

**Viruses, Bacteria, Protists, and Fungi** ▪ *Guided Reading and Study*

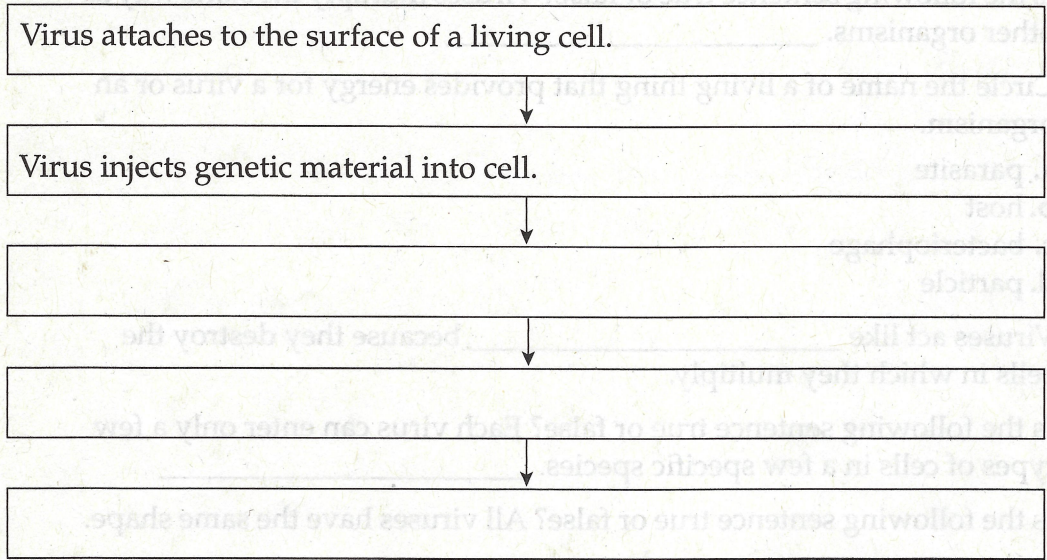
**Viruses** (pp. 210–215)

*This section describes what viruses are and how they multiply.*

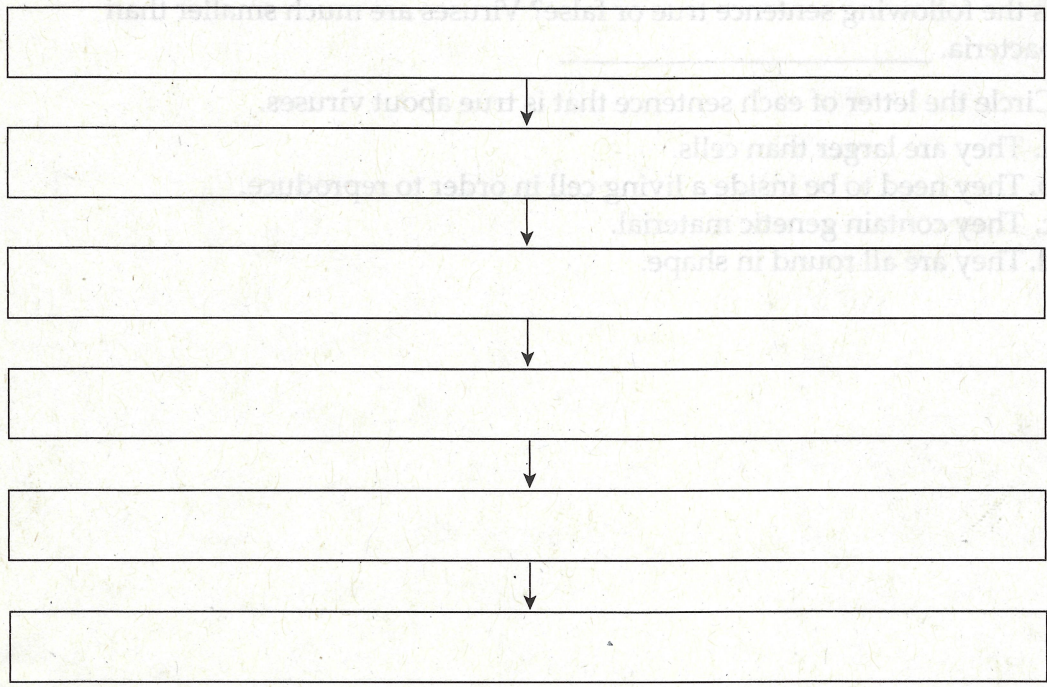
**Use Target Reading Skills**

*As you read, make two flowcharts that show how active and hidden viruses multiply. Put the steps in the process in separate boxes in the flowchart in the order in which they occur.*

**How Active Viruses Multiply**



**How Hidden Viruses Multiply**



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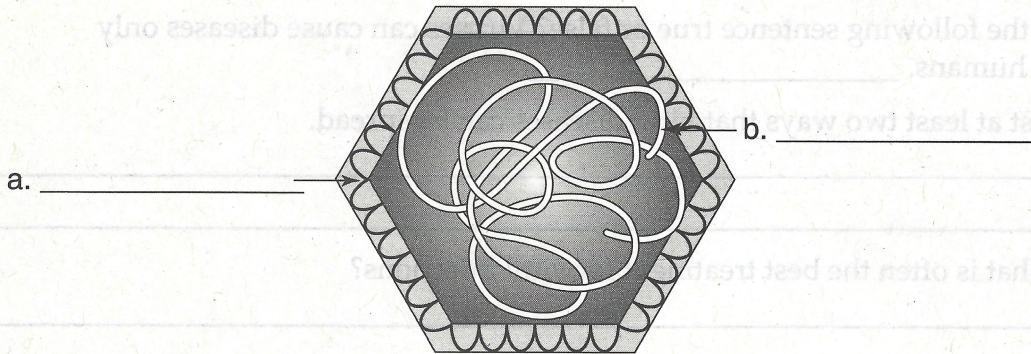
**Viruses** (continued)

**What Is a Virus?** (pp. 210–211)

1. Why do biologists consider viruses to be nonliving?  
\_\_\_\_\_  
\_\_\_\_\_
  
2. Is the following sentence true or false? Viruses multiply the same way as other organisms. \_\_\_\_\_
  
3. Circle the name of a living thing that provides energy for a virus or an organism.
  - a. parasite
  - b. host
  - c. bacteriophage
  - d. particle
  
4. Viruses act like \_\_\_\_\_ because they destroy the cells in which they multiply.
  
5. Is the following sentence true or false? Each virus can enter only a few types of cells in a few specific species. \_\_\_\_\_
  
6. Is the following sentence true or false? All viruses have the same shape.  
\_\_\_\_\_
  
7. A virus that infects bacteria is called a(n) \_\_\_\_\_.
  
8. Is the following sentence true or false? Viruses are much smaller than bacteria. \_\_\_\_\_
  
9. Circle the letter of each sentence that is true about viruses.
  - a. They are larger than cells.
  - b. They need to be inside a living cell in order to reproduce.
  - c. They contain genetic material.
  - d. They are all round in shape.  
\_\_\_\_\_  
  
\_\_\_\_\_  
  
\_\_\_\_\_  
  
\_\_\_\_\_

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10 Label the two basic parts of a virus in this diagram.



11. Is the following sentence true or false? Some viruses are surrounded by an outer membrane envelope. \_\_\_\_\_

12. What are two functions of a virus's protein coat?

- a. \_\_\_\_\_
- b. \_\_\_\_\_

13. Is the following sentence true or false? The shape of the proteins allows the virus's coat to attach to only certain cells in the host.  
\_\_\_\_\_

**How Viruses Multiply** (pp. 212–213)

Match the kind of virus with the way it multiplies in a cell. Viruses may be used more than once.

**How It Multiplies**

**Viruses**

- \_\_\_\_\_ 14. The virus's genetic material becomes part of the cell's genetic material.
  - \_\_\_\_\_ 15. The virus immediately begins to multiply after entering the cell.
  - \_\_\_\_\_ 16. The virus stays inactive for a long time.
- a. active virus
  - b. hidden virus

17. Is the following sentence true or false? When the virus is active, the cell makes the virus's proteins and genetic material and new viruses are made. \_\_\_\_\_

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**Viruses** (continued)

**Viruses and Disease** (pp. 214–215)

18. Is the following sentence true or false? Viruses can cause diseases only in humans. \_\_\_\_\_
19. List at least two ways that viral diseases can be spread.  
\_\_\_\_\_  
\_\_\_\_\_
20. What is often the best treatment for viral infections?  
\_\_\_\_\_  
\_\_\_\_\_
21. A \_\_\_\_\_ is a substance introduced into the body to stimulate the production of chemicals that destroy specific disease-causing viruses and organisms.  
\_\_\_\_\_  
\_\_\_\_\_

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**Bacteria** (pp. 217–225)

*This section explains what bacteria are, their positive roles, and how they reproduce.*

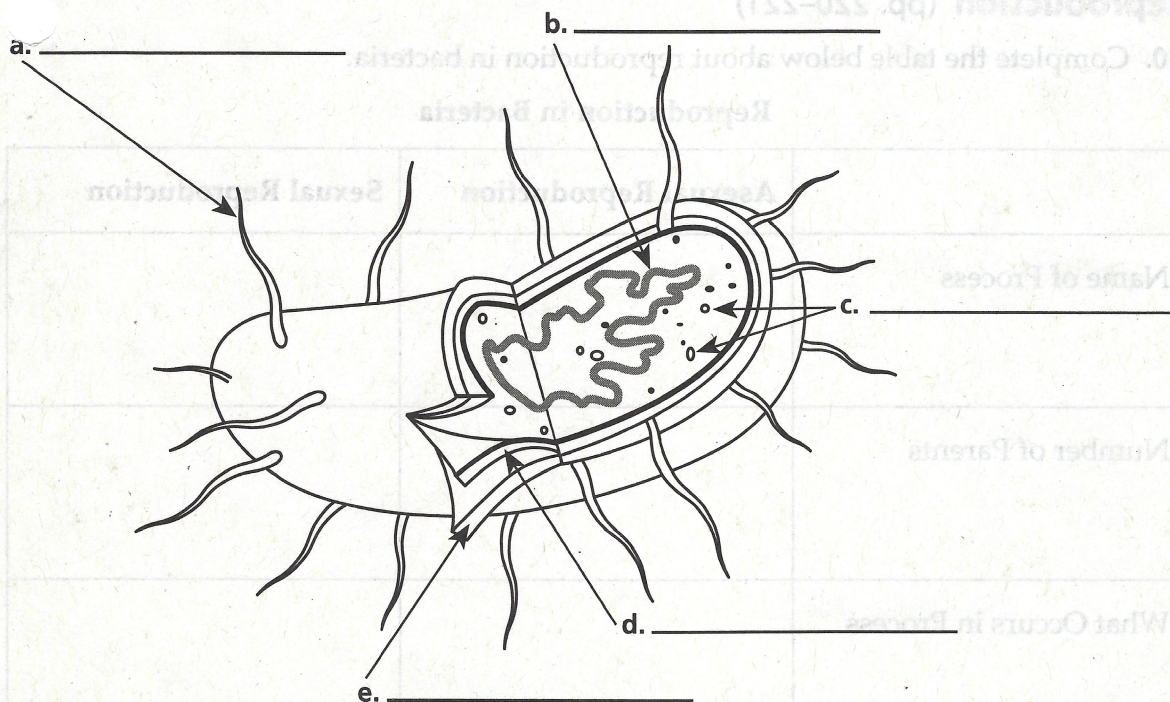
**Use Target Reading Skills**

*After you read the section, reread the paragraphs that contain definitions of Key Terms. Use all the information you have learned to write a definition of each Key Term in your own words.*

**The Bacterial Cell** (pp. 217–219)

- Bacteria are \_\_\_\_\_. The genetic material in their cells is not contained in a nucleus.
- Is the following sentence true or false? Bacteria are living organisms because they use energy, grow, and respond to their surroundings.  
\_\_\_\_\_
- Circle the letter of the cell structure that helps a bacterium to move.
 

a. cell wall	b. cytoplasm
c. ribosome	d. flagellum
- Label the parts of a bacterial cell in this diagram.



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**Bacteria** (*continued*)

5. Is the following sentence true or false? Bacteria that do not have flagella are never moved from one place to another. \_\_\_\_\_
6. What are the three basic shapes of bacterial cells?
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

**Obtaining Food and Energy** (p. 219)

7. List the two ways in which autotrophic bacteria make food.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
8. How do heterotrophic bacteria get food?
 

\_\_\_\_\_

\_\_\_\_\_
9. Is the following sentence true or false? All bacteria must use oxygen to break down food for energy. \_\_\_\_\_

**Reproduction** (pp. 220–221)

10. Complete the table below about reproduction in bacteria.

**Reproduction in Bacteria**

	<b>Asexual Reproduction</b>	<b>Sexual Reproduction</b>
Name of Process		
Number of Parents		
What Occurs in Process		
Result of Process		

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11. When do bacteria form endospores?

\_\_\_\_\_

\_\_\_\_\_

**The Role of Bacteria in Nature** (pp. 222–225)

12. Circle the letter of each sentence that is true about bacteria.

- a. All bacteria are harmful and cause disease.
- b. Some bacteria can use the sun's energy to make their own food.
- c. Bacteria help produce foods such as cheese, apple cider, and sauerkraut.
- d. Bacteria do not cause food to spoil.

13. Soil bacteria that break down large chemicals in dead organisms into small chemicals are called \_\_\_\_\_.

14. Is the following sentence true or false? Bacteria can be used to clean up oil spills and gasoline leaks. \_\_\_\_\_

15. List three ways that bacteria in your digestive system are helpful to you.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

How do bacteria help people with diabetes?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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**Protists** (pp. 226–235)

*This section describes the characteristics of protists.*

**Use Target Reading Skills**

*As you read, make an outline about protists that you can use for review. Use the red section headings for the main topics and blue headings for the subtopics.*

<b>Protists</b>	
I.	What is a protist?
II.	Animal-like protists
	A. Protozoans with pseudopods
	B. _____
	C. _____
	D. _____
III.	_____
	A. _____
	B. _____
	C. _____
	D. _____
	E. _____
	F. _____
IV.	_____
	A. _____
	B. _____
	C. _____

**What Is a Protist?** (p. 227)

1. Circle the letter of each sentence that is true about protists.
  - a. All protists are eukaryotes, organisms that have cells with nuclei.
  - b. All protists live in dry surroundings.
  - c. All protists are unicellular.
  - d. Some protists are heterotrophs, some are autotrophs, and some are both.



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2. List the three categories into which scientists group protists.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

**Animal-Like Protists** (pp. 227–230)

3. Circle the letter of each characteristic that animal-like protists share with animals.

- a. autotroph
- b. heterotroph
- c. movement
- d. unicellular

4. Another name for an animal-like protist is \_\_\_\_\_.

5. Describe how a sarcodine, such as an amoeba, gets food.

\_\_\_\_\_

\_\_\_\_\_

6. Circle the letter of the cell part in an amoeba that removes excess water.

- a. pseudopod
- b. cilia
- c. contractile vacuole
- d. cell membrane

7. Is the following sentence true or false? Paramecia have more than one nucleus. \_\_\_\_\_

Match the animal-like protist with the cell part it uses for movement.

**Protist**

**Cell Part**

- |                      |               |
|----------------------|---------------|
| _____ 8. amoeba      | a. cilia      |
| _____ 9. paramecium  | b. flagella   |
| _____ 10. flagellate | c. pseudopods |

11. Is the following sentence true or false? Flagellates living in symbiosis always harm the animal in which they live. \_\_\_\_\_

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**Protists** *(continued)*

12. Protozoans that are \_\_\_\_\_ feed on the cells and \_\_\_\_\_ body fluids of their hosts.
13. Is the following sentence true or false? Protozoans that are parasites never have more than one host. \_\_\_\_\_

**Plantlike Protists** (pp. 231–233)

14. Plantlike protists are commonly called \_\_\_\_\_.
15. Like plants, plantlike protists are \_\_\_\_\_; most are able to use the sun’s energy to make their own food.
16. Complete this table about the different types of plantlike protists.

**Characteristics of Plantlike Protists**

Type	Unicellular or Multicellular	Characteristics
Diatoms		
Dinoflagellates		
Euglenoids		
Red Algae		
Green Algae		
Brown Algae		

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**Funguslike Protists** (pp. 234–235)

17. Circle the letter of each sentence that is true about funguslike protists.

- a. Funguslike protists are heterotrophs.
- b. Funguslike protists do not have cell walls.
- c. Funguslike protists use spores to reproduce.
- d. Funguslike protists never move during their lives.

18. List the three types of funguslike protists.

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

19. Where do most water molds and downy mildews live? \_\_\_\_\_

20. Circle the letter of each place where slime molds live.

- |                    |               |
|--------------------|---------------|
| a. dry soil        | b. moist soil |
| c. decaying plants | d. in animals |

Question	Answer
19. Where do most water molds and downy mildews live? _____	_____
20. Circle the letter of each place where slime molds live.	
a. dry soil	b. moist soil
c. decaying plants	d. in animals

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**Fungi** (pp. 236–241)

*This section explains what fungi are, how they get food, and their role in the environment.*

**Use Target Reading Skills**

*Before you read, preview the red headings. In the graphic organizer below, ask a what or how question for each heading. As you read, write answers to your questions.*

**Fungi**

Question	Answer
What are fungi?  	Fungi are ...  

**What Are Fungi?** (pp. 236–237)

1. Circle the letter before each sentence that is true about fungi.
  - a. All fungi are multicellular organisms.
  - b. They are eukaryotes.
  - c. Most use spores to reproduce.
  - d. They are autotrophs.
  
2. What are three examples of fungi?

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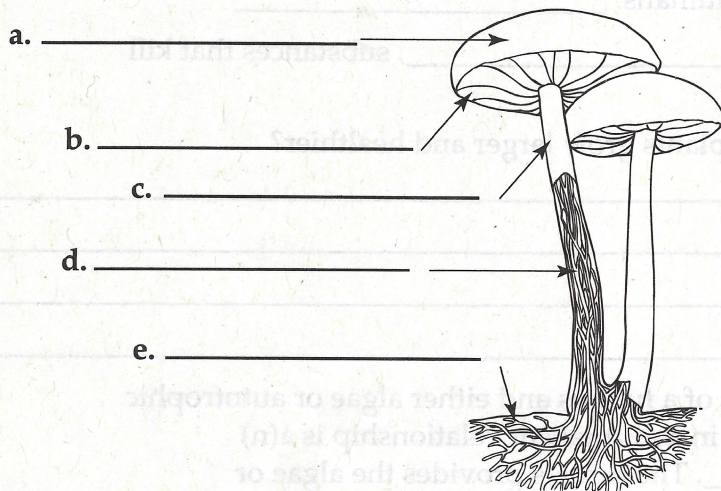
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3. The cells of fungi are arranged in branching, threadlike tubes called \_\_\_\_\_.
4. Is the following sentence true or false? Fuzzy-looking molds that grow on food have hyphae that are packed tightly together. \_\_\_\_\_
5. Identify the structures of the mushroom shown here.



6. Describe the process by which a fungus feeds.

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7. Is the following sentence true or false? Some fungi are parasites.

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**Reproduction in Fungi** (p. 238)

8. Most fungi reproduce by making \_\_\_\_\_.
9. Yeast cells reproduce asexually in a process called \_\_\_\_\_.
10. Is the following sentence true or false? Fungi reproduce sexually when growing conditions become unfavorable. \_\_\_\_\_
11. What are the three major groups of fungi?

a. \_\_\_\_\_ b. \_\_\_\_\_

c. \_\_\_\_\_

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**Fungi** *(continued)*

**The Role of Fungi in Nature** (pp. 239–241)

12. Fungi that are \_\_\_\_\_ break down the chemicals in dead organisms.

13. Is the following sentence true or false? Certain kinds of fungi cause diseases in plants and in humans. \_\_\_\_\_

14. Some molds produce \_\_\_\_\_, substances that kill bacteria.

15. How do some fungi help plants grow larger and healthier?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

16. An organism that consists of a fungus and either algae or autotrophic bacteria that live together in a mutualistic relationship is a(n) \_\_\_\_\_. The fungus provides the algae or autotrophic bacteria with \_\_\_\_\_. The algae or autotrophic bacteria provide the fungus with \_\_\_\_\_.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_