Name_____ Class_____ Date _____

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 **c.** archaebacteria
   b. cell membrane **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 archaebacteria.
    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 archaebacterial genes?

_____

_____

12. How are archaebacteria related to eukaryotes? _____

_____

Name_____ Class_____ Date _____

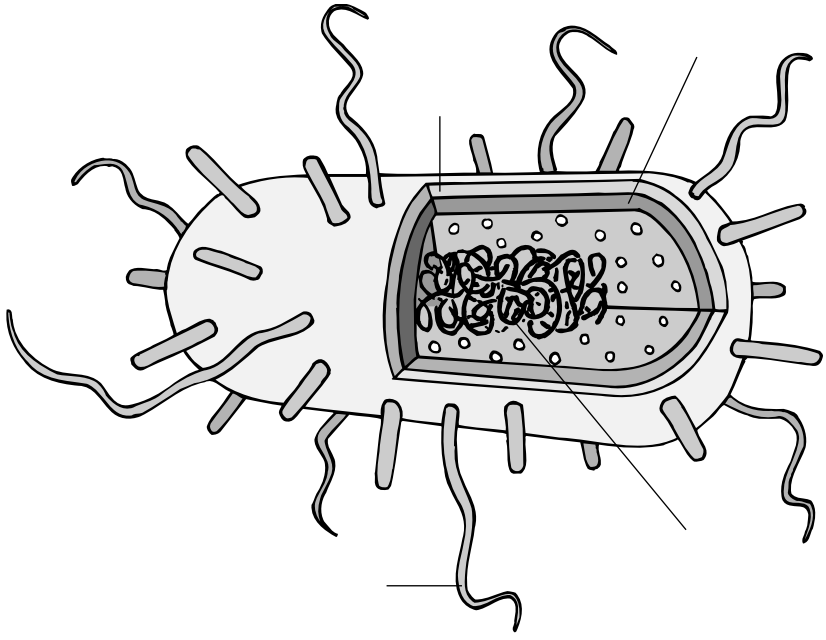
13. What are methanogens, and where do they live? _____

_____

_____

Identifying Prokaryotes (page 473)

14. Use the following labels to complete the illustration of a typical prokaryote: cell membrane, cell wall, DNA, flagellum.



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? _____

Name_____ Class_____ Date _____

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.

_____

Name_____ Class_____ Date _____

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.