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Dr. (Mrs) Nisha Peshin
Director
(Academics)

In our previous class, we have studied about the different sense organs of our body—tongue, ears, skin, nose and eyes. All these parts can be seen from outside and are known as **external organs**. There are several body parts which are present inside our body and cannot be seen from outside. Such parts are called **internal organs**.

Name some internal organs.

Our body is a very complex system. It works like a machine with the help of various organs present in it. The organs form different systems. One such system is the **digestive system**. The mouth, food pipe, stomach and intestines are the different organs that make up the digestive system.

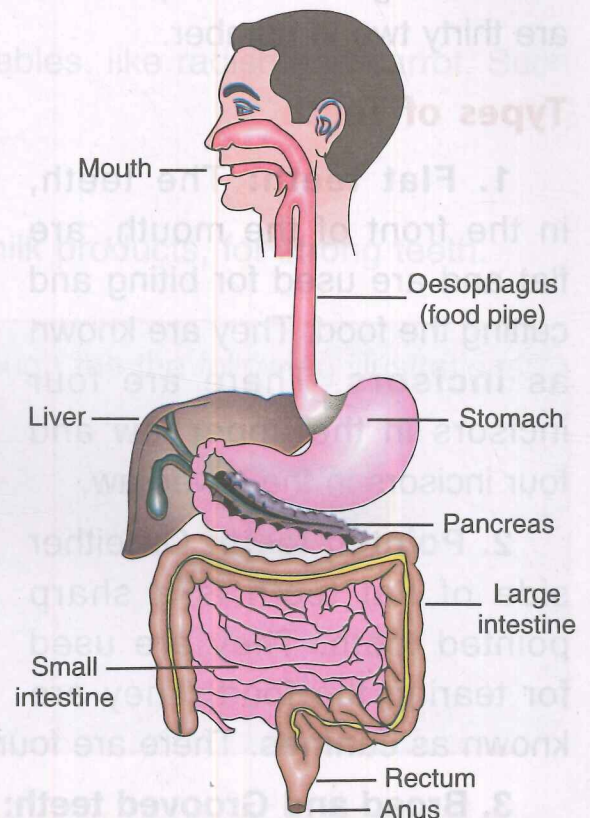
DIGESTIVE SYSTEM

What happens to the food that we eat? The food contains carbohydrates, proteins, fats and other nutrients. These are complex materials and are broken down into simpler forms in our digestive system. This process is called **digestion**.

Let us see how our mouth, which is the first part of our digestive system, helps in the process of digestion.

MOUTH

Ask your friend to open his/her mouth and observe it carefully. You will be able to see different types of teeth and a tongue in the mouth.



Digestive system of humans

Teeth

Teeth are a very important part of our mouth. Teeth help to bite and chew the food. They also give shape to our face and help us to speak clearly.

Two Sets of Teeth

A baby is born with no teeth. When the baby is about six months old, his/her teeth begin to appear. By the time the baby is three years old, he/she has a set of twenty teeth. These are temporary and are called the **milk teeth**.

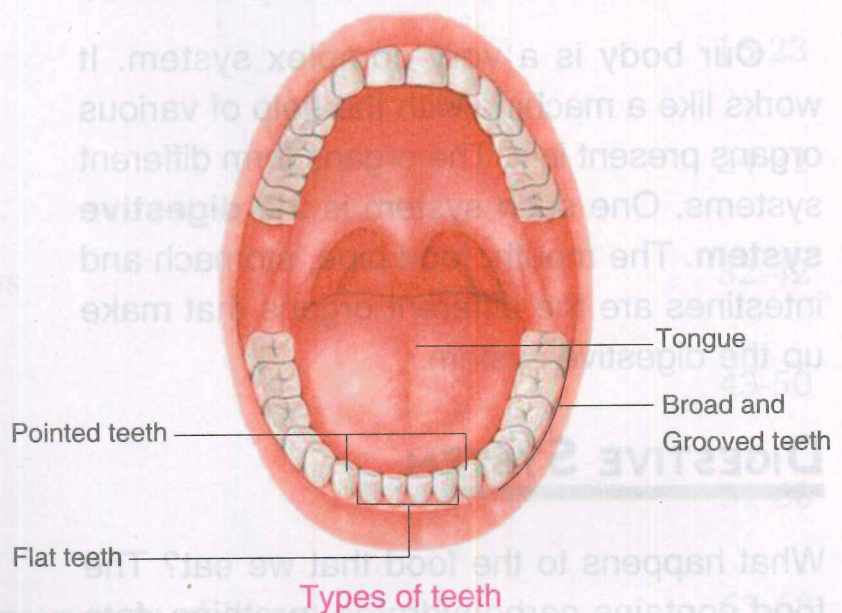
Between the age of six and twelve years, the milk teeth fall out one by one and new ones grow in their place. These new teeth are called **permanent teeth**. They are thirty two in number.

Types of Teeth

1. Flat teeth: The teeth, in the front of the mouth, are flat and are used for biting and cutting the food. They are known as **incisors**. There are four incisors in the upper jaw and four incisors in the lower jaw.

2. Pointed teeth: On either side of flat teeth is a sharp pointed tooth. They are used for tearing the food. They are known as **canines**. There are four canines in all.

3. Broad and Grooved teeth: The teeth, present at the back of the mouth, are broad and have grooves in them. They are used for chewing and grinding the food. They are known as **premolars** and **molars**. There are eight premolars in all—four in the upper jaw and four in the lower jaw. They are next to the canines. The molars come after the premolars. There are twelve molars in all—six in the upper jaw and six in the lower jaw.



Activity:

Count the number of teeth in your mouth and those of your parents and grandparents.

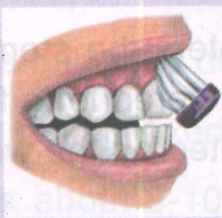
Care of Teeth

Our teeth are very important to us. We must take care of them. If we do not take care of our teeth, they can decay and fall.

Ways to Protect Teeth

1. Brush your teeth twice a day—in the morning and at night.
2. Rinse or wash your mouth after every meal.
3. Avoid eating sweets or sugary snacks and taking soft drinks as much as possible.
4. Visit a dentist for regular dental check ups.
5. Eat fruits, like apple and guava, and vegetables, like radish and carrot. Such foods give exercise to our gums.
6. Clean the tongue to remove germs.
7. Eat calcium rich food, like eggs, milk and milk products, for strong teeth.

The correct way of brushing teeth is shown through the the following illustrations:



Brush up and down in front



Then brush up and down the back



Always brush the teeth with a circular movement

Do You Know?

- ◆ If sugar and bacteria are left on the teeth for long, they can cause tooth decay.
- ◆ The white outer covering of teeth is called **enamel**. This is the hardest substance in the human body.

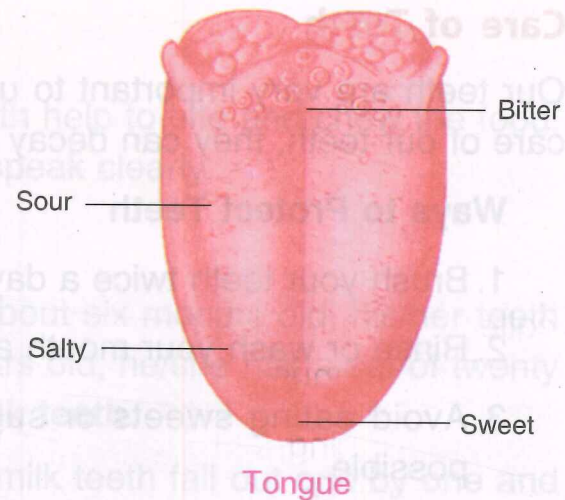
Tongue

Tongue is a soft, movable part inside our mouth. It is used for tasting, licking and speaking. It also pushes the food into the food pipe at the time of swallowing.

Do You Know?

The back of the tongue is sensitive to bitter taste. Its sides are sensitive to sour and salty tastes. The tip of the tongue picks up sweet taste.

Along with the teeth and tongue, there are three pairs of salivary glands present in the mouth. These glands secrete **saliva**.



Digestion of food begins when we put the food in our mouth. Teeth help in breaking the food into smaller pieces and chewing it. Here the saliva gets mixed with the food and makes it soft. Saliva converts insoluble starch into soluble sugar. You must have noticed that when you chew *chappati* for a longer time, it starts tasting a little sweet. This is due to the action of saliva on our food. It is very important to chew the food properly for proper digestion of food.

STOMACH

From the mouth, the food goes into the food pipe and enters the stomach. The stomach is a muscular bag-like organ in which food can be stored for a few hours. During this time the food mixes with digestive juices secreted by the walls of the stomach. The food is partially digested here.

SMALL INTESTINE

From the stomach the food is passed into a long and coiled structure called the **small intestine**. The small intestine, the liver and the pancreas produce some more digestive juices. Liver and pancreas pour their juices into the small intestine. These juices then get mixed with the food and completely digest it in the small intestine.

Do You Know?

The liver is the largest gland of our body.

The walls of the small intestine absorb the digested food and pass it to blood. Blood carries the digested food to all parts of the body.

LARGE INTESTINE

The undigested food passes into the large intestine. The walls of the large intestine absorb water from it and then pass it to blood. The undigested semi-solid waste is collected in the rectum and is eliminated through the anus.

While eating food, it is very essential to see what should be eaten and how it should be eaten.

One should:

1. wash hands before eating.
2. chew food properly before swallowing.
3. not speak while chewing food.
4. eat green vegetables and fruits everyday.
5. eat a balanced diet.
6. take food at fixed intervals.
7. drink about 8-10 glasses of water everyday.

Do You Know?

The length of the small intestine is approximately 7 metres whereas the large intestine is only 1.5 metres long.



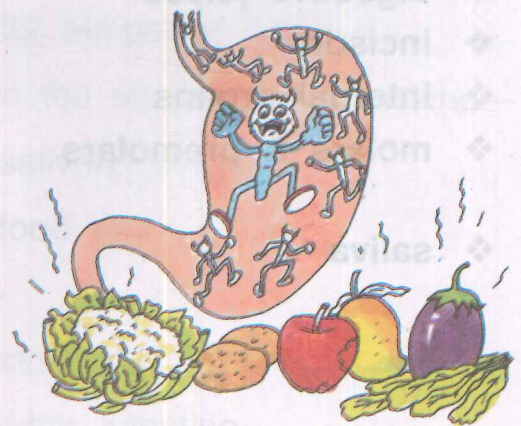
Do You Know?

Cooking makes food soft, tasty and digestible. It kills germs that may be present in the food.

IMPORTANCE OF EATING FRESH, CLEAN FOOD

We eat raw as well as cooked food. Let us see how cooked as well as uncooked food can become the source of many infections.

- ◆ Unwashed fruits and vegetables can carry germs of diseases which can cause diarrhea, vomiting and other stomach ailments.



- ◆ Unwashed fruits and vegetables can also carry eggs of worms. These eggs are too small to be seen by the naked eyes. When these eggs reach the stomach of a human being, they hatch there and produce worms. These worms live in stomach and intestines and consume the food that is meant for the human body. People, having worms, generally look weak, pale and unhealthy.
- ◆ Peeled and cut fruits and vegetables, which are exposed to flies and dust, can transfer germs into the body and thus, cause many diseases such as jaundice, cholera, etc.
- ◆ Cooked food when left uncovered or unrefrigerated for long, can also cause food poisoning. This happens because germs then get plenty of time to grow and multiply in the food. The germs produce harmful substances, which can cause vomiting and diarrhea.



Do You Know?

It is very important that a person, suffering from diarrhea and vomiting, should be given plenty of (cooled) boiled water containing a small amount of sugar and salt.

Keywords

- ❖ **canines** the four pointed teeth in our mouth.
- ❖ **diarrhea** a problem (an ailment) in which body tends to lose too much of water through stools.
- ❖ **digestion** the process of breaking down of food into simpler forms.
- ❖ **digestive juices** juices which help in digestion of food.
- ❖ **incisors** the flat teeth in the front of the mouth.
- ❖ **internal organs** organs present inside our body.
- ❖ **molars & premolars** the broad and grooved teeth present at the back of the mouth.
- ❖ **saliva** a liquid secreted in our mouth by the salivary glands.

Something to Know

A. Fill in the blanks.

1. The body organs that cannot be seen from outside are called _____ organs.
2. Flat teeth are in the _____ of the mouth.
3. Tongue is used for _____ and _____.
4. Saliva is secreted by _____.
5. Flies can transfer _____ to uncovered food.

B. Match the following:

- | | |
|--------------------|-----------------------------------|
| 1. milk teeth | (a) absorption of water |
| 2. large intestine | (b) absorption of digested food |
| 3. permanent teeth | (c) undigested waste is collected |
| 4. rectum | (d) thirty two |
| 5. small intestine | (e) twenty |

C. Tick (✓) the correct option.

1. The teeth, used to tear food into pieces, are known as—
(a) incisors (b) canines (c) molars (d) premolars
2. Ria's mother is thirty two years old. She is likely to have—
(a) 20 permanent teeth (b) 20 temporary teeth
(c) 32 permanent teeth (d) 32 temporary teeth
3. The organ, which secretes digestive juices in the small intestine, is the—
(a) liver (b) salivary glands
(c) stomach (d) food pipe
4. The food gets completely digested in the—
(a) mouth (b) stomach
(c) small intestine (d) large intestine

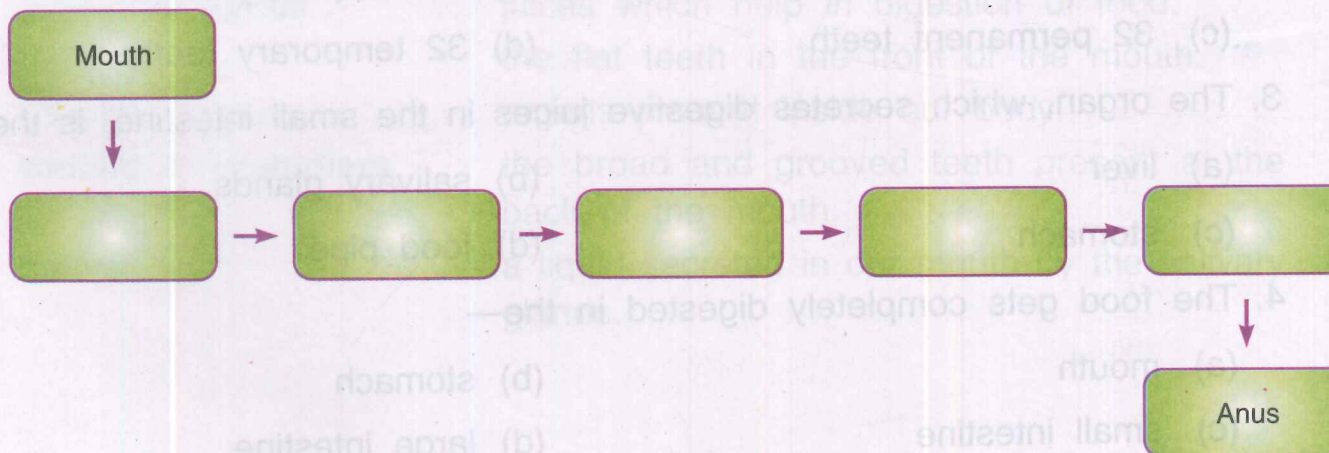
5. An eight year old child is likely to have—
- (a) only temporary teeth
 - (b) only permanent teeth
 - (c) both temporary and permanent teeth
 - (d) no teeth at all

D. Answer the following questions in brief.

1. Name the organ through which food enters the stomach.
2. How many sets of teeth are formed during one's life time? Name them.
3. Write any one difference between milk teeth and permanent teeth.
4. What do you mean by the term 'digestion'?
5. What happens to the food when it enters the stomach?

E. Answer the following questions.

1. List five good habits that should be taken care of at the time of eating food.
2. Name the different types of teeth present in the mouth. Also mention their functions.
3. Why is it important to chew the food properly?
4. Why is washing of fruits and vegetables important for us?
5. Sheena's mother often tells her not to eat too many sweets and chocolates. Why do you think she says so?
6. Complete the given foodpath:



VALUE Based Question

It was lunch time in the school. Rahul and his friends gathered to have lunch together. All the friends started eating their lunch. Rahul did not find his lunch box in his bag. He had forgotten it at home. His friend Sanyam noticed this. He immediately offered to share his lunch with him. Rahul, however, moved out of the class. He bought some food from the vendor outside the school gate and ate it.



1. What would you do if you were in Rahul's place?
2. Sanyam tried to share his food with Rahul? In what situations do you share/help your friends?
3. Do you think that eating food from roadside vendors is a healthy option?

Something to Do

1. Denture Making

Take some playing dough (clay) and a few peeled peanuts. Roll the clay into the shape of jaw (☺) and place the peanuts the way your teeth are arranged on the jaws.

Colour the flat teeth, pointed teeth and broad and grooved teeth in different colours. Do not forget to give proper shape to the peanuts.

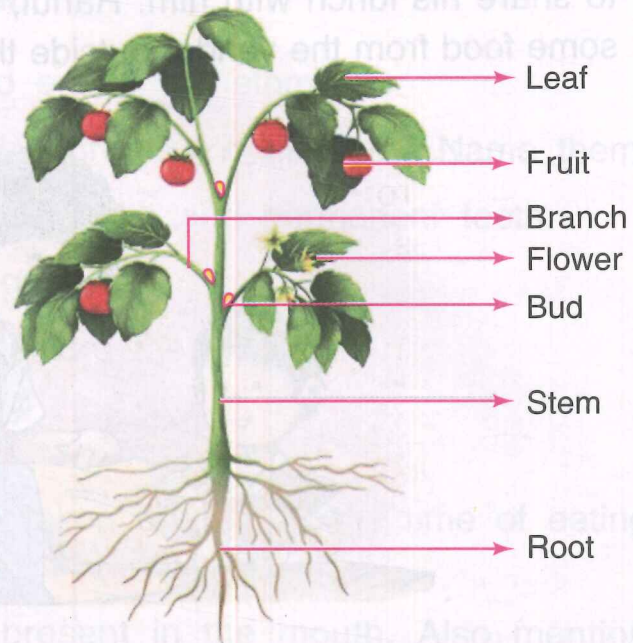
2. Visit the following websites for more information on the digestive system:
 - (a) www.makemeagenius.org
 - (b) www.scienceforkids.org

In Class-III, we learnt a little bit about plants. Let us revise the same by completing the following statements:

Help Box

chlorophyll, stem, seeds, root

- (a) _____ fixes a plant in the soil.
- (b) _____ supports a plant and keeps it upright.
- (c) Leaf has _____ in it to prepare food and to give it its green colour.
- (d) Fruits have _____ in them which germinate to form plants.



We know that a plant has different parts like root, stem, branches, leaves, flowers and fruits. We have learnt about the leaf in some detail in the previous class. Now, we will learn about the root of the plant.

THE ROOT

It is an underground part of the plant. As the plant grows, its roots become thick and woody with a corky outer layer.

Types of root

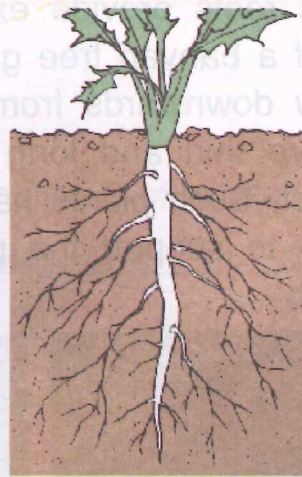
Roots are of two types:

- ◆ Tap roots
- ◆ Fibrous roots

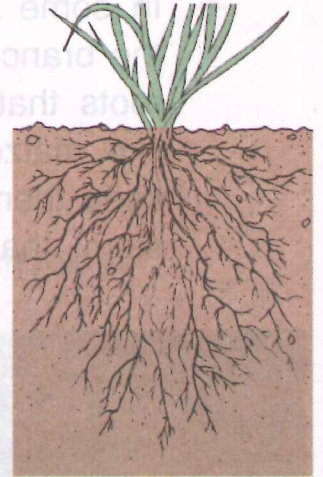
Tap root is a single, long root with thin roots arising from it. Plants, like beans, rose, lady finger, and trees, like *neem* and *peepal*, have tap roots.

Fibrous roots are those in which many roots arise from the base of the stem. A fibrous root tends to taper downwards.

Fibrous roots are found in all cereals, grasses and banana.



Tap root



Fibrous root

Do You Know?

Roots help in soil conservation. They help to bind the soil and protect it from getting washed away.

Functions of the root

Root is an important part of a plant. It helps the plant to absorb water and minerals from the soil. It holds the plant upright in the soil. Thus, absorption and fixation are the two main functions of roots. In some plants, roots perform a few special functions.



Edible roots

- ◆ Plants, like radish, carrot and beetroot, have thick roots which store food for the plant. Some such roots are eaten by man and animals. Such roots are called **edible roots**.

Do You Know?

Edible roots, like carrot, radish, beetroot are delicious and nutritious and add variety to the diet.

- ◆ In some plants roots provide extra support to the plant. For example, the branches of a banyan tree get extra support with the help of special roots that grow downwards from the branches. Similarly, some plants, like maize, have thin and long stems which require extra support to keep them erect. Such plants have roots, arising from the base of their stem, that help to support the plant.



Banyan tree



Maize plants

In mangrove plants, roots do not get sufficient oxygen in the marshy areas. In such plants, some breathing roots come out of the soil to get fresh air from the atmosphere. Such roots, found in banyan, maize and mangrove plants, are called **aerial roots**.



Mangroves

Do You Know?

There is a law against cutting trees. For cutting down, or pruning, any tree, a written permission from the appropriate authorities is required.

Keywords

- ◆ **atmosphere** the air surrounding the earth.
- ◆ **erect** upright.
- ◆ **germinate** to grow a sprout.
- ◆ **tapers** narrows and gets directed towards a point.

Something to Know

A. Fill in the blanks.

- _____ is the underground part of a plant.
- Roots absorb _____ and _____ for the plant.
- Neem* and *peepal* have _____ roots.
- _____ and _____ are edible roots.
- Mangrove plants have _____ roots.

B. Write True or False for the following statements.

- Carrot and beetroot store food in them. _____
- Beans and rose have fibrous roots. _____
- All roots are edible. _____
- Roots do not get sufficient oxygen in marshy areas. _____

C. Tick (✓) the correct option.

- The root of this plant stores food—
(a) mango (b) apple (c) banana (d) carrot
- This plant has a tap root—
(a) banana (b) grass (c) wheat (d) rose
- These plants have breathing roots—
(a) mangrove (b) apple (c) *neem* (d) *peepal*

D. Answer the following questions in brief.

- Name the two different types of roots.
- Give two examples of plants having fibrous roots.
- Why do aerial roots need to come out of the soil?

E. Answer the following questions.

1. Draw the shape of the tap root and the fibrous root.
2. In what way(s) is the tap root different from the fibrous root?
3. State the two main functions of roots.
4. In what way are the roots of banyan tree and maize 'special'?

VALUE Based Question

Rohan saw Ram Manohar, the watchman, cutting a small tree to make a fire to warm himself. He immediately asked him not to do so. Later, he went home and requested his mother to give a blanket to the watchman. The watchman was very happy to get the blanket. He thanked Rohan and promised him that he would not cut any tree. He also promised to check that nobody else does so.



1. What does the above situation tell us about Rohan?

2. How did he help the watchman?
3. Rohan, stopped the watchman from cutting trees. Have you ever done anything similar to save your environment?

Something to Do

1. Take a small sapling of grass and a mustard plant, observe their roots and note down their differences, if any.
2. Prepare a chart showing some 'edible roots'. List down the ways in which they are usually eaten.

