



NATURAL SCIENCES: NATS4

LESSON 12

NOTES AND ACTIVITY

US 7509

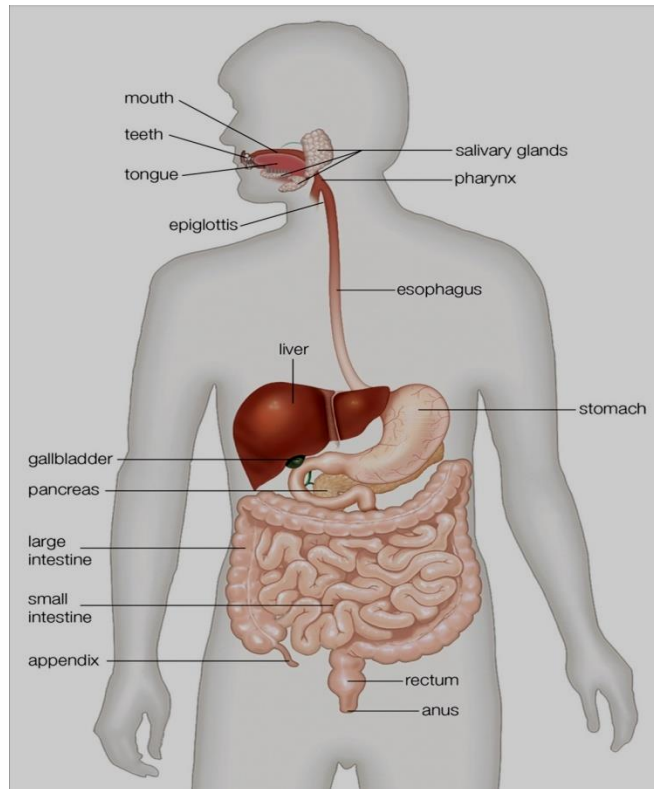
THEME: Life and Living
TOPIC: Human Digestive System

At the end of this unit, you should be able to:

1. Understand what is digestive system and how it works.
2. Label parts of the digestive system and their functions.

THE DIGESTIVE SYSTEM

The ***digestive system*** helps our bodies to break down insoluble foods that we eat, into simpler substances before it can be absorbed by the body in order to get energy to be able to perform the life processes we studied in the beginning of this module (theme).



HOW FOOD IS DIGESTED?

- **Mouth**

Food taken into the mouth is broken down by chewing (*a physical process*) and then mixed with saliva produced by the salivary glands. Saliva contains *enzymes* which are chemicals that help in the breaking down of complex molecules in food substances to smaller molecules (*a chemical process*). The tongue rolls the food into a round ball called **bolus**, and pushes it to the back of the mouth before it is swallowed.

- **Oesophagus**

The food bolus is swallowed into the oesophagus (also known as *gullet*). At the back of the mouth is a leaf-like shaped flap of muscle called **epiglottis**. When we swallow, this flap covers the trachea (*wind pipe*) and stops the food from going into the lungs. The muscle of the oesophagus contracts, to push the food into the stomach. This process is called **peristalsis**.

- **Stomach**

From the oesophagus the food passes into the stomach where it is pummeled by the muscular stomach walls and mixed with gastric juices which contain enzymes and hydrochloric acid. The acid helps to kill bacteria in the food and also provides the correct pH for the enzymes to work. Once the food has been mixed into a thick liquid consistency it enters the small intestine.

- **Small intestine**

Most of the digestion occurs here. The small intestine produces many different enzymes which digest proteins, carbohydrates and fats. The products of digestion, i.e. the *soluble* food substances, pass through the small intestine and are absorbed by the food. The small intestine is a coiled narrow tube 3 to 5cm in diameter which is about 6 to 7m long if it is uncoiled or stretched out.

- **Large intestine**

Food which has not been absorbed is passed on to the large intestine where excess water is absorbed from the food. This makes the solid waste called *faeces*.

- **Rectum and Anus**

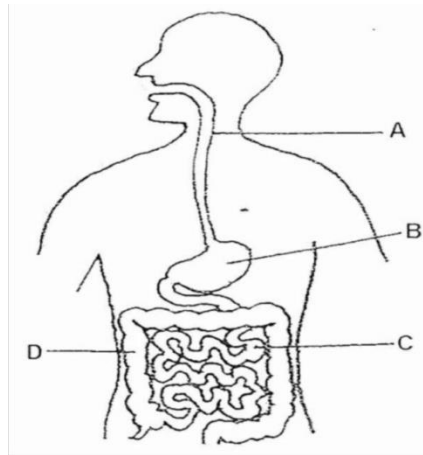
The faeces are stored in the rectum until being passed out of the body through the anus.

Other important organs in the digestive system are the *liver, gall bladder and pancreas*.

- **Liver** – produces the bile which emulsifies fats and neutralizes the stomach acid. This creates the right conditions for the enzymes in the small intestine to digest *proteins, carbohydrates and fats*.
- The **gall bladder** – stores the bile before it goes into the intestine.
- The **pancreas** – produces the digestive enzymes which further help to break down food coming out of the stomach passing through to the small intestine.

ACTIVITY

Study the digestive diagram below and answer the questions.



1. Name the parts labeled A, B, C and D.
 2. In which part is chemical digestion of food taking place?
 3. Huge amounts of water are absorbed in part C, than D. Explain why this is the case.
 4. Define *peristalsis*.
 5. Identify a letter where the peristalsis takes place.
 6. What is the function of part labeled D?
 7. Many people resort to eating junk food as a quick meal, although it has a negative impact on the digestive system as causes heartburn or acid influx.
What is the effect of heartburn in the digestive system?
 8. Where does physical digestion occur in the digestive system?
-

Compiler: C.Tshabalala