### CHAPTER DIRECTED READING 3 **Cell Structure**

## Section 3-1: Looking at Cells

### **Microscopes Reveal Cell Structure**

Mark each statement below T if it is true or F if it is false.

- **1.** A large dog is approximately 2 m tall.
- **2.** A dime is approximately 6 cm in diameter.
- **3.** A blood cell is about 0.1 mm long.
- **4.** A meter is approximately 3 ft.
  - **5.** A light microscope can be used to view objects as small as 1 nm.

#### In the space provided, explain how the terms in each pair differ in meaning.

- 6. magnification, resolution
- 7. light microscope, electron microscope

## **Microscopes Have Different Uses and Limitations**

Read each question, and write your answer in the space provided.

8. What is the difference between a magnifying glass and a compound light microscope?

9. What is the difference between a transmission electron microscope and a scanning electron microscope?

## ► Section 3-2: Cell Features

### The Cell Theory Has Three Parts

Mark each statement below T if it is true or F if it is false.

 1. All organisms are made of many cells.
 <b>2.</b> The cell membrane prevents all substances from entering the cell and leaving the cell.
 <b>3.</b> Cells arise from existing cells.
 4. All cells contain ribosomes.
 <b>5.</b> If a cell's surface-area-to-volume ratio is too high, substances cannot move through the cell quickly enough to meet the cell's needs.
 <b>6.</b> The structures inside a cell are suspended in a system of microscopic fibers called the cytoplasm.

#### **Prokaryotes Do Not Contain Internal Compartments**

#### Read each question, and write your answer in the space provided.

7. What are prokaryotes?

8. What is the difference between flagella and cell walls?

9. How are cell walls important to bacterial cells?

## **Eukaryotic Cells Are Organized**

*In the space provided, write the letter of the description that best matches the term or phrase.* 

<b>10.</b> eukaryote	a. short hairlike structures
11. organelles	<b>b.</b> cell structures that carry out specific activities
<b>12.</b> nucleus	<b>c.</b> houses the cell's DNA
12. Indefeus	d. cells contain nuclei
<b>13.</b> cilia	

# The Structure and Function of Cell Membranes Are Closely Related

Complete each statement by writing the correct term or phrase in the space provided.

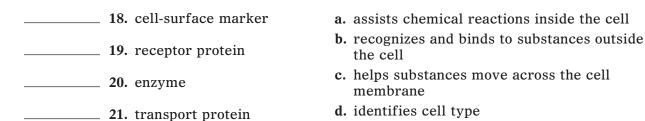
**14.** The \_\_\_\_\_\_ of a phospholipid is polar, and the long

\_\_\_\_\_ are nonpolar.

**15.** The \_\_\_\_\_\_ is made of a double layer of phospholipids.

#### Read each question, and write your answer in the space provided.

- 16. What keeps proteins within the lipid bilayer?
- 17. What are the functions of the cell membrane?
- *In the space provided, write the letter of the description that best matches the term or phrase.*



## ► Section 3-3: Cell Organelles

The Nucleus Directs Cell Activities and Stores DNA

Read each question, and write your answer in the space provided.

1. What two substances are made in the nucleus and move into the cytoplasm?

2. What substance is stored in the nucleus?

### An Internal Membrane System Processes Proteins

# *In the space provided, write the letter of the description that best matches the term or phrase.*

 3. endoplasmic reticulum	a. packages and distributes proteins
 4. Golgi apparatus	<ul><li>b. small membrane-bound sac</li><li>c. internal membranes that move substances</li></ul>
 5. vesicle	through the cell <b>d.</b> small organelles that contain digestive
 6. lysosomes	enzymes e. cellular structures on which proteins
 7. rough ER	are made f. does not have attached ribosomes
 8. smooth ER	g. has attached ribosomes
 9. ribosomes	

#### **Mitochondria Produce ATP**

Read each question, and write your answer in the space provided.

**10.** What is ATP?

11. What function do mitochondria perform?

#### Plant Cells Contain Structures That Animal Cells Lack

In the space provided, write Plants if the structure is found in plant cells, or Animals if the structure is found in animal cells. Write Both if the structure is found in both plant cells and animal cells.

 12. cell membrane
 13. ribosomes
 14. nucleus
 15. cell wall
 16. mitochondria
 17. chloroplasts
 18. central vacuole