

Chapter 19 Bacteria and Viruses

Section 19-1 Bacteria (pages 471-477)

Key Concepts

- How do the two groups of prokaryotes differ?
- What factors are used to identify prokaryotes?
- What is the importance of bacteria?

Introduction (page 471)

1. What are prokaryotes? _____
2. Is the following sentence true or false? Prokaryotes are much smaller than most eukaryotic cells. _____

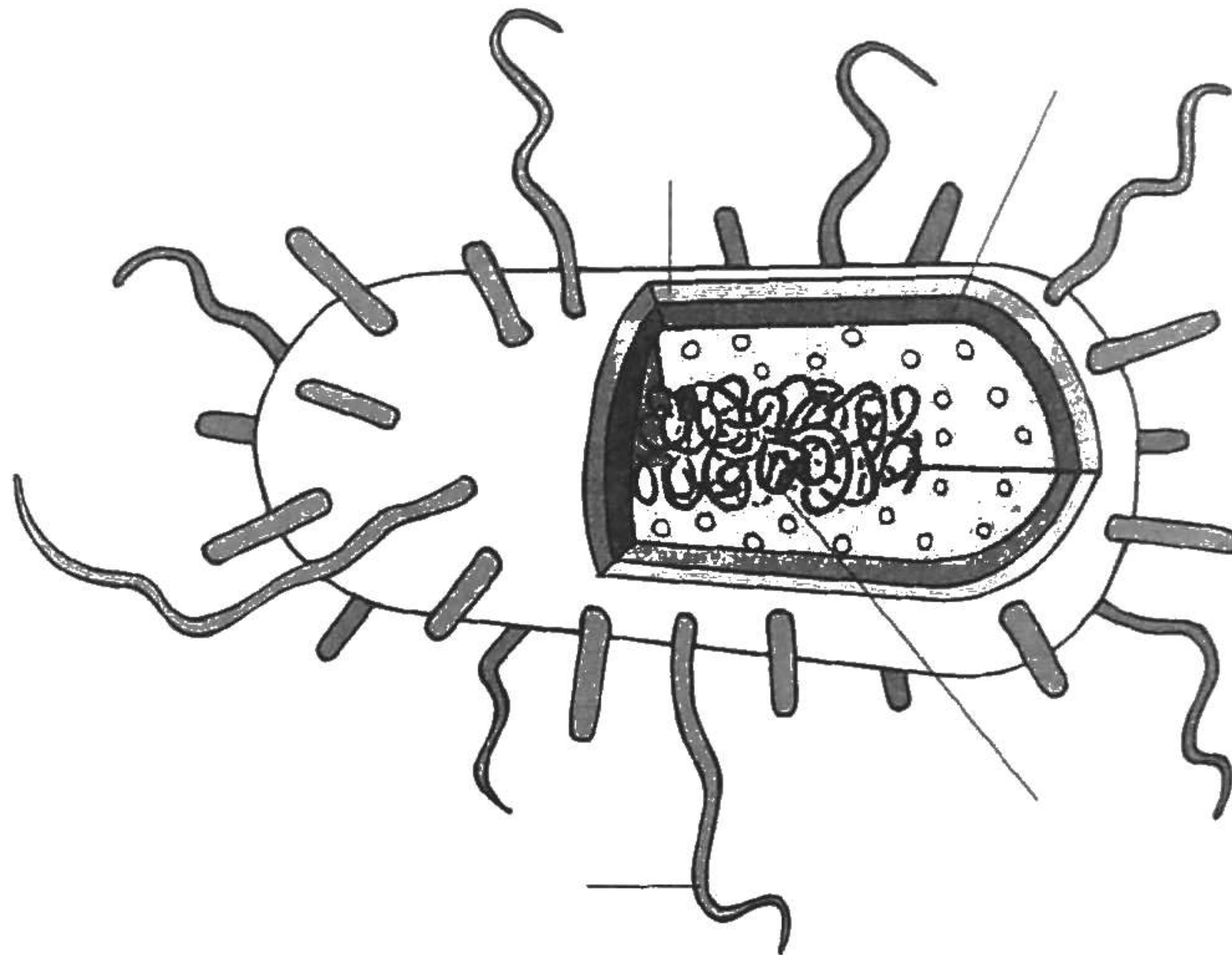
Classifying Prokaryotes (pages 471-472)

3. What are the two different groups of prokaryotes?
 - a. _____
 - b. _____
4. Which is the larger of the two kingdoms of prokaryotes? _____
5. Where do eubacteria live? _____
6. What protects a prokaryotic cell from injury? _____
7. Circle the letter of what is within the cell wall of a prokaryote.
 - a. another cell wall
 - b. cell membrane
 - c. archaeobacteria
 - d. pili
8. What is peptidoglycan? _____
9. Some eubacteria have a second _____ outside the cell membrane.
10. Circle the letter of each sentence that is true about archaeobacteria.
 - a. Their membrane lipids are different from those of eubacteria.
 - b. They lack a cell wall.
 - c. They lack peptidoglycan.
 - d. They look very similar to eubacteria.
11. What is significant about the DNA sequences of key archaeobacterial genes? _____
12. How are archaeobacteria related to eukaryotes? _____

13. What are methanogens, and where do they live? _____

Identifying Prokaryotes (page 473)

14. Complete the illustration of a typical prokaryote by labeling the parts.



15. What are four characteristics used to identify prokaryotes?
 a. _____
 b. _____
 c. _____
 d. _____
16. What are each of the differently shaped prokaryotes called?
 a. The rod-shaped are called _____.
 b. The spherical-shaped are called _____.
 c. The corkscrew-shaped are called _____.
17. A method of telling two different types of eubacteria apart by using dyes is called _____.
18. What colors are Gram-positive and Gram-negative bacteria under the microscope when treated with Gram stain? _____

19. What are flagella? _____
20. Is the following sentence true or false? Some prokaryotes do not move at all.

Metabolic Diversity (pages 473–474)

21. Complete the table about prokaryotes classified by the way they obtain energy.

GROUPS OF PROKARYOTES

Group	Description
	Organism that carries out photosynthesis in a manner similar to that of plants
Chemoautotroph	
	Organism that takes in organic molecules and then breaks them down
Photoheterotroph	

22. Members of which group of photoautotrophs contain a bluish pigment and chlorophyll *a*? _____

23. How do the chemoautotrophs that live near hydrothermal vents on the ocean floor obtain energy? _____

24. Complete the table about prokaryotes classified by the way they release energy.

GROUPS OF PROKARYOTES

Group	Description
	Organisms that require a constant supply of oxygen
Obligate anaerobes	
Facultative anaerobes	

25. Facultative anaerobes can switch between cellular respiration and _____.

Growth and Reproduction (page 475)

26. What occurs in the process of binary fission? _____

27. What occurs during conjugation? _____

28. Is the following sentence true or false? Most prokaryotes reproduce by conjugation.

29. What is an endospore? _____

Importance of Bacteria (pages 476–477)

30. How do decomposers help the ecosystem recycle nutrients when a tree dies?

31. What would happen to plants and animals if decomposers did not recycle nutrients?

32. Why do plants and animals need nitrogen? _____

33. How does nitrogen fixation help plants? _____
34. What kind of relationship do many plants have with nitrogen-fixing bacteria?

35. How can bacteria be used to clean up an oil spill? _____

36. What have biotechnology companies begun to realize about bacteria adapted to extreme environments? _____

Reading Skill Practice

Writing a summary can help you remember the information you have read. When you write a summary, write only the most important points. Write a summary of the information under the green heading *Decomposers*. Your summary should be shorter than the text on which it is based. Do your work on a separate sheet of paper.