THE PROCESS OF DIGESTION REVIEW

SUMMARY: The foods you eat must be broken own into simpler molecules so that the nutrients can be absorbed and used by the cells of the body. Digestion is the process that breaks down food into these simpler molecules. The process of digestion can be divided into three parts. First, food is broken down into smaller pieces during mechanical digestion. Next, these smaller pieces of food are broken down into simpler molecules during chemical digestion. Finally, these simpler nutrient molecules are absorbed from the digestive tract into the bloodstream, where they are transported to individual cells.

Digestion begins in the mouth when your teeth chew the food you eat into smaller pieces and saliva from your salivary glands begins the chemical digestion of starches into simpler sugars. When you swallow, food passes through the throat, or pharynx, and enters the esophagus. The esophagus is a long muscular tube that moves the food toward the stomach by muscular contractions called peristalsis. When food enters the stomach, it is mixed with gastric fluids by mechanical churning. The gastric fluids secreted by glands in the stomach begin the digestion of proteins. After several hours in the stomach, partly digested food, called chyme, enters the duodenum of the small intestine. With the help of bile from the liver and pancreatic fluid from the pancreas, the chemical digestion of proteins, fats, and carbohydrates is completed in the duodenum. As digested food continues into the jejunum and ileum of the small intestine, nutrient molecules are absorbed into the bloodstream through fingerlike projections called villi. Food material that cannot be digested is passed into the large intestine, or colon. In the large intestine, water is removed and undigested material with the help of bacteria, becomes solid waste, or feces, that will be eliminated from the body through the anus.

1. Complete the equation:
   Mechanical digestion + chemical digestion + Saliva = Digestion

2. Pretend that you have just finished eating steak, a baked potato full of butter, hot rolls with butter, and a green salad with oil and vinegar dressing. Identify the digestive organ in which the chemical digestion of each of these foods would begin. (HINT: think about the nutrients found in each of these food items.)
   a. steak = protein = Stomach
   b. potato = carbs = mouth, small intestine
   c. butter = FAT = small intestine
   d. rolls = carbs = mouth, small intestine
   e. lettuce = veggies = Stomach, intestines
   f. salad dressing = fat = small intestines

DIGESTIVE SYSTEM CUT AND PASTE ACTIVITY

INSTRUCTIONS:

Below, you will find two sets of boxes, the top set has 15 tags that list the names of parts of the digestive system. The bottom set of boxes contains descriptions and functions of these parts. You have to match the parts using numbers or letters. Some of the parts, (i.e. mouth and stomach), have more than one describing tag to match them. After you have matched all the tags cut them and paste them in two columns in the order that they appear in your digestive system, starting from the mouth and ending with the rectum.

Colour Coordinate.

	MOUTH
	ESOPHAGUS
	VILLI
	RECTUM
	LIVER

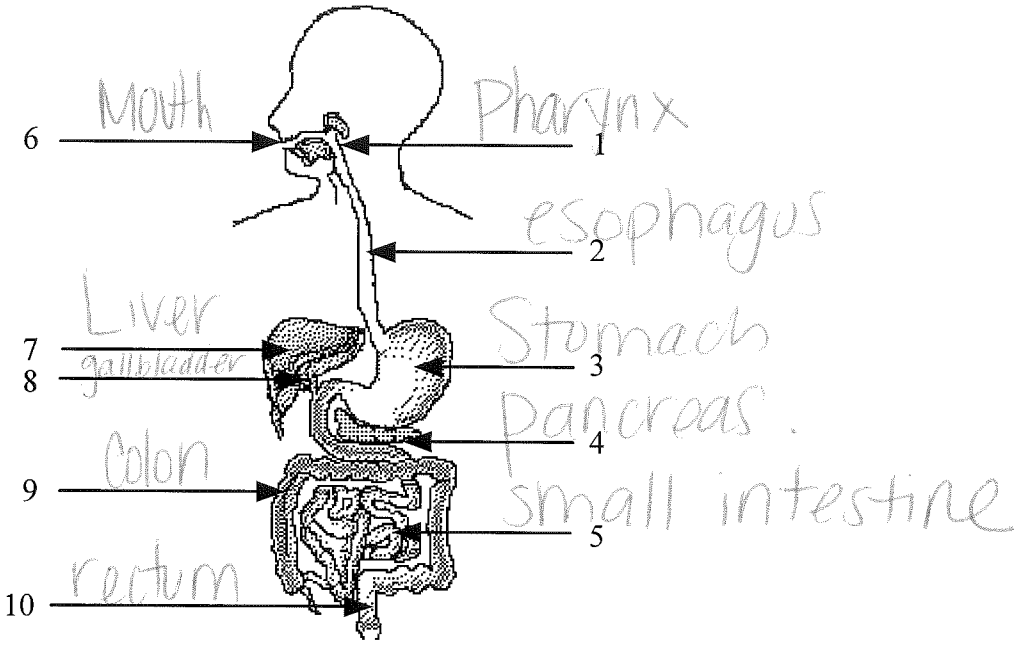
	MUCUS
	CHYME
	EPIGLOTTIS
	STOMACH
	LARGE INTESTINE

	BILE
	ULCER
	PANCREAS
	GALL BLADDER
	SMALL INTESTINE

Number in order...

	mechanical breakdown of food (chewing)
	protective lining of the stomach
	finger-like projections that increase the surface area of the small intestine
	can develop an ulcer from excess (extra) acid
	stores bile
	collects solid waste for elimination
	an enzyme, amylase, breaks down carbohydrates into glucose
	a wound in the stomach thought to be caused by excess acid
	digestion is completed
	produces juices (liquids) that neutralize (cancel) the stomach acid
	and help to complete the digestion of proteins and carbohydrates
	a green liquid that breaks up fat into smaller particles
	produces bile; helps break down some drugs and alcohol
	hydrochloric acid (HCl) and pepsin break down proteins
	saliva moistens food
	closes the path to the trachea (and lungs) to prevent choking
	nutrients are absorbed into the blood
	absorption of water and remaining nutrients
	peristalsis forces food toward the stomach

3. Label the organs of the digestive system in the diagram.



4. Using the numbers 1 through 8, place the digestive events described below in the correct sequence.

6 ___ Chyme moves into the duodenum, where bile from the liver, pancreatic fluid from the pancreas, and enzymes from the intestine itself complete the chemical digestion of proteins, fats and carbohydrates.

4 ___ Peristalsis moves food down the esophagus and into the stomach.

2 ___ Saliva begins the digestion of starch.

7 ___ As food passes through the jejunum and ileum, nutrients are absorbed into the bloodstream through the villi.

5 ___ Churning of the stomach mixes food with gastric fluids.

8 ___ Water is absorbed in the colon and solid waste material is prepared for elimination.

3 ___ Chewed food passes through the pharynx and into the esophagus.

1 ___ Each bite of food is chewed and mixed with saliva.

5. Complete the following chart.

ORGAN	TYPE OF DIGESTION	DIGESTIVE SECRETION OF ENZYMES	FUNCTION
Mouth	Chemical	Salivary Amylase	break down carbs
Mouth	Mechanical	None	chew up food.
Stomach	Chemical	Pepsin, hydrochloric acid, mucus	Digest Proteins
Small Intestine	Chemical	-pancreatic amylase -Sodium bicarbonate	break down nutrients
Liver	None	bile	break down Fat
Pancreas	None	Insulin	regulate sugar.
Large Intestine	None	None	reabsorption of water.

CIRCULATORY SYSTEM

NAME Key

1. Why do you need a circulatory system?

↳ get O_2 / CO_2 / nutrients around

2. Give the purpose of each of the following blood parts.

(a) red blood cells: transport O_2 / CO_2

(b) white blood cells: fight infection

(c) platelets: help blood clot

(d) plasma: the fluid that carries blood cells

(e) hemoglobin: carries O_2 / CO_2 in RBCs.

3. Name five substances in plasma. Explain why each is important.

(a) water - keep blood correct consistency

(b) proteins - for the body (help clot)

(c) minerals - for the body (to help clot)

(d) salts - for body

(e) other - Blood cells

4. Fill in the following chart concerning blood vessels.

BLOOD VESSEL	STRUCTURE OF VESSEL	DIRECTION IN WHICH BLOOD IS CARRIED BY THIS VESSEL
a. arteries	thick, muscular	away from ♡
b. veins	thin, w/ valves	to the ♡
c. capillaries	very thin	from arterios → veins

5. (a) What are valves in the circulatory system? valves prevent blood from going in 2 directions.

   (b) Why are valves needed in veins? so blood goes back to ♥

   (c) Why are valves needed in your heart? to prevent backflow

6. (a) Which half of your heart pushes blood to your lungs? RIGHT

   (b) Which half of your heart pushes blood to the rest of your body? LEFT

7. Why does your heart rate change in different situations? it's a muscle, has to work harder!

8. Give a definition of excretion.
   ↳ elimination of liquid waste

9. What is the purpose of your liver in excretion? detoxify the blood

10. What organs make up your excretory system?
    (a) kidneys (c) bladder
    (b) ureters (d) urethra

11. Name three waste products produced by your cells.
    (a) CO_2 (b) urea (c) _____

12. What is the purpose of your kidneys? eliminate Liq. waste/filter blood

13. What is the cause of each of the following?
    (a) heart attack:
    build up so lack of blood flow to ♥
    (b) stroke:
    lack of blood flow to brain
    (c) atherosclerosis:
    build up of plaque inside arteries

14. What is high blood pressure?

15. What is:
    (a) systolic blood pressure?
    pressure exerted on walls of blood vessels while ♥ is beating
    (b) diastolic blood pressure?
    " during relaxed ♥

    128/80

16. If the doctor tells you your blood pressure is 120/60, which is the systolic number? 120
    Which is the diastolic number? 60

17. Label the diagrams of the heart and kidneys below.

never mind

DATE: NAME: CLASS:

CHAPTER 2 # Chapter 2 Quiz **BLM 1-42**

Goal • Check your understanding of Chapter 2.

What to Do

Circle the letter of the best answer.

1. Which tissue is responsible for transferring signals in the body?
   A. nerve tissue
   B. muscle tissue
   C. connective tissue
   D. epithelial tissue

2. What nutrient is considered the body's quickest source of energy?
   A. vitamins
   B. proteins
   C. fats
   D. carbohydrates

3. Which mineral is important for the formation of red blood cell parts?
   A. calcium
   B. sulfur
   C. iron
   D. magnesium

4. What stage of digestion represents chewing a piece of apple into smaller bits?
   A. ingestion
   B. mechanical digestion
   C. chemical digestion
   D. absorption

5. Which of the following sets of terms describe eating disorders?
   A. anorexia, excretion
   B. bulimia, excretion
   C. anorexia, bulimia
   D. nervosa, bulimia

6. Humans have the ability to effectively swallow upside down. What makes this possible?
   A. peristalsis
   B. epiglottis
   C. bolus
   D. chyme

Continued on next page

7. What chambers pump blood out of the heart?
   A. ventricles
   B. atria
   C. aortas
   D. valves

8. The human heart makes a noticeable "lub dub" sound when beating. This sound is made by opening and closing of the
   A. atria
   B. ventricles
   C. aorta
   D. valves

9. About 55 percent of blood is composed of
   A. white blood cells
   B. platelets
   C. red blood cells
   D. plasma

10. Gas exchange in the human lungs takes place in the
    A. trachea
    B. bronchi
    C. bronchioles
    D. alveoli

Match the Term on the left with the best Descriptor on the right. Each Descriptor may be used only once.

Term	Descriptor
___ 11. arteries	A. tiny hairs that filter air and push particles
___ 12. veins	B. long airway passage between lungs and throat
___ 13. capillaries	C. also known as the voice box
___ 14. trachea	D. carry oxygenated blood away from heart
___ 15. larynx	E. carry deoxygenated blood back to heart
___ 16. cilia	F. oxygen, nutrients, and glucose diffuse through the walls of these
	G. valves in the heart

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