Name_____ Class_____ Date_____

Chapter 38

Digestive and Excretory Systems

Section 38–1 Food and Nutrition (pages 971–977)

This section identifies the nutrients your body needs and explains why water is such an important nutrient.

Food and Energy (page 971)

1. Cells convert the chemical energy in glucose and other molecules into _____.
2. The energy stored in food is measured in units called _____.
3. Is the following sentence true or false? The energy needs of an average-sized teenager are about 3000 Calories. _____
4. Is the following sentence true or false? Your body can extract energy from almost any type of food. _____
5. Besides supplying fuel, what are other important functions of food? _____
6. What is the science of nutrition? _____

Nutrients (pages 972–975)

7. Substances in food that supply the energy and raw materials your body uses for growth, repair, and maintenance are called _____.
8. List the six nutrients that the body needs.
   a. _____ **c.** _____ **e.** _____
   b. _____ **d.** _____ **f.** _____
9. Circle the letter of each sentence that is true about water as a nutrient.
   a. Water is the most important of all nutrients.
   b. Every cell in the human body needs water.
   c. Many of the body's processes take place in water.
   d. Water makes up the bulk of bodily fluids including blood.
10. How is water lost from the body? _____
11. If enough water is not taken in to replace what is lost, _____ can result.

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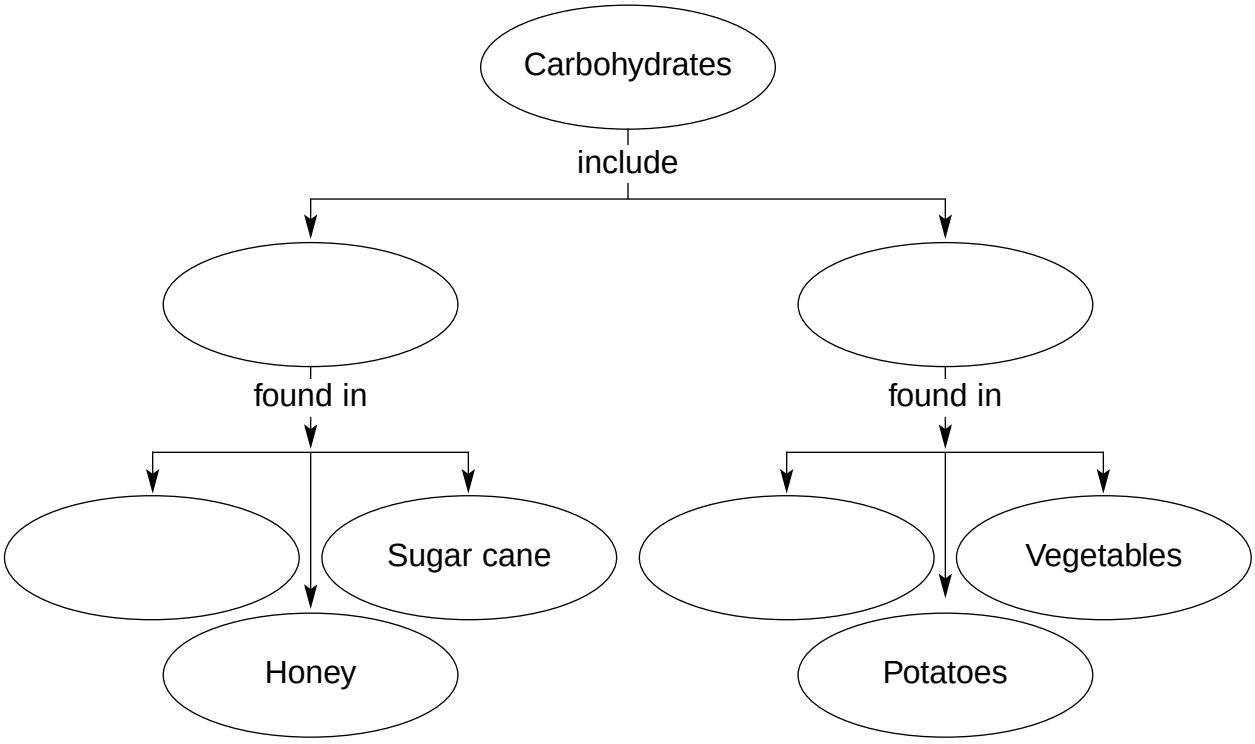
12. Complete the concept map.



13. Why do you need fiber in your diet? _____

_____

14. Circle the letter of each choice that is a function of fat.

a. Protecting body organs **c.** Storing energy

b. Insulating the body **d.** Transporting oxygen

15. List four increased health risks associated with a diet high in fat.

a. _____ **c.** _____

b. _____ **d.** _____

16. Circle the letter of each choice that is a function of protein.

a. Supplying raw materials for growth and repair

b. Making up enzymes

c. Helping the body absorb certain vitamins

d. Producing cell membranes

17. The eight amino acids that the body is unable to produce are called _____ amino acids.

Match each vitamin with its function.

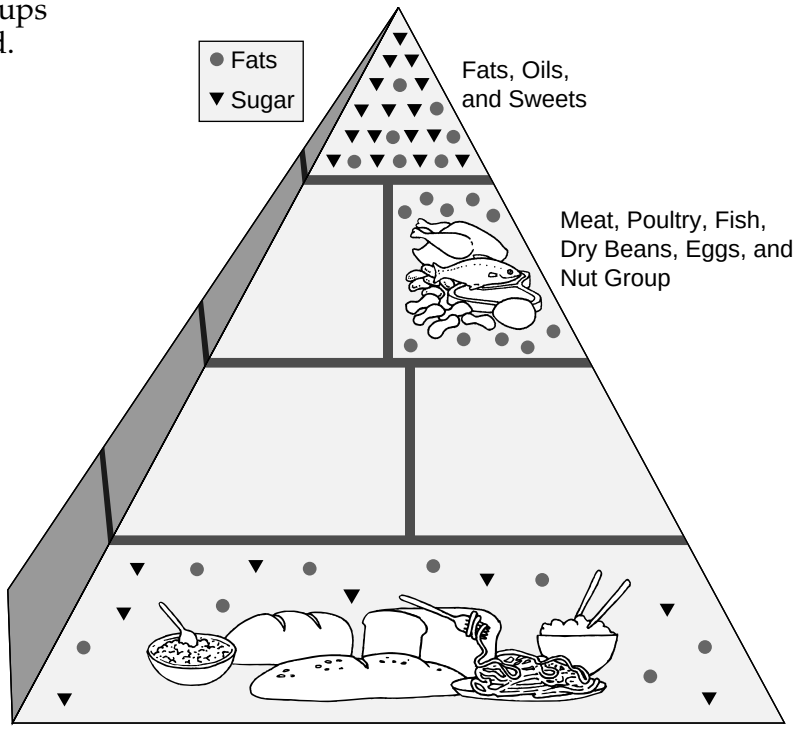
	Vitamin	Function
_____	**18.** A	**a.** Preventing cellular damage
_____	**19.** D	**b.** Promoting bone growth
_____	**20.** E	**c.** Repairing tissues and healing wounds
_____	**21.** C	**d.** Promoting growth of skin cells

Match each mineral with a food that supplies it.

	Mineral	Food
_____	**22.** calcium	**a.** Table salt
_____	**23.** zinc	**b.** Dairy products
_____	**24.** chlorine	**c.** Eggs
_____	**25.** iron	**d.** Seafood

Balancing the Diet **(pages 976–977)**

26. Label the missing food groups in the Food Guide Pyramid.



Section 38–2 The Process of Digestion **(pages 978–984)**

This section describes the organs of the digestive system and explains their functions.

The Mouth **(pages 978–979)**

1. What is the function of the organs of the digestive system? _____

_____

_____

2. The physical breakdown of large pieces of food into smaller pieces is referred to as _____ digestion.

3. The breakdown of large food molecules into smaller molecules that can be absorbed into the bloodstream is called _____ digestion.

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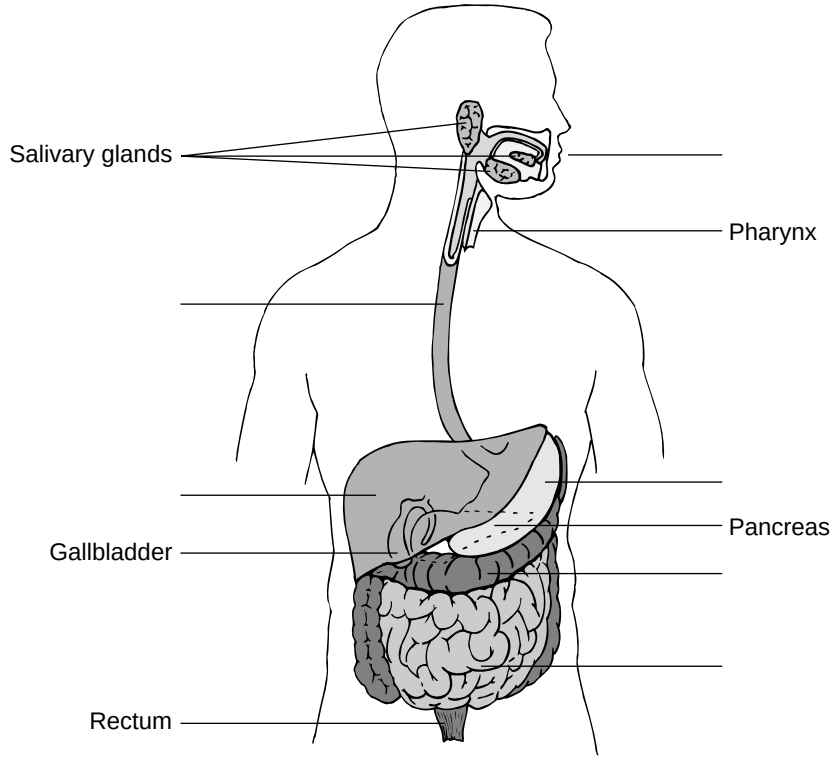
4. Label the drawing of the digestive system with the following structures: mouth, esophagus, stomach, liver, small intestine, and large intestine.



5. What is the role of teeth in digestion? _____

_____

_____

The Esophagus (page 980)

Match each term with its definition.

	Term	Definition
_____	**6.** bolus	**a.** Contractions of smooth muscle that aid in swallowing
_____	**7.** esophagus	**b.** Clump of chewed food
_____	**8.** peristalsis	**c.** Food tube connecting the mouth and stomach

9. Is the following sentence true or false? The pyloric valve prevents the contents of the stomach from moving back up into the esophagus. _____

The Stomach (pages 980–981)

10. Circle the letter of each sentence that is true about the stomach.

a. It produces hydrochloric acid.

b. It produces trypsin.

c. It helps in the mechanical digestion of food.

d. It produces amylase.

11. Is the following sentence true or false? Pepsin cannot work under the acidic conditions present in the stomach. _____

12. A hole in the stomach wall is known as a(an) _____.

13. A mixture of stomach fluids and food is referred to as _____.

The Pancreas and Liver (pages 981–982)

14. Where does most chemical digestion take place? _____

_____

15. Circle the letter of each sentence that is true about the pancreas.

a. It produces amylase.

b. It produces sodium bicarbonate.

c. Its enzymes help break down lipids and nucleic acids.

d. It produces lactase.

16. What role does the liver play in digestion? _____

_____

_____

17. Bile is stored in a small pouchlike organ called the _____.

The Small Intestine (page 983)

18. Name the two parts of the small intestine where nutrients are absorbed.

a. _____ **b.** _____

19. Projections that cover the folds of the small intestine are called _____.

20. Is the following sentence true or false? Molecules of undigested fat and some fatty acids are absorbed by lymph vessels called lacteals. _____

The Large Intestine (page 984)

21. What is the primary job of the large intestine? _____

_____

22. Is the following sentence true or false? The appendix plays an important role in human digestion. _____

23. When something happens that interferes with the removal of water by the large intestine, a condition known as _____ results.

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Reading Skill Practice

When you read about a complex process, representing the process with a flowchart can help you better understand and remember it. Make a flowchart to show how food travels through the digestive system and is broken down into simpler molecules that the body can use. For more information on flowcharts, see Appendix A of your textbook. Do your work on a separate sheet of paper.

Section 38–3 The Excretory System (pages 985–989)

This section identifies the organs of the excretory system. It also explains how the kidneys maintain homeostasis.

Excretion (page 985)

1. The process by which metabolic wastes are eliminated is called _____.

2. List the three organs that make up the excretory system.

a. _____ **b.** _____ **c.** _____

The Kidneys (pages 985–988)

3. Circle the letter of each sentence that is true about the kidneys.

a. They are the main organs of the excretory system.

b. They are located on either side of the spinal column.

c. They remove excess water and waste products from the urine.

d. They receive blood through the renal vein.

Match each term with its definition.

Term	Definition
_____ **4.** ureter	**a.** Saclike organ where urine is stored
_____ **5.** urinary bladder	**b.** Functional unit of the kidney
_____ **6.** renal medulla	**c.** Outer part of the kidney
_____ **7.** renal cortex	**d.** Tube that carries urine from the kidney to the urinary bladder
_____ **8.** nephron	**e.** Inner part of the kidney

9. Is the following sentence true or false? Nephrons are located in the renal medulla. _____

10. What ends up in the collecting duct? _____

_____

_____

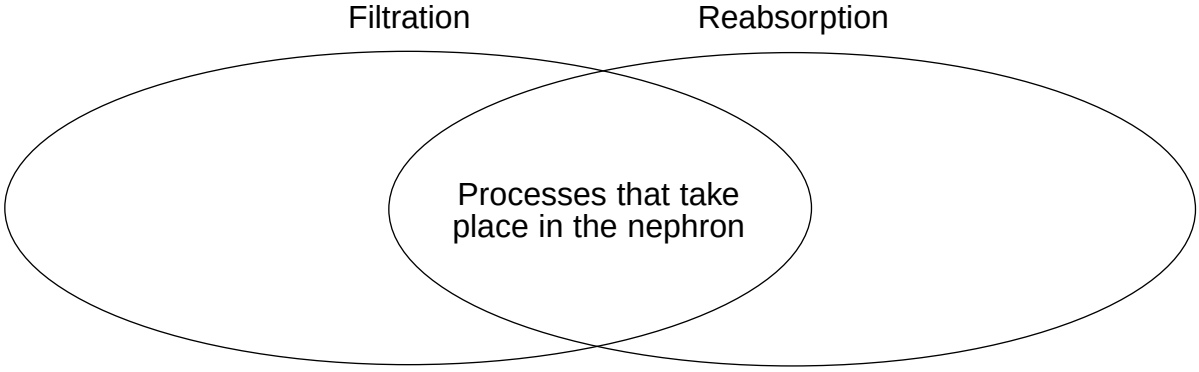
11. List the three processes involved in blood purification.

a. _____ **b.** _____ **c.** _____

12. The small network of capillaries in the upper end of the nephron is referred to as the _____.

13. The glomerulus is enclosed by a cup-shaped structure called _____.

14. Complete the Venn diagram.



15. The materials that are filtered from the blood are collectively called the _____.

16. List six materials that are filtered from blood.

a. _____ **c.** _____ **e.** _____

b. _____ **d.** _____ **f.** _____

17. Which substances are removed from the filtrate and reabsorbed by the capillaries? _____

_____

18. What happens during the process of secretion? _____

_____

19. Circle the letter of each sentence that is true about urine.

a. It is the material that remains after reabsorption.

b. It contains only urea and water.

c. It is concentrated in the loop of Henle.

d. It is released from the body through the urethra.

Control of Kidney Function **(page 988)**

20. List three ways that the kidneys help maintain homeostasis.

a. _____

b. _____

c. _____

21. How are the activities of the kidneys controlled? _____

_____

_____

22. Is the following sentence true or false? As the amount of water in the blood increases, the rate of water reabsorption in the kidneys increases. _____

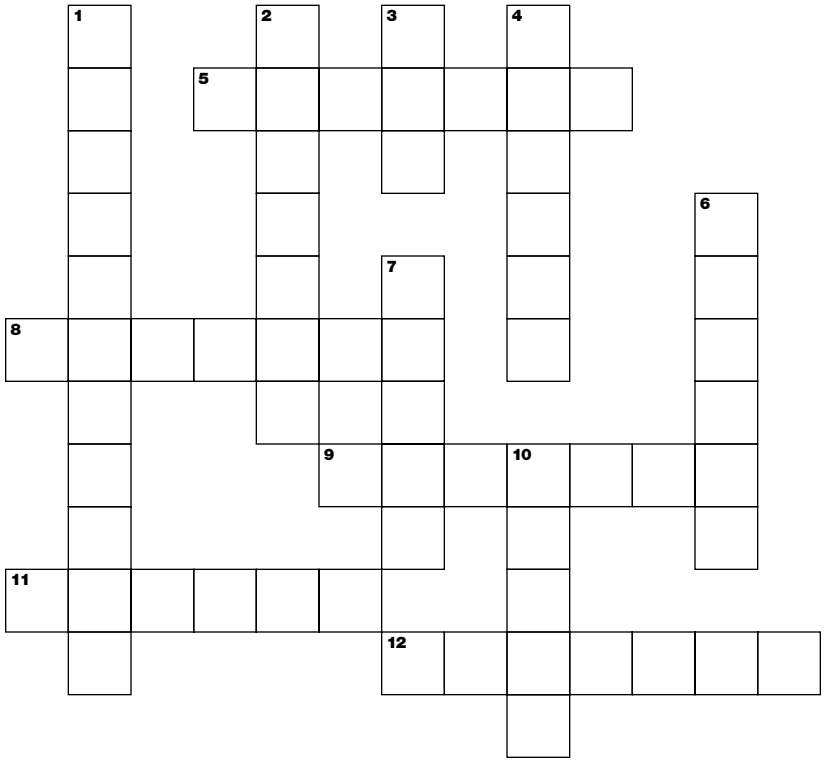
Homeostasis by Machine (pages 988–989)

23. Is the following sentence true or false? Humans cannot survive with only one kidney. _____

24. The removal of wastes from blood using a machine is called _____.

WordWise

Test your knowledge of vocabulary terms from Chapter 38 by completing this crossword puzzle.



Clues down:

1. Muscular contractions of the esophagus

2. Inorganic nutrient needed in small amounts

3. Lipid

4. Main organ of excretion

6. Tube that carries fluid from kidney to bladder

7. Mixture of stomach fluids and food

10. Gland that produces bile

Clues across:

5. Organic molecule that helps regulate body processes

8. Large muscular sac important in digestion

9. Enzyme in saliva that helps digest starch

11. Projection from the wall of the small intestine

12. Tube through which urine is released from the body