

Digestion and Nutrition

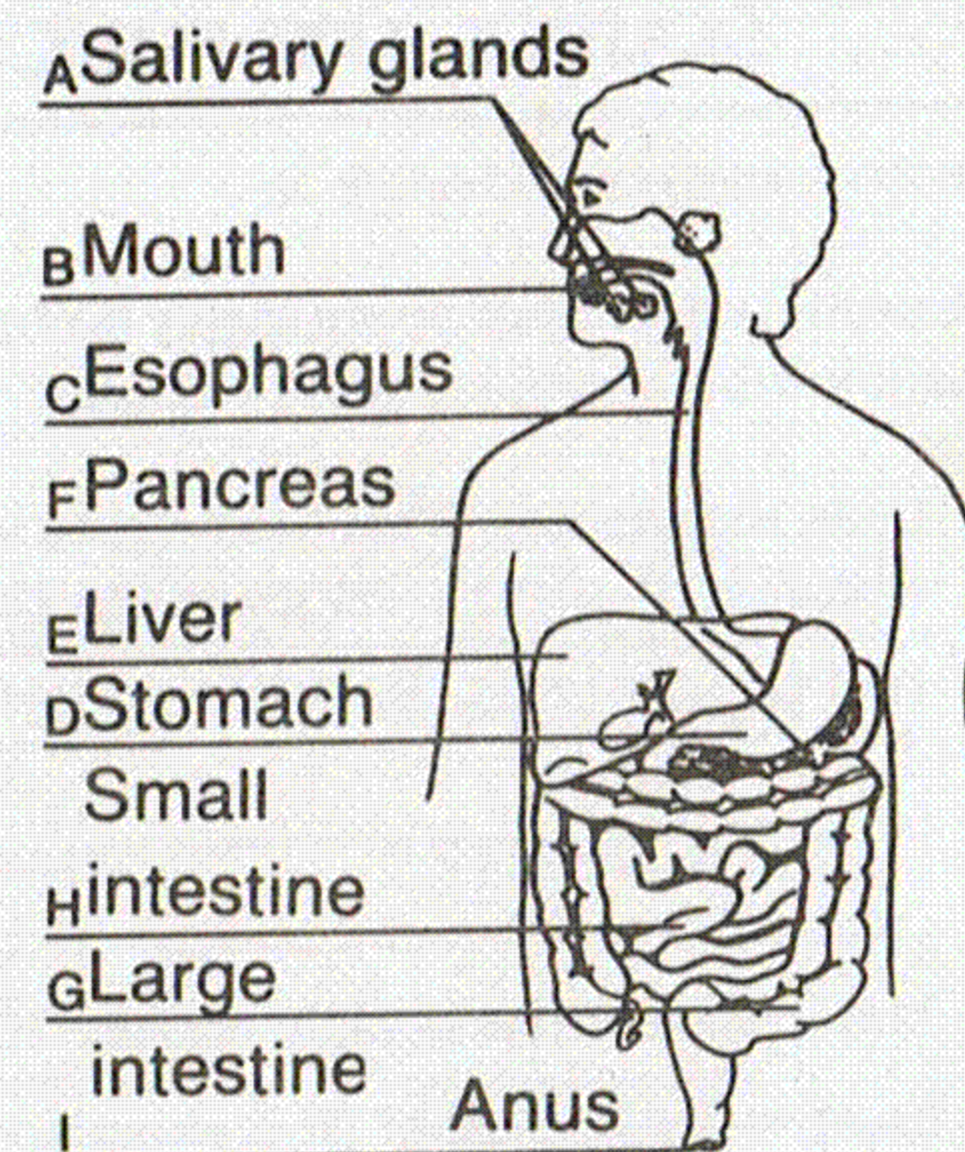
NAME _____
 CLASS _____ DATE _____

A. ORGANS OF DIGESTION

Textbook reference: Sections 38-1 to 38-8

Many organs are involved in the process of breaking down, or digesting, food into usable substances. Study the illustration on the right and fill in the missing labels. Then, using the letters from the illustration, match each part to its function in the accompanying list to the left. Complete each description in the list by supplying the missing word or phrase. Finally, answer the questions below.

- E secretes bile, which emulsifies fats
- A secretes saliva, which moistens food and contains an enzyme that breaks starch into maltose
- D churns food; secretes mucus, hydrochloric acid and enzymes
- F secretes proteases, which break down polypeptides; lipase, which breaks down fat molecules; and amylase, which breaks down starch
- B begins the process of mechanical digestion
- G absorbs water from the lumen
- I exit for solid wastes, called feces
- C moves food from the mouth to the stomach by means of peristalsis
- H secretes peptidases, which break short polypeptides into single amino acids, and maltase, which breaks maltose into glucose; absorbs digested food through projections called villi



1. What is the difference between mechanical and chemical digestion?
Mechanical digestion is the physical breakdown of food into small pieces.
Chemical digestion is the chemical breakdown of large molecules into small ones.
2. What happens after digested food is absorbed in the small intestine?
Glucose and amino acids enter the bloodstream, and are removed by the liver. Fatty acids and glycerol are converted back to triglycerides and are then absorbed in the lacteals. Triglycerides eventually enter the bloodstream, having bypassed the liver.

B. FUNCTIONS OF THE DIGESTIVE SYSTEM

Textbook reference: Sections 38-1 to 38-8

1. The human digestive system has a number of functions. Write an outline describing these functions.
The functions include food intake, food storage, food transport, the mechanical breakdown of food, the chemical breakdown of food, the absorption of nutrients, and the formation and evacuation of solid wastes.
2. Explain why the small intestine is the most important organ of the digestive tract.
The small intestine is the site of most chemical digestion and it is where food molecules are absorbed into the blood.
3. Explain why the villi of the small intestine are an important adaptation.
The villi increase the surface area for absorption.

C. MECHANICAL DIGESTION

Textbook reference: Sections 38-1, 38-2, 38-4

Mechanical digestion reduces food to smaller particles so that a greater surface area of food is in contact with digestive enzymes. Describe how each structure or process listed below is involved in mechanical digestion.

- Incisors
cut food into smaller pieces
- Canine teeth
pierce and tear food
- Premolars and molars
grind food
- Tongue
keeps food where it can be chewed by teeth; pushes food to the back of the mouth for swallowing
- Peristalsis of the stomach wall
churns food for several hours

D. CHEMICAL DIGESTION

Textbook reference: Sections 38-2, 38-4, 38-5, 38-7

In the top chart on the next page fill in the site where the chemical digestion of nutrients begins and where it is completed. Then list the enzymes produced by each organ or gland that appears in the lower chart and state their function.