3 Human Body: The Digestive System and Excretory System

We'll cover the following key points:

- The Digestive System
- The Excretory System
- Eliminating various types of waste
- Healthy Eating Habits

Hi, I'm EeeBee

Do you Remember:

Fundamental concept in previous class.

In class 3rd we learnt

- Internal Organs of The Human Body

Still curious? Talk to me by scanning the QR code.

Learning Outcomes

By the end of this chapter, students will be able to:

- Understand the structure and function of the digestive system in the human body.
- Describe the excretory system and its role in removing waste from the body.
- Identify the different types of waste eliminated by the body, including urine, sweat, and carbon dioxide.
- Understand the importance of healthy eating habits for maintaining digestive and excretory health.

Guidelines for Teachers

The teacher can begin the chapter by explaining why digestion and excretion are vital for the body's functioning and overall health. Use diagrams or models to demonstrate the human digestive and excretory systems, focusing on the different organs involved and their specific functions. Explain the process of digestion step-by-step, from ingestion to absorption. Discuss the role of enzymes and the importance of nutrients. For the excretory system, highlight how the kidneys, liver, and sweat glands work together to eliminate waste. Encourage students to explore the relationship between digestion, excretion, and healthy eating habits. To engage students, simple experiments such as observing the effect of different foods on digestion or examining the composition of urine can help make the concepts more relatable.

Warm Up

Experiential Learning

Name the following:

1. It helps to mix the food particles with saliva : _____
2. A part of the body that has a specific job to do : _____
3. Digestive juice produced by the salivary glands: _____
4. The unwanted waste is expelled through it : _____
5. We must include this in the diet to make our digestive system healthy : _____

Fun Fact

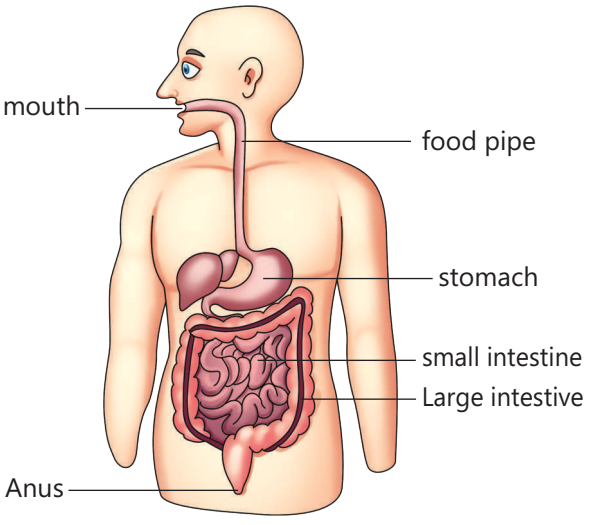
Your stomach is like a mini chemical factory! It produces hydrochloric acid strong enough to dissolve metal. But don't worry—your stomach protects itself with a special mucus lining. Every few days, this lining is replaced to prevent the stomach from digesting itself. The human body truly is an engineering marvel!

The Digestive System

Take a Task | Watch Remedial

Our body needs food to provide it with energy, vitamins, and minerals. However, in order to use food, we must first break it down into substances that the various organs and cells in our body can absorb. This is the function of our digestive system.

The process of breakdown of food into smaller components that can be absorbed into the blood stream easily is called digestion. Many organs work together and help in the process of digestion. The main organs of the digestive system are – mouth, food pipe or oesophagus, stomach, small intestine, large intestine and anus or rectum.

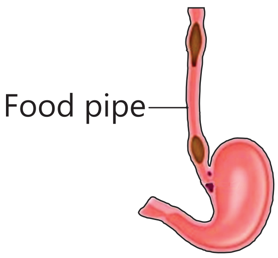


Digestive System

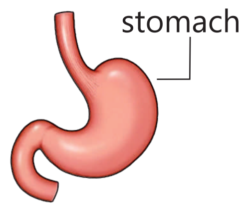
An organ system is a group of organs that work together to perform one or more functions. Each does a particular job in the body, and is made up of certain tissues.

Here are the major stages of the digestive system:

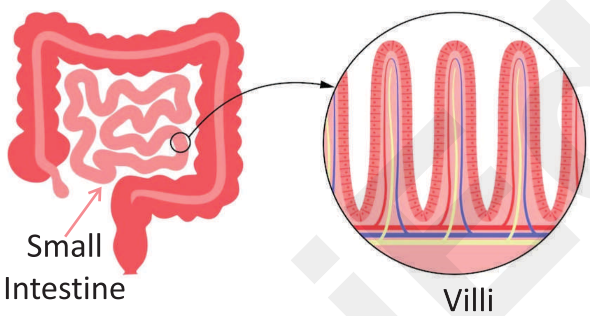
1. **Mouth** : Digestion starts in mouth. When food is chewed, it is broken into small pieces that are easier to digest and swallow. Also, saliva produced by salivary glands is mixed with the food with the help of tongue. Saliva starts breaking down starchy food (potatoes, bread) into simple soluble substances.



2. **Food pipe (Oesophagus)** : Our tongue helps to push food into the back of our throat. Then there are special throat muscles that force the food down into a long tube that leads to our stomach, called the oesophagus. The muscles push the food along until it gets to our stomach. At the same time, a flap blocks off our windpipe making sure food doesn't go the wrong way as it can make us choke. This flap is called the epiglottis and it works automatically.

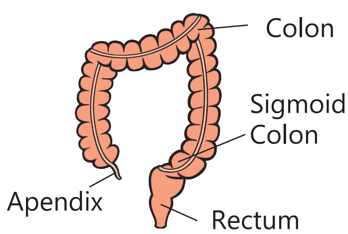


3. **Stomach** : The next stage is the stomach. Food remains in the stomach for around four hours. The stomach is a muscular bag that crushes food and contains acids and enzymes for killing bacteria and breaking down proteins into simple substances that our body can absorb and use.



4. **Small Intestine** : The first part of the small intestine works with juices from the liver and pancreas to continue to breakdown our food. The second part is where the food gets absorbed into the blood through the walls of the small intestine. Tiny finger-shaped projections called villi line the inside of the small intestine. Villi absorb nutrient molecules. The molecules pass from the villi into blood vessels. The blood takes it to all cells of the body. Digestion of food ends up in the small intestine.

5. **Large Intestine** : Undigested food that the body doesn't need or can't use is sent to the large intestine. Here, water is absorbed and the solid left behind is called faeces. The large intestine is part of both the digestive and excretory organ systems.



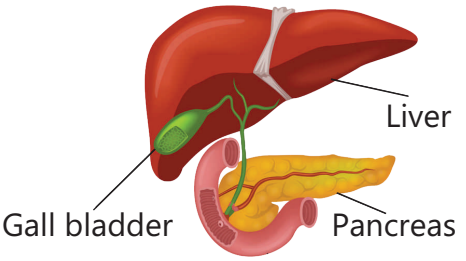
Large Intestine

Did you know ?

In a human body, the small intestine is 21 feet and the large intestine is 6 feet long.

6. **Anus** : Wastes are thrown out of the body through the anus or rectum.

The Liver and Pancreas



The liver and pancreas do a lot to help the digestive system. Both work with the small intestine. The liver provides bile which is stored in the gall bladder that helps to break up fat into smaller bits. The pancreas provides additional enzymes (pancreatic juice) to help digest all sorts of food. The liver also processes the digested food from the blood before it is sent to various places of the body to be used.

Check 'N' Mate

Critical Thinking

Write 'T' for true and 'F' for false statements.

1. An organ system is a group of organs that work together. ☐
2. The muscles push the food along food pipe until it gets to our stomach. ☐
3. Undigested food is sent to the small intestine. ☐
4. Bile is produced by liver in the gall bladder. ☐

Activity

Creative Learning

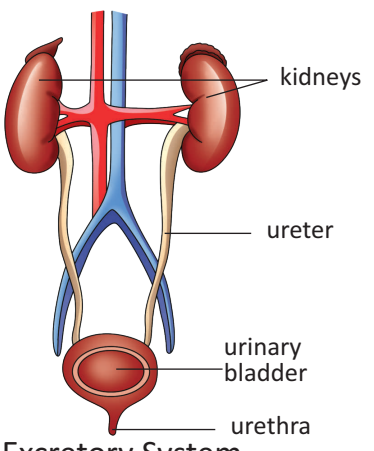
Pretend you are a piece of pizza. Describe your trip through the digestive system from the very first bite to the last ending. In order to get full credit, you must:

- Include an opening sentence.
- Follow the digestive system in order from start to finish using details to support each of the six parts.
- Use vocabulary from this unit.
- Be descriptive and give details about where you are.
- Include a closing sentence.

The Excretory System

Take a Task | Watch Remedial

Excretion is the process of removal of waste products from the body. The main system in the body responsible for excretion is the Urinary System. It removes most of the wastes from the body in the form of urine. Other excretory organs are the skin and the lungs. The skin remove waste in the form of sweat and the lungs remove carbon dioxide.



Excretory System

The Urinary System

The urinary system starts with two bean shaped organs called kidneys. They separate waste and excess water out of our blood for removal. When blood passes by a kidney, it is 'cleaned.' The kidney then reabsorbs any non-waste material trapped with the waste. The leftover waste product is called urine.

When all that's left is urine, it will leave the kidney through a tube called the ureter. The ureter connects to the urinary bladder, an organ which stores urine until the body is ready to get rid of it. When there is enough urine in the bladder, it will exit the body through another tube called the urethra.

Eliminating various types of waste

Solid Waste

After the food is digested, the solid waste that is left out is removed from the body through the digestive system.

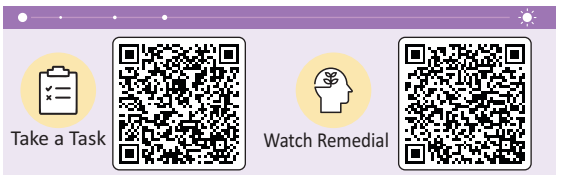
Liquid Waste

Our body actually generate a lot of dangerous liquid wastes. These are toxic waste products which will circulate in our blood until disposed off. Our body gets rid of it through the urinary system.

Gaseous Waste

Finally, there is a simple kind of waste removal system that we do every few seconds: breathing. When we breathe out, we are getting rid of carbon dioxide. This is a waste product generated by metabolism in our cells. After being made by our cells, it dissolves in the blood and moves to the lungs. There, it is converted into a gas so that we can exhale it.

Healthy Eating Habits



- For staying healthy, eat a balanced diet with a lot of fibre as it helps to prevent constipation.
- The more you chew your food, the better it will be broken down which will help in the digestive process.
- Do not drink between meals as it may lead to slower digestion as the digestive juices are diluted by the liquids consumed. You should drink the water before meals – 15 minutes prior to or about 30 to 40 minutes after meals.

- Avoid overeating as it puts lots of pressure on the digestive system.
- Do not distract yourself while eating. Concentrate on your food and put away your phone, turn off the television or computer or tablet, close the book in front of you and just sit down and eat.
- Do not skip your meals and have food at fixed times.
- Rest a while after eating as your stomach needs oxygen to digest the food. If you start playing immediately, other organs take away oxygen.
- Food should be hygienically prepared and street food should be avoided as it leads to harmful diseases.
- Wash your hands before having food or use sanitizer. Rinse your mouth properly after eating.
- Make a habit of going to the washroom every morning as the body needs to get rid of the waste, for a healthy digestive system. It is also important to urinate at regular intervals.

Check 'N' Mate

Critical Thinking

Fill in the blanks with correct words.

1. Excretion is the process of removal of _____ (waste/important nutrients).
2. The bean shaped organs are called _____ (intestine/kidneys).
3. _____ (Urine/Waste) exits from the body through a tube called urethra.
4. _____ (Do/Do not) skip your meal and have food at fixed times.

In a Nutshell

- The breakdown of the food into small simple pieces is called digestion. Food has to be digested before it can be used by the body.
- Digestion starts in the mouth, continues in the stomach and is completed in the small intestine.
- The digested food is absorbed into the blood in the small intestine. The undigested food is thrown out of the body through the large intestine.
- The salivary glands, liver, pancreas are a few organs that secretes digestive juices.
- The excretory system includes the urinary system, skin and the lungs.

- The urinary system consists of a pair of kidneys, a pair of ureter, a urinary bladder and a urethra.
- Urine is formed inside the kidneys and is stored in the urinary bladder till it is thrown away through the urethra.
- Healthy eating habits should be maintained for healthy digestion and excretion.

Key Words

Improving Vocabulary

Toxic	:	Poisonous
Circulate	:	Move continuously or freely through a closed system or area
Choke	:	Have severe difficulty in breathing because of a constricted or obstructed throat or a lack of air
Enzymes	:	Chemical substance that is found in living creatures which produces changes in other substances without being changed itself

Gap Analyzer™

EXERCISE

That turn curiosity into confidence—let's begin!

A. Objective Type Questions.

1. Which of the following is a small, saclike organ that stores bile:

   (a) Liver ☐ (b) Gallbladder ☐ (c) Pancreas ☐

2. Which of the following is the muscular tube that carries food from our mouth into our stomach:

   (a) Oesophagus ☐ (b) Trachea ☐ (c) Large intestine ☐

3. What is removed from undigested food while it is passing through the large intestine?

   (a) Bacteria ☐ (b) Enzymes ☐ (c) Nutrients ☐

4. An organ that removes and filters waste products from the blood:

   (a) Liver ☐ (b) Pancreas ☐ (c) Kidney ☐

B. Fill in the blanks with the correct word.

1. The human system that has the function to breakdown food into nutrients and absorb the nutrients into blood _____ .
2. The small projections of the inside wall of small intestine is called _____.
3. The main system in the body responsible for excretion _____ .
4. Urine is stored in the _____ .

C. Match the following:

	Column A		Column B
1.	Stomach	a.	Finger-shaped projections
2.	Villi	b.	Muscular bag
3.	Organ system	c.	Bean-shaped organs
4.	Kidneys	d.	Groups of organs

D. Very Short Answer Questions.

Name the following :

1. Part of the body where digestion of protein begins _____
2. Complete digestion of food occurs in _____
3. The glands associated with the Human Digestive System _____
4. Tubes that connect each kidney to the bladder are called _____

E. Short Answer Questions.

1. What is the purpose of the digestive system?
2. What are the different parts of the digestive system?
3. What are the organs of the digestive system that makes digestive juices?
4. How is saliva useful in digesting the food?

F. Long Answer Questions.

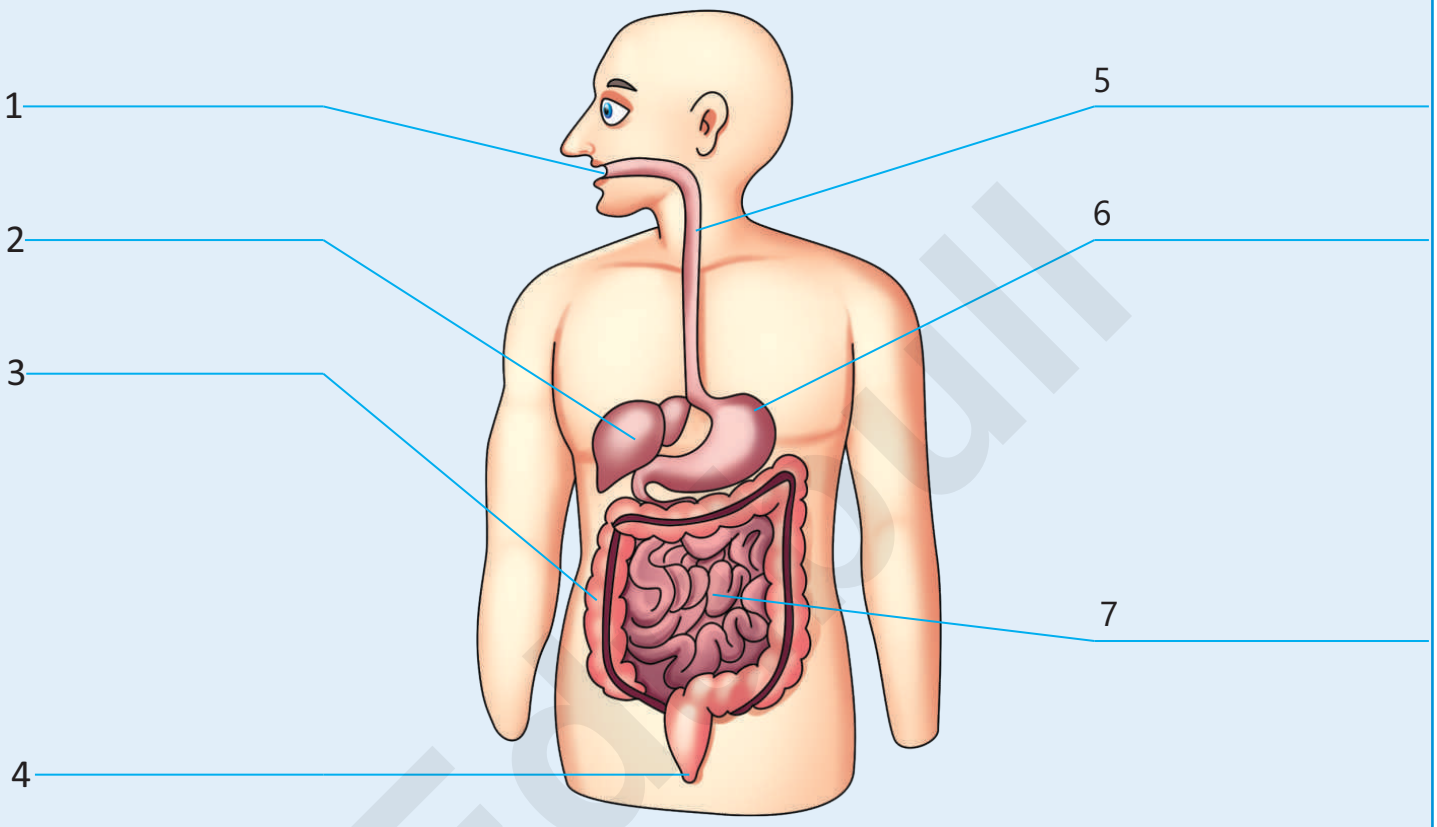
1. Draw and label the different organs of the digestive system.
2. What happens to the food in the stomach?
3. How do the nutrients get absorbed into the blood?
4. What are the other organs of the excretory system? Explain.

Time to Recall

Remembering and Analysing

Label the diagram on Digestive System.

Small intestine Large intestine Mouth Liver
Food pipe Stomach Anus



Time to Apply

Applying and Creating

1. Rohan quickly eats and gulps his food without chewing much. What change would you suggest Rohan on his way of eating and why?
2. An athlete want to run a 200 m race as soon as she finishes her meal. What advice will you give her?

Time to Discuss

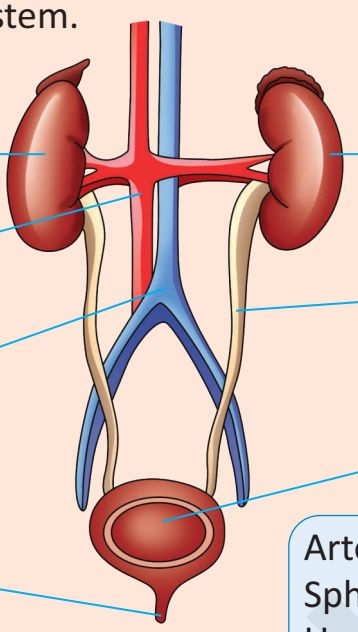
Pondering and Communicating

What will happen if the waste is not thrown out of the body?

Time to Observe

Observing, Critical Thinking, Analysing

Label the diagram on Urinary System.



Artery, Bladder, Internal, Sphincter, Kidney, Ureter, Urethra

Time to Create

Creating and Collaborating

Make a chart of the human digestive system. Name the different organs and slate what happens in each organ as the food passes through it.

Time to do

Improving Vocabulary

Complete the crossword using the given clues.

Down

1. The process of breaking down food into smaller pieces.
2. Parts of food that cannot be digested by our body

Across

3. The organ in which food is stored for about four hours.
4. The digestive juice in the mouth.
5. The opening through which waste food is passed out of the body.