Follow the Bite

Trace the digestive route and the organs that support it

HS-AP10-1 "Identify and locate major and accessory organs of the digestive system and investigate their physiological functions."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the organs that food or waste passes through, circle the accessory organs, and number the underlined organs in travel order. Use your marks to connect each organ's location with its job.

A Sandwich's Route

1. At lunch, a bite of a cheese sandwich enters the mouth, the first major organ in the digestive tract. The teeth, tongue, and salivary glands are accessory organs: teeth grind food, the tongue moves it, and the glands release saliva that begins breaking down starch. During a swallow, food passes through the pharynx, or throat, and travels down the esophagus, a muscular tube behind the windpipe. Waves of muscle push it into the stomach, an expandable sac beneath the ribs. There, muscles churn food with acid and enzymes, starting protein digestion and making a thick liquid called chyme.

2. Chyme leaves the stomach and enters the small intestine, a long, coiled tube in the center of the abdomen. Most chemical digestion and nutrient absorption happen here. The liver, in the upper right abdomen, makes bile, which separates large fat droplets into smaller droplets. The gallbladder sits beneath the liver and stores bile until a meal triggers its release into the small intestine. The pancreas lies behind the stomach and sends digestive enzymes and bicarbonate into the small intestine. Bicarbonate helps neutralize stomach acid. Food moves through the small intestine, but it never travels through these three accessory organs.

3. After most nutrients have been absorbed, the remaining material enters the large intestine, which frames the coils of the small intestine. Its lining absorbs water and salts, helping form solid waste. Waste moves into the rectum, the final storage area at the end of the large intestine, then leaves through the anus. These locations explain why different organs have different jobs: the stomach mixes a meal before it reaches the main site of nutrient absorption, while the large intestine recovers water afterward. Accessory organs assist digestion by sending substances into the tract or by physically moving and grinding food.

2 ANSWER WITH EVIDENCE

Use the passage

1. A swallowed bite has passed the pharynx but has not reached the stomach. Which organ carries it now, and where is that organ relative to the windpipe?

2. A patient's body cannot make bile. Which accessory organ is affected, where is it located, and what does bile do?

3. Which accessory organ lies behind the stomach? Where do its secretions go, and what does one of them do?

4. Most nutrients have been absorbed, but the remaining material still contains water. Which organ receives it next, where is that organ relative to the small intestine, and what does it absorb?

3 YOUR TURN

Your own words

Write a travel log for a bite of buttered toast, from mouth to anus. Name at least four major organs in route order and two accessory organs, give each accessory organ's location and function, and explain where nutrient absorption and water absorption occur.

ANSWER KEY

Follow the Bite

HIGH SCHOOL · HS-AP10-1

PART 1 · READ AND MARK

Underline the organs that food or waste passes through, circle the accessory organs, and number the underlined organs in travel order. Use your marks to connect each organ's location with its job. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	A swallowed bite has passed the pharynx but has not reached the stomach. Which organ carries it now, and where is that organ relative to the windpipe?	**The esophagus carries the bite. It is behind the windpipe.**
2	A patient's body cannot make bile. Which accessory organ is affected, where is it located, and what does bile do?	**The liver, in the upper right abdomen, is affected. Bile separates large fat droplets into smaller droplets.**
3	Which accessory organ lies behind the stomach? Where do its secretions go, and what does one of them do?	**The pancreas sends secretions into the small intestine. Its enzymes aid digestion, and its bicarbonate helps neutralize stomach acid.**
4	Most nutrients have been absorbed, but the remaining material still contains water. Which organ receives it next, where is that organ relative to the small intestine, and what does it absorb?	**The large intestine receives it next. It frames the small intestine and absorbs water and salts.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

My buttered toast enters the mouth, where teeth grind it and saliva begins starch digestion. It moves down the esophagus into the stomach, which churns it with acid and enzymes. Next it enters the small intestine, where most nutrients are absorbed. The liver, in the upper right abdomen, makes bile that separates fat into smaller droplets. The gallbladder, beneath the liver, stores bile and releases it into the small intestine. Remaining material enters the large intestine, where water is absorbed. Waste is stored in the rectum before it exits through the anus.

Accept other accurate accessory organs if students give their locations and functions. Major organs must appear in travel order, with nutrient absorption in the small intestine and water absorption in the large intestine.