

SECTION 24-1 REVIEW

BACTERIAL EVOLUTION AND CLASSIFICATION

VOCABULARY REVIEW Distinguish between the terms in each of the following groups of terms.

1. extreme halophile, thermoacidophile _____

2. bacillus, coccus, spirillum _____

3. staphylococcus, streptococcus _____

4. Gram-positive bacteria, Gram-negative bacteria _____

MULTIPLE CHOICE Write the correct letter in the blank.

- _____ 1. Fossil evidence indicates that the earliest bacteria on Earth lived about

a. 1 billion years before humans.	c. 1 billion years before eukaryotes.
b. 2 billion years before eukaryotes.	d. None of the above
- _____ 2. Which of the following types of bacteria would you be most likely to find in very salty water?

a. chemoautotroph	c. cyanobacterium
b. extreme halophile	d. thermoacidophile
- _____ 3. Archaeobacteria and eubacteria are placed in separate kingdoms because archaeobacteria

a. lack cell membranes.	c. evolved after eubacteria evolved.
b. have cells walls that contain peptidoglycan.	d. have some genes that closely resemble those found in eukaryotes.
- _____ 4. Actinomycetes are

a. archaeobacteria that are spiral-shaped.	b. proteobacteria that cause tooth decay.
c. gram-positive bacteria that form branching filaments.	d. gram-negative bacteria that are photosynthetic.
- _____ 5. Which of the following types of bacteria would you be most likely to find in the human intestinal tract?

a. spirochete	b. cyanobacterium	c. thermoacidophile	d. enteric bacterium
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SHORT ANSWER Answer the questions in the space provided.

1. Why do some bacteria retain the Gram stain while others do not? _____

2. What characteristics are predicted by whether a bacterium retains the Gram stain? _____

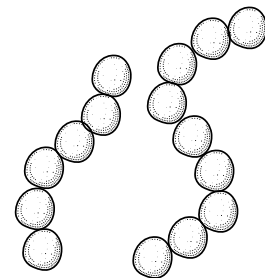
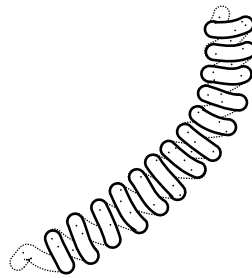
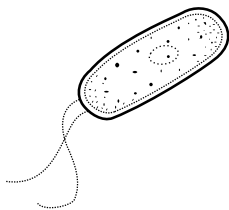
3. Identify two ecologically important characteristics of cyanobacteria. _____

4. Identify one beneficial and one harmful role of Gram-positive bacteria found in the oral cavity.

5. Explain how the evolution of aerobic organisms depended on a metabolic product of cyanobacteria. _____

6. **Critical Thinking** How have explorations of saltwater lakes and hydrothermal vents on the ocean floor led biologists to revise their ideas about the origin of eukaryotes? _____

STRUCTURES AND FUNCTIONS Label each drawing below with the most appropriate term from the following list: coccus, streptococcus, spirochete, bacillus.



1. _____ 2. _____ 3. _____ 4. _____