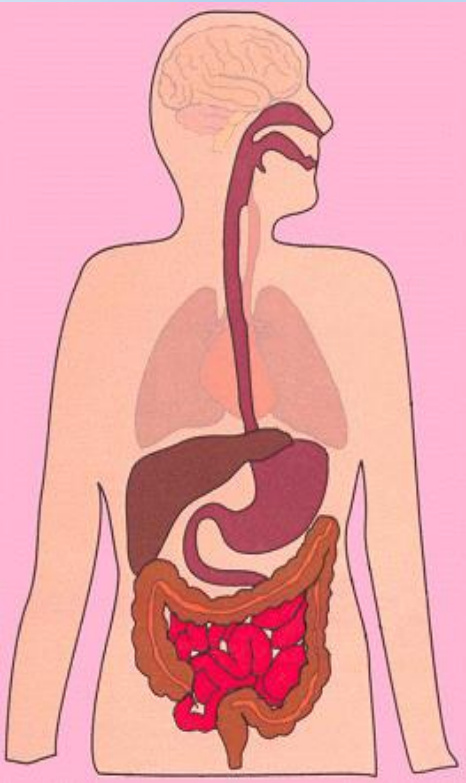




# Biology Grade 9



## CHAPTER 1: FROM FOOD TO NUTRIENTS: DIGESTION

INSTRUCTOR: SUHAIB AUDI



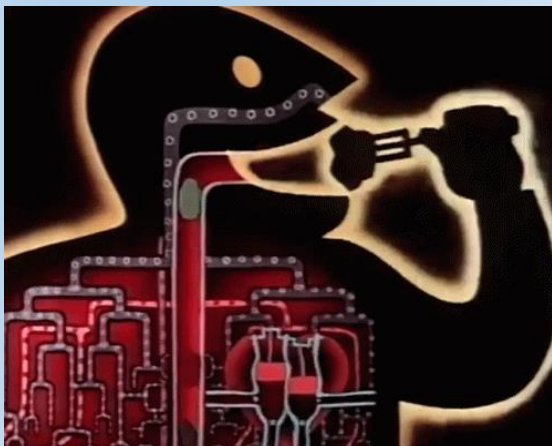
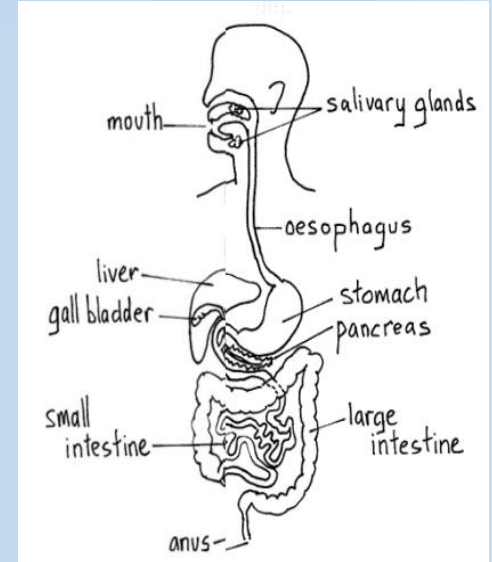
# Introduction

## ❖ Digestion

### ❖ Definition of digestion:

It is the process of making food absorbable by **mechanically** and **enzymatically** breaking it down into simpler chemical compounds called **“nutrients”**, that can be used by body cells by the help of certain chemicals called **“enzymes”**.

❖ The Digestive system: The digestive system is a group of organs working together to convert food into energy and basic nutrients to feed the entire body.

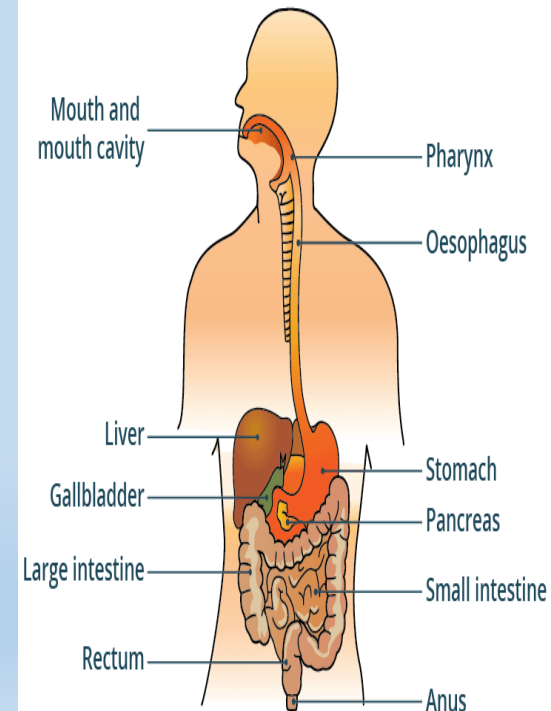
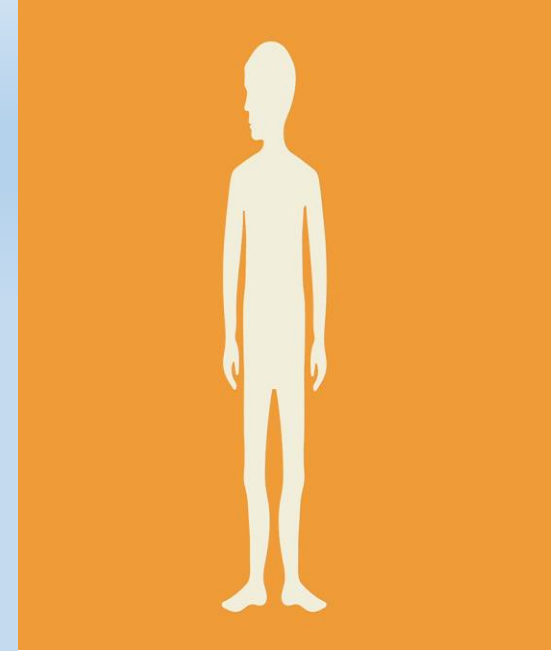


## ❑ The digestive system consists of:

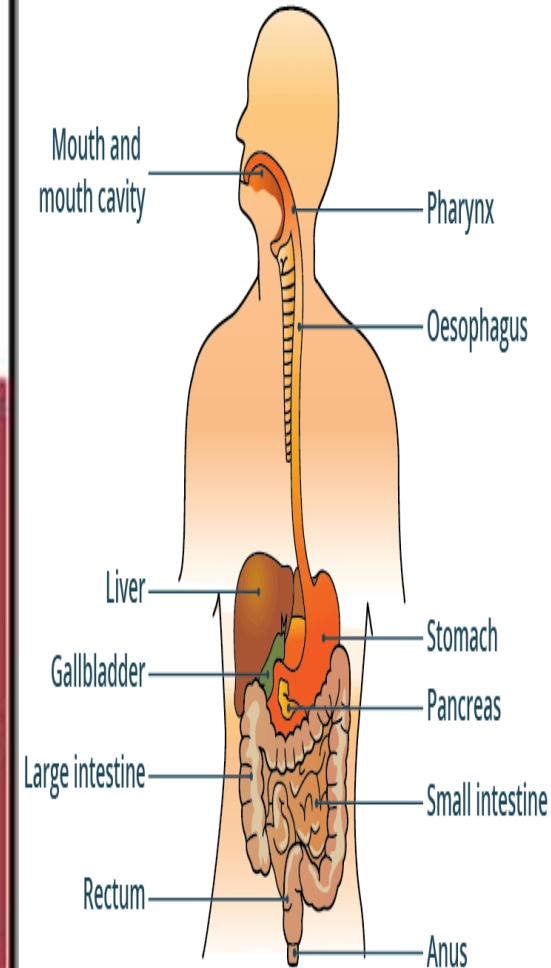
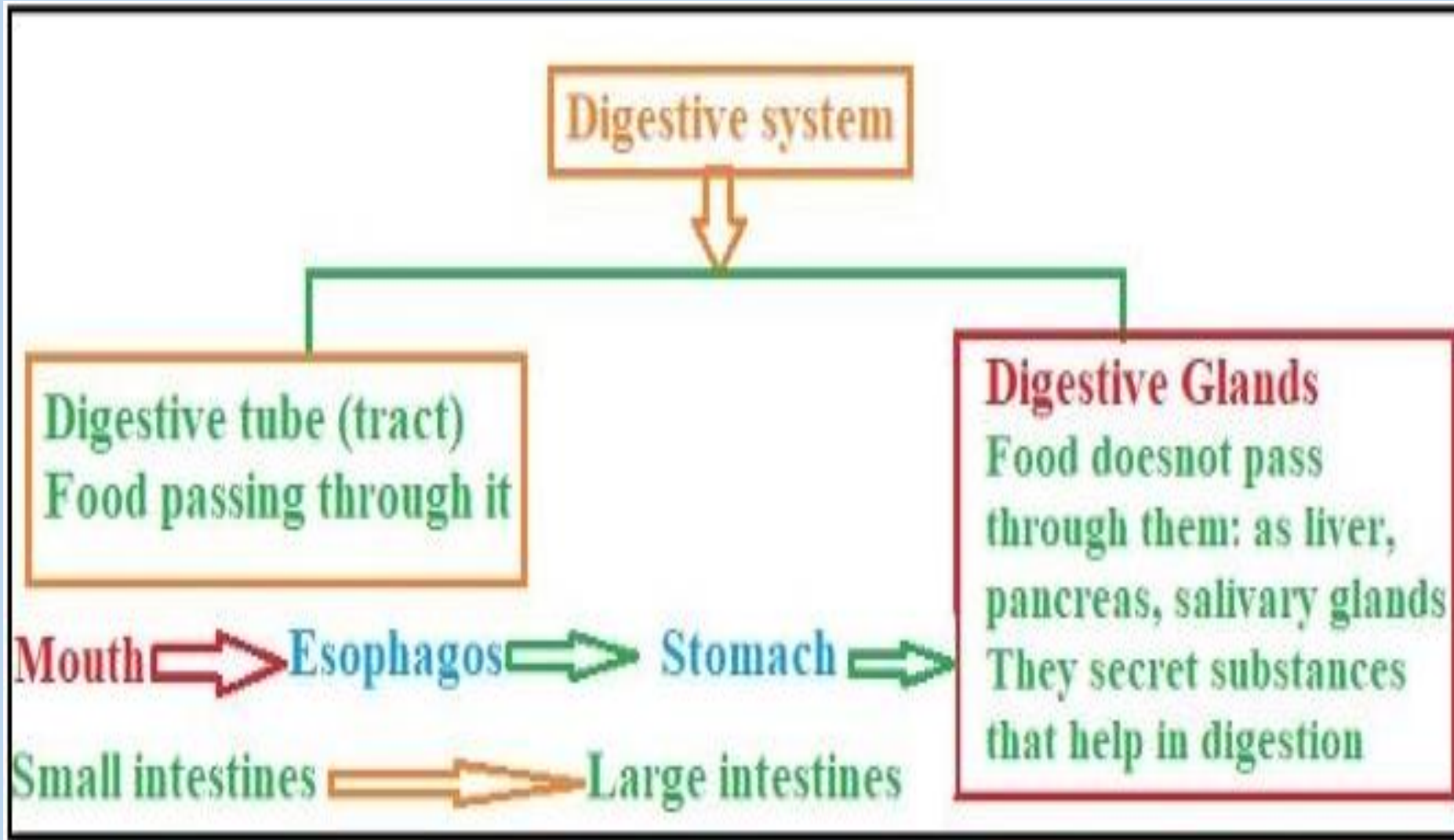
- The digestive tube (tract).
- The digestive glands.

**a. The digestive tubes:** consist of the mouth, esophagus, stomach, small intestine, and the large intestine that ends with the rectum.

**b. The digestive glands:** consist of the salivary gland, the liver, the pancreas and the microscopic glands located in the walls of the stomach and the small intestine.



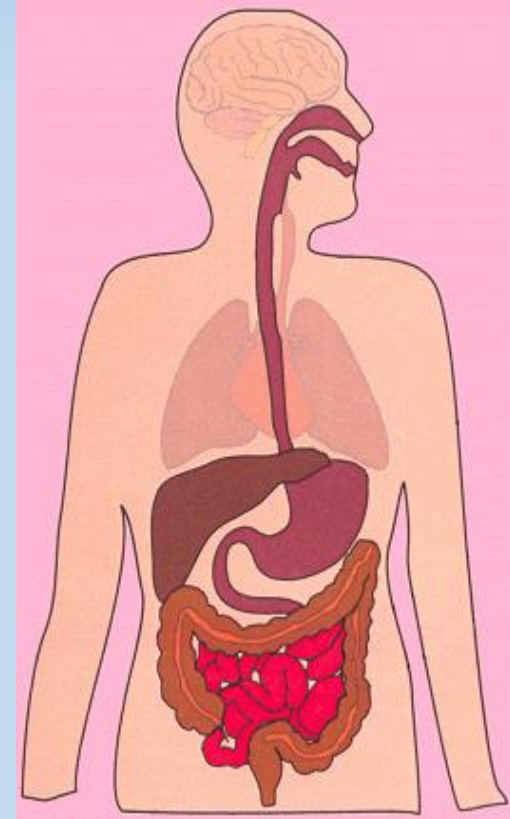
- ❑ Digestive glands secrete **digestive juices** that facilitate the breakdown of food.





## ❖ Important Terms

- **Digestion:** it is the series of chemical and mechanical transformation of food into nutrients.
- **Nutrients:** are small substances present in the small intestine resulting from the complete digestion of food.
- **Digestive juice:** this is the liquid produced by the digestive glands and poured into digestive tube. It contains enzymes.
- **Enzyme:** it's a chemical substance produced by the body and facilitates the simplification of complex molecules.



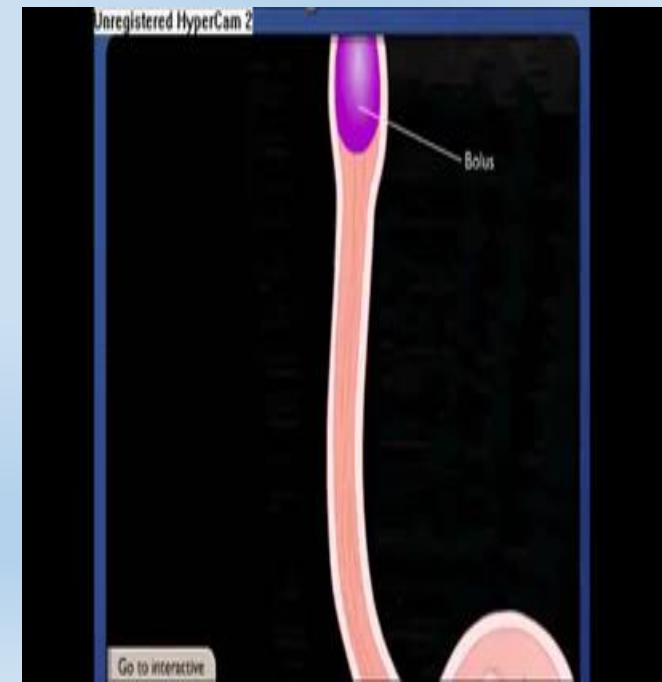
❖ **Digestion is of two types:** Mechanical digestion and Chemical digestion.

**a. Mechanical digestion:**

Is a set of physical movements that enhance chemical digestion by breaking down large food pieces into smaller ones.

Examples:

- In the mouth food is cut, ground and broken into small pieces (**mastication**).
- In the esophagus there is **peristaltic movement** which pushes the food into the stomach.
- The muscles of the stomach will contract and ensure the **churning** of food.
- In the intestine **churning and peristaltic movements**.



**b. Chemical digestion:** Chemical digestion is the digestion of food by **digestive enzymes**. In chemical digestion, the large carbohydrate, lipid and protein molecules in food are split into smaller molecules by hydrolysis.

Producing organ	Digestive juice	Site of action
Salivary glands	saliva	Mouth
Gastric glands of stomach	Gastric juice	Stomach
pancreas	Pancreatic juice	Small intestine
Intestinal glands of the small intestine	Intestinal juice	Small intestine

**Mechanical digestion (mastication, peristaltic movements and churning) facilitates chemical digestion (action of enzymes).**

