

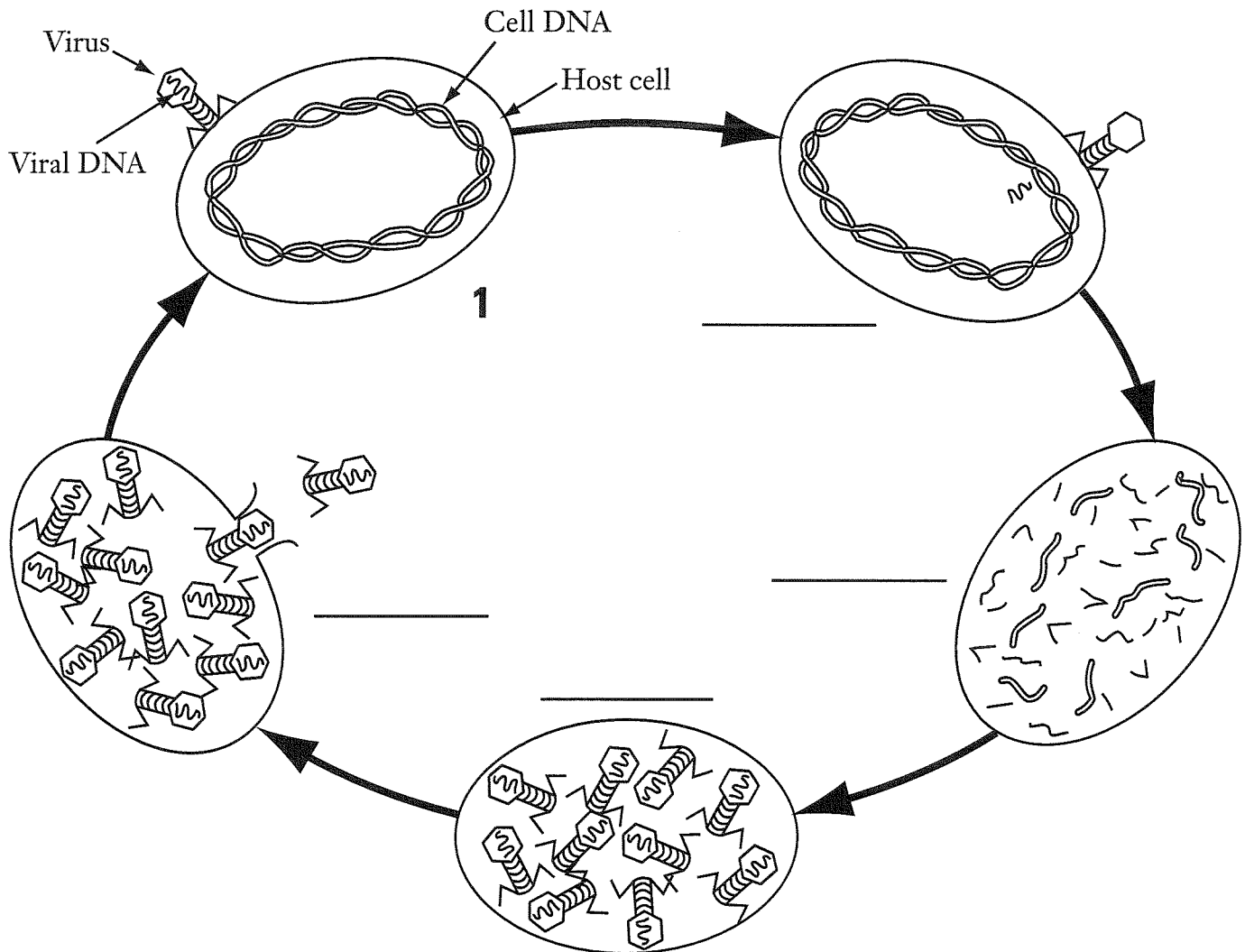
**CHAPTER 21 VIRUSES AND BACTERIA**

**Section 21.1 Viruses  
Study the Cycle**

Viruses use a host cell to make new viruses, then destroy the cell. This is called the **lytic cycle**. Here are the steps of the lytic cycle.

1. The virus attaches to the cell.
2. DNA from the virus enters the cell.
3. The cell's DNA is destroyed. The cell then makes new viral DNA and proteins.
4. New viruses are made from the proteins and DNA.
5. The cell breaks open and viruses are released.

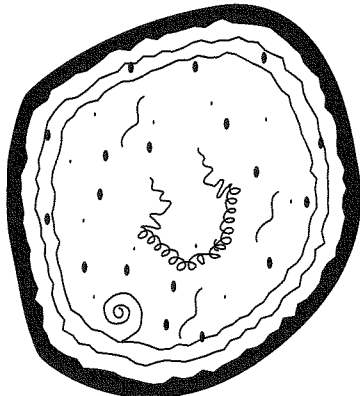
The steps of the lytic cycle are shown in the diagram below. Use the list above to number the steps.



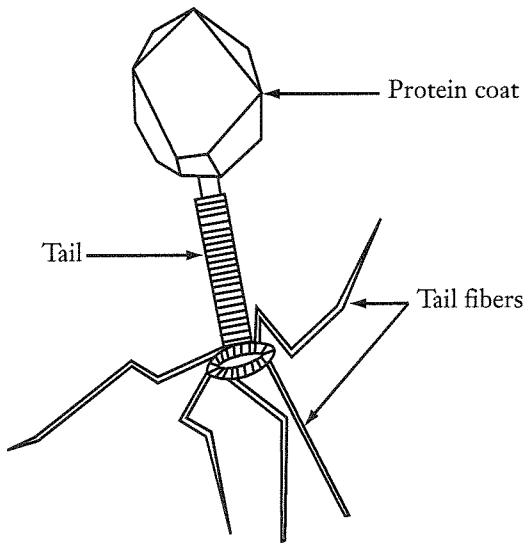
**CHAPTER 21 VIRUSES AND BACTERIA**

**Get the Big Picture**

Study the pictures. Then write *B* after each sentence below that describes bacteria. Write *V* after each sentence that describes viruses.



**Bacteria** are the oldest forms of life. They were the only life forms until about 2.1 billion years ago. Other life forms evolved from bacteria. Bacteria grow, reproduce, and carry out respiration.



**Viruses** are much smaller than bacteria. They are not an ancient life form. Viruses can cause diseases like the flu or chicken pox. Most biologists agree that viruses are not alive. Viruses do not move, grow, or carry out respiration. Viruses need living host cells to reproduce.

1. They are *not* the oldest life form on Earth. \_\_\_\_\_
2. They can grow, reproduce, and carry out respiration. \_\_\_\_\_
3. They are the oldest life form on Earth. \_\_\_\_\_
4. Most biologists agree they are not alive. \_\_\_\_\_
5. They are alive. \_\_\_\_\_
6. They do not move, grow, or carry out respiration. \_\_\_\_\_
7. They need a living host to reproduce. \_\_\_\_\_
8. Other life forms evolved from them. \_\_\_\_\_

**CHAPTER 21 VIRUSES AND BACTERIA**

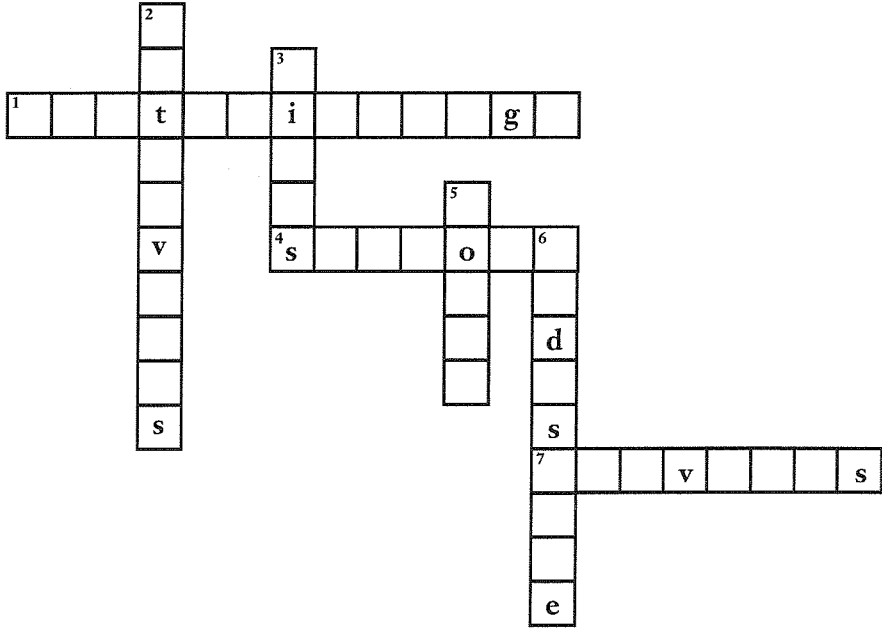
**Review the Key Terms**

Use the Chapter 21 key terms in the box to fill in the puzzle.

virus (VI rus)	bacteriophage (bak TEER ee yuh fayj)	retrovirus
provirus	toxin	
saprobe (SAP roh)	endospore	

**ACROSS**

- 1. virus that infects bacteria
- 4. living thing that feeds on dead organisms and organic waste
- 7. virus whose DNA has been inserted into the host cell



**DOWN**

- 2. virus with a complex reproductive cycle
- 3. tiny, nonliving particle
- 5. poison
- 6. bacterium with a hard covering

Look at each key term in the box below. If the term is related to bacteria, write it in the table under *Bacteria*. If the term is related to viruses, write it in the table under *Viruses*.

lytic cycle (LI tihk) lysogenic cycle (li suh JEN ihk) endospore reverse transcriptase obligate aerobe binary fission conjugation obligate anaerobe nitrogen fixation	<b>Bacteria</b>	<b>Viruses</b>

**Chapter 17**

Use with Section 1

**REINFORCEMENT**

**• Two Kingdoms of Bacteria**

Name and describe the three kinds of bacteria.

1. Name: \_\_\_\_\_

Shape: \_\_\_\_\_

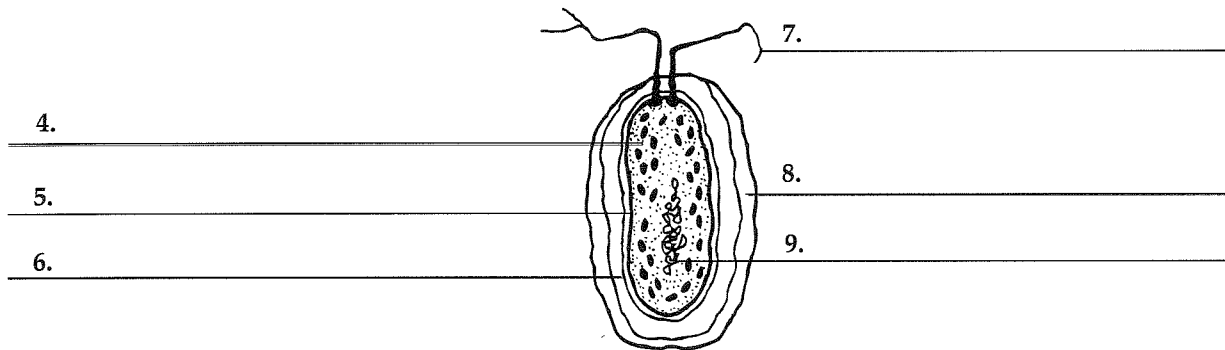
2. Name: \_\_\_\_\_

Shape: \_\_\_\_\_

3. Name: \_\_\_\_\_

Shape: \_\_\_\_\_

Label the figure of the bacterium by writing the correct term by each number.



Answer the following questions.

10. What is the difference between aerobic and anaerobic bacteria? \_\_\_\_\_

11. What are the two kingdoms of bacteria? \_\_\_\_\_

12. Where do bacteria live? \_\_\_\_\_

13. What is the common name of cyanobacteria? \_\_\_\_\_

14. What can cyanobacteria do that bacteria cannot? \_\_\_\_\_

15. Where can cyanobacteria be found? \_\_\_\_\_

16. What enables cyanobacteria to make their own food? \_\_\_\_\_

17. How do most bacteria reproduce? \_\_\_\_\_

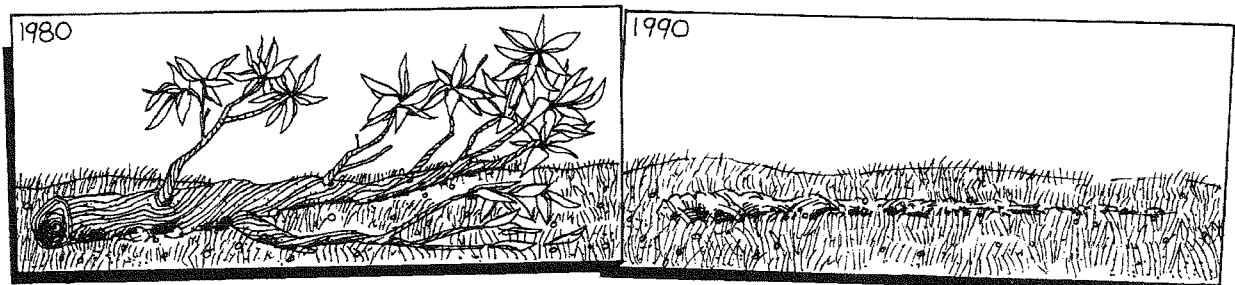
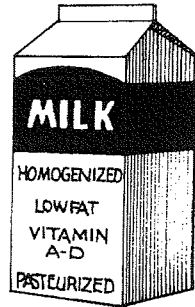
18. How do bacteria keep the world free from wastes? \_\_\_\_\_

**Chapter 17**

Use with Section 2

**REINFORCEMENT****● Bacteria in Your Life***Answer the following questions.*

1. What word on the milk carton tells you that the dairy eliminated pathogens when processing the milk? \_\_\_\_\_
2. What process kills harmful bacteria? Describe the process.



3. In the illustration above, a change has taken place over time. What kind of bacteria caused the change? \_\_\_\_\_
4. How does this change help other organisms in the environment? \_\_\_\_\_  
\_\_\_\_\_
5. What kind of bacteria are helpful to farmers? \_\_\_\_\_
6. What two kinds of plants have these bacteria in their roots? \_\_\_\_\_
7. What are disease-causing organisms called? \_\_\_\_\_
8. What kind of drugs can kill bacteria? \_\_\_\_\_
9. What are the poisons that pathogens produce called? \_\_\_\_\_
10. What are the thick-walled cells of botulism bacteria called? \_\_\_\_\_

## Viruses Worksheet

Name \_\_\_\_\_

Date \_\_\_\_\_

Directions: Answer each of the following questions. Each number is worth one point.

1. In your own words, explain why viruses are not living organisms.
2. List 3 diseases caused by viruses.
3. Define vaccine.
4. How are viruses transmitted?
5. Define symptom.

6-7. Why do vaccines NOT protect against all viral diseases? Give an example.

8-10. If an epidemic were declared in our town, what could happen to control and eventually eliminate it?

11. If you opened a virus, what would find?

12. Where does viral reproduction occur?

13-16. Do you think a virus can be grown in a nutrient agar as bacteria are? Why or Why not?

17-18. Explain why antibiotics work against bacteria but not viruses.

19. How can a vaccine protect you against a disease?

20. Who invented the first polio vaccine?

**\*BONUS\* (ONE POINT)** What is the best defense against most viral diseases?