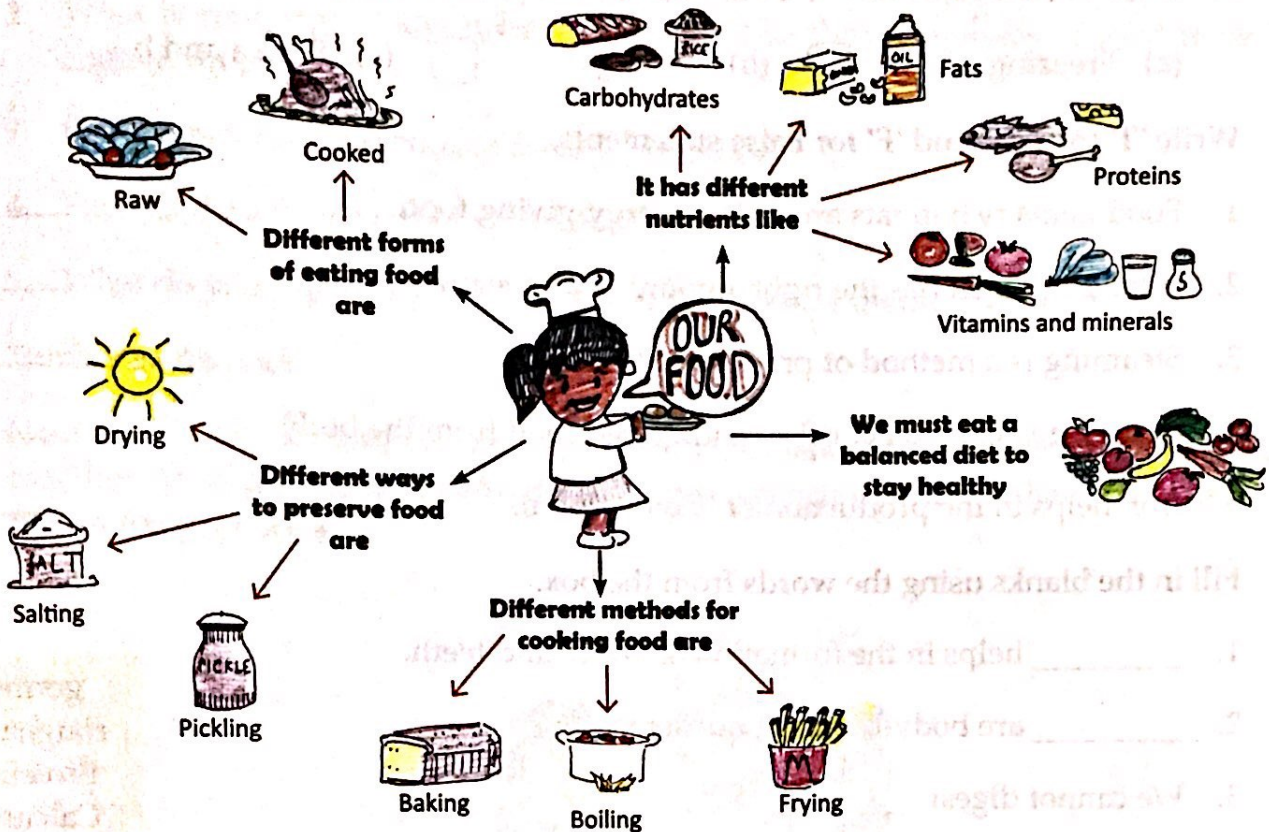
It is a process of storing food in cans and bottles. For example, bottling of sauces and jams.





# NOW WE KNOW

## (Mind Map)



### KEYWORDS

nourishment energy balanced diet preserve nutrient protect roughage

## EXERCISES

I. Tick (✓) against the correct option. (Multiple Choice Questions)

1. We get \_\_\_\_\_ from food.

(a) work

☐

(b) nourishment

☐

(c) force

☐

2. Sugar contains \_\_\_\_\_.

(a) fats

☐

(b) carbohydrates

☐

(c) vitamins

☐

3. \_\_\_\_\_ can spoil food.

(a) Germs

☐

(b) Proteins

☐

(c) Fats

☐



4. About 70% of human body is made up of \_\_\_\_\_.

(a) water

☐

(b) minerals

☐

(c) carbohydrates

☐

5. Which of the following is a method of food preservation?

(a) Freezing

☐

(b) Boiling

☐

(c) Both a and b

☐

II. Write 'T' for True and 'F' for False statements.

1. Food items rich in fats are called energy-giving food. \_\_\_\_\_

2. A balanced diet has the right amount of all the nutrients. \_\_\_\_\_

3. Steaming is a method of preserving food. \_\_\_\_\_

4. Roughage helps to get rid of undigested food from the body. \_\_\_\_\_

5. Iron helps in the production of haemoglobin. \_\_\_\_\_

III. Fill in the blanks using the words from the box.

1. \_\_\_\_\_ helps in the formation of bones and teeth.

2. \_\_\_\_\_ are body-building nutrients.

3. We cannot digest \_\_\_\_\_.

4. Refrigerating is a method of \_\_\_\_\_ food.

5. Cooking kills \_\_\_\_\_ in food.

germs,  
roughage,  
Proteins,  
Calcium,  
preserving

IV. Short answer questions.

1. What are nutrients?

2. Why do we need food?

3. Name the various types of nutrients with two examples of each.

4. Define food preservation.

5. Why is calcium needed by our body? Name the food items that are rich in calcium.

6. Why are carbohydrates called energy giving foods?

7. Why does our body need proteins? Name the food items that are rich in proteins.



## V. Long answer questions.

1. Why are vitamins and minerals called protective nutrients?
2. What is roughage? How does it help us? Give three examples of food items that contain roughage.
3. Explain any four methods of food preservation.
4. Explain the role of water in our body.
5. What do you understand by a balanced diet? What should it contain?

## VI. Think and Answer.

Naina is 6 years old and her grandmother is 65 years old. They are eating their lunch together. Who among them should eat a protein-rich diet more than the other? Give reason for your answer.



## LET'S DO MORE

### Explore

How can we find out the following information about any packed food item?

- Whether it is a vegetarian or a non-vegetarian food:
- Its nutrient contents:

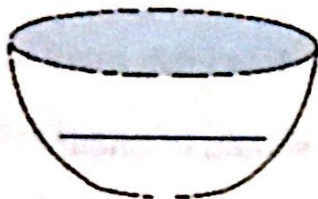
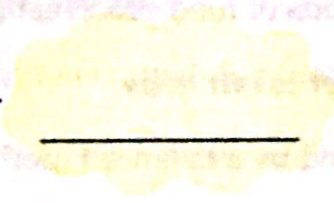
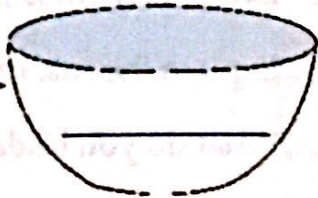
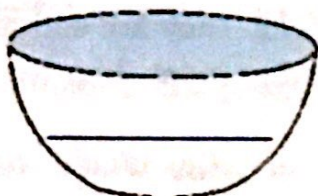
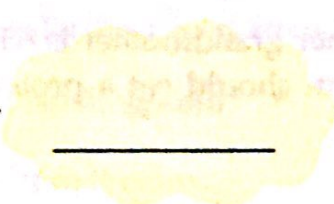
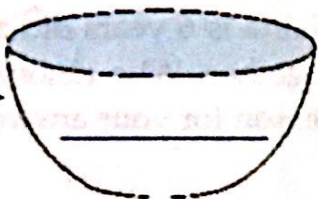
### Project

Discuss with your parents and make a list of healthy and unhealthy food items. Then prepare a meal chart that consists of a balanced diet for your family.



## Activity

Name two different ways used to cook food. Write the names of two items each which are cooked using those ways.

Food cooked	Method	Food cooked
		
		



## LIFE SKILLS

Before buying any packaged food item, read the nutritional facts or chart mentioned on it. This will help you to know the nutritional value of that food item. Take the advice from your elders in selecting healthy foods.



## PRACTICE PAPER

A. Tick (✓) against the correct option. (Multiple Choice Questions).

1. Green leaves contains \_\_\_\_\_.  
(a) energy ☐ (b) chlorophyll ☐ (c) sugar ☐
2. The flat part of a leaf is called \_\_\_\_\_.  
(a) stalk ☐ (b) vein ☐ (c) blade ☐
3. Mangrove trees grow in \_\_\_\_\_ areas.  
(a) plain ☐ (b) desert ☐ (c) marshy ☐
4. Hollow bones are found in \_\_\_\_\_.  
(a) lions ☐ (b) tigers ☐ (c) birds ☐
5. The young cockroach is called a \_\_\_\_\_.  
(a) tadpole ☐ (b) nymph ☐ (c) maggot ☐
6. \_\_\_\_\_ connects the mouth with the stomach.  
(a) liver ☐ (b) tongue ☐ (c) food pipe ☐
7. \_\_\_\_\_ is the hardest part of a tooth.  
(a) pulp ☐ (b) enamel ☐ (c) dentine ☐
8. \_\_\_\_\_ can spoil food.  
(a) protiens ☐ (b) fat ☐ (c) germs ☐

B. Fill in the blanks.

1. The outer covering of an egg is called \_\_\_\_\_.
2. \_\_\_\_\_ lives in or on the body of host.
3. A \_\_\_\_\_ is a migratory bird.
4. A water lily is a \_\_\_\_\_ aquatic plant.
5. Plants store extra food in the form of \_\_\_\_\_.
6. Frying is a method of \_\_\_\_\_ food.
7. The crown and the root of a tooth meet at the \_\_\_\_\_.
8. Disease causing microbes are called \_\_\_\_\_.



C. Write 'T' for True and 'F' for False statements.

1. Fungi feed on decaying plants and animals.
2. Leaf apex attaches a leaf to the stem.
3. Mountains are terrestrial habitat of plants.
4. Bats have wings made up of thin skin.
5. A cluster of a frog's egg is called spawn.
6. We should never brush our teeth.
7. Roughage helps the body to get rid of undigested food.
8. A balanced diet contains all the nutrients in the right amount.

D. Write three adaptations of aquatic animals.

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E. In the given space, draw and label the structure of an egg.

F. Label the part of a tooth in the picture given below.

