Biology
Human Biology:
Digestive System Part I

Science and Mathematics Education Research Group

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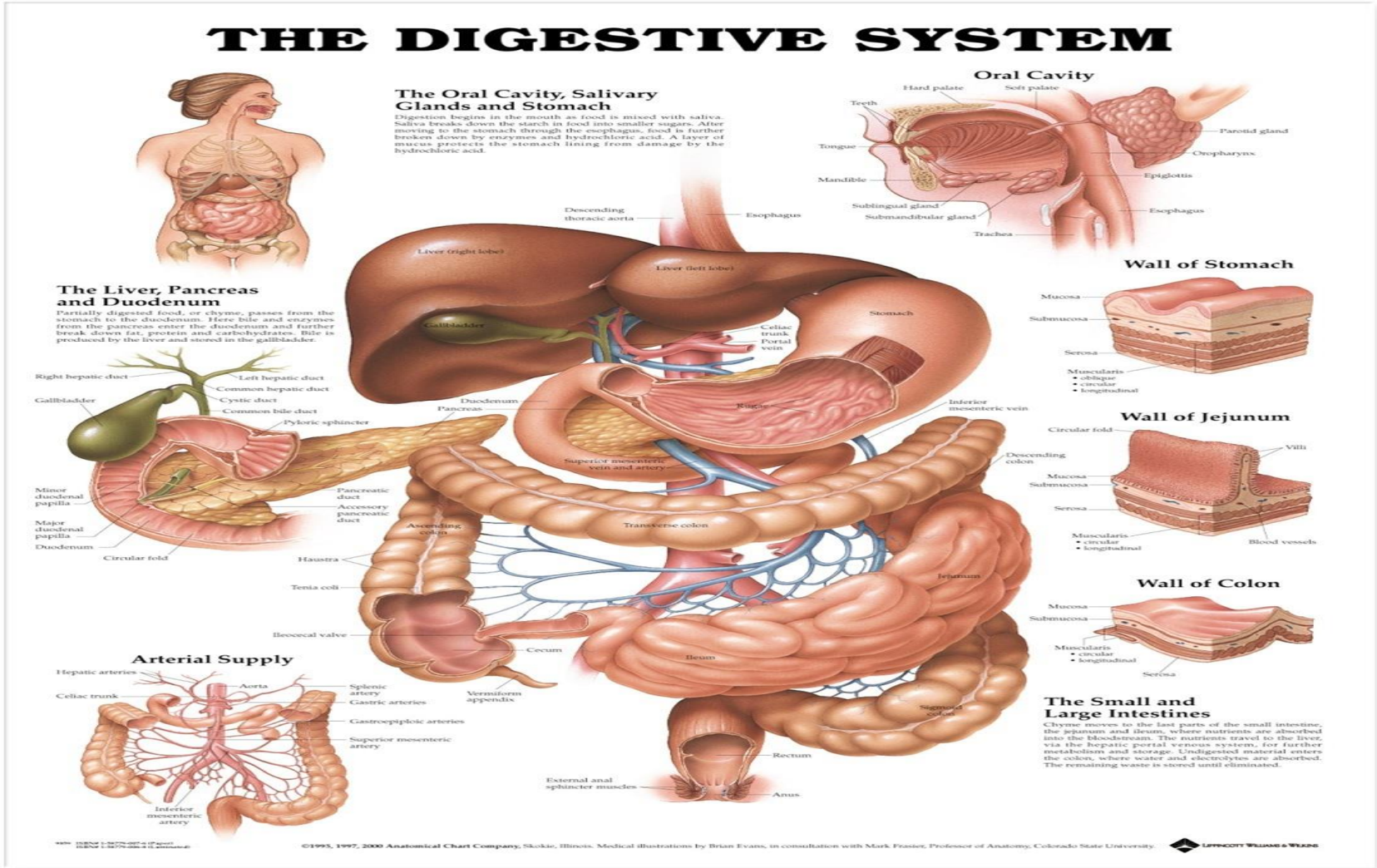
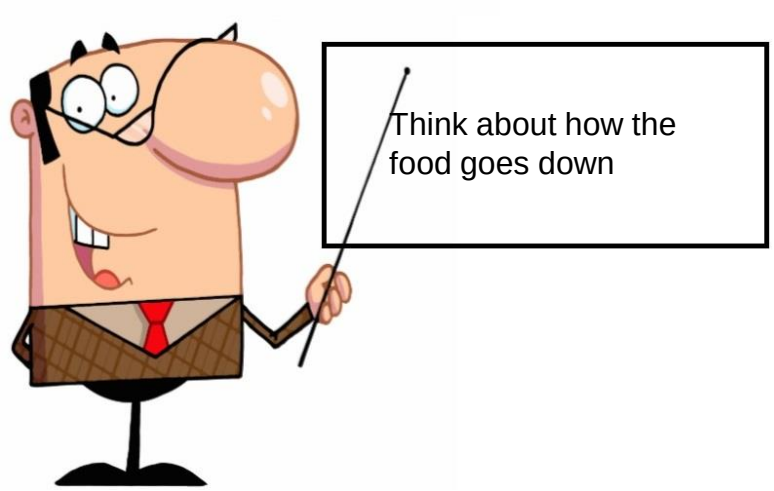
Digestive System



Question I

Physical digestion involves physically breaking the food into smaller pieces without chemically changing it into different molecules. Which of the following does **NOT** serve as a physical digestion structure?

A. Large Intestine
B. Teeth
C. Stomach
D. Tongue
E. Small Intestine



Solution I

Answer: A

Justification:

The two main structures that are physically involved with digesting food in the **mouth** are the **teeth** and **tongue**. The teeth cut, pierce, crush and grind the food and the tongue helps in chewing and swallowing.

The **stomach** is a muscular storage organ that is both physically and chemically involved with digestion. The physical digestive function of the stomach is to churn the food.

The **small intestine** is also both physically and chemically involved with digestion. Physical digestive occurs inside the small intestine when its villi and microvilli help separate food particles.

The **large intestine** is the correct answer, because its role in the digestive system is absorption, not digestion.

Question II

Chemical digestion is the breaking down of large molecules, such as proteins, starch and fats, into smaller soluble molecules for easy absorption by the human body. Which of the following does **NOT** play a role in chemical digestion?

A. Liver
B. Large intestine
C. Mouth
D. Stomach
E. Small intestine

Solution

Answer: B

Justification:

Chemical digestion structures are …

- Mouth: uses amylase enzymes (contained in saliva) to break up food.
- Stomach: a ball of food (bolus) travels down the esophagus into the stomach and mixes with gastric juice (containing hydrochloric acid and digestive enzymes such as pepsin and rennin), which breaks down the food.
- Liver: produces bile, a digestive enzyme that is passed to the small intestine.
- Small intestine: using digestive enzymes from the pancreas and the liver, the small intestine completes the digestive process.

*The large intestine serves to extract water, salts and vitamins from solid waste before it is removed from the body

Question III

Fill in the blanks below with the correct answer.

Food passes from the _____ to the ____ to the _____ and then to the stomach, where gastric juices break up proteins and other molecules. From the _____, food passes to the _____, where nutrients are absorbed into the body`s bloodstream. Undigested material moves into the _____, where water is reabsorbed and the residual materials are compacted.

A. Mouth – Pharynx – Esophagus – Stomach – Large intestine – Colon
B. Mouth – Esophagus – Pharynx – Stomach – Large intestine – Small intestine
C. Mouth – Esophagus – Pharynx – Stomach – Small intestine – Colon
D. Mouth – Pharynx – Esophagus – Stomach – Small intestine – Large intestine
E. Mouth – Esophagus – Stomach – Small intestine – Large Intestine - Colon

Solution III

Answer: D

Justification:

Food passes from the **Mouth** to the **Pharynx** to the **Esophagus** and then to the stomach, where gastric juices break up proteins and other molecules. From the **Stomach**, food passes to the **Small intestine**, where nutrients are absorbed into the body`s bloodstream. Undigested material moves into the **Large intestine** (or **Colon)**, where water is reabsorbed and the residual materials are compacted.

FYI..
YouTube Video: Digestion in Human Beings 3D CBSE Class 7 Science
https://www.youtube.com/watch?v=zr4onA2k_LY

Question IV

In the digestive system, solid waste leaves the body through the rectum then the anus. Liquid waste leaves the body after passing through the ...

A. Small intestine and bladder
B. Large intestine and anus
C. Kidney and bladder
D. Blood vessels and lungs
E. Small intestine and anus

Solution IV

Answer: C

Justification:

The correct answer is C.

As blood flows through the kidneys, the kidneys filter the blood to produce urine – a liquid composed of wastes and extra fluid. From there, this urine goes to the bladder and leaves the body through a pathway called the urethra.

Question V

Digestion begins in the mouth. Which of the following statements is **INCORRECT**?

A. The saliva acts on the starches in the food, breaking it into maltose.

B. The tongue keeps the food in place in the mouth while the food is being chewed.

C. The digestive juices can react more easily with the food when chewed.

D. The tongue helps in the chemical digestion of the food.

E. The teeth, tongue, and saliva act together to make a bolus (ball of food in the mouth).

Solution

Answer: D

Justification:

The correct answer is D. The tongue enables people to taste food and helps in chewing and swallowing (physical digestion) but it does not affect the chemical digestion process.

For your information...

Saliva contains the enzyme amylase which digests starch, breaking it into maltose.

The digestive juices can react more easily with smaller pieces of food, because there is a larger surface area with which they can interact.

The bolus is the resulting ball of food formed in the mouth through the actions of the teeth, tongue, and saliva.

Digestive System

For more information:

Human Digestive system - YouTube

https://www.youtube.com/watch?v=b20VRR9C37Q