

LAB



Laboratory Activity

Shapes of Bacteria



Thousands of different types of bacteria are known and have been observed, and there are possibly many more that have not yet been observed. How can a scientist tell those organisms apart when they are so small? One way is by their characteristic shapes, or patterns of joining together in groups.

Strategy

You will identify bacteria by using their shape and other characteristics as clues. You will discover a process of elimination or "key" that will be used to help in the identification.

Materials

key (see the next page)

Procedure

1. Examine Figure 1 in the Data and Observations section, which shows bacteria magnified 2,000 times their natural size.
2. Use the key on the next page to identify each type of bacterium (singular for bacteria). Start at the top of the key, following the directions. The key will allow you to identify each of the bacterium shown by name.

Each bacterium has a first name that describes its shape in scientific language, and a last name that may also describe some special characteristic. The key also lists in parentheses the disease caused by the bacterium or type of food in which the bacterium may be found. Label each bacterium in the Data and Observations section.

Data and Observations

Figure 1



1. _____



2. _____



3. _____



4. _____



5. _____



6. _____



7. _____



8. _____



9. _____



10. _____

Laboratory Activity 1 (continued)

KEY

If the general shape of a bacterium is round, go to I, skip II and III.

If the general shape of a bacterium is rod (long and straight) go to II, skip I and III.

If the general shape of a bacterium is spiral, go to III, skip II and I.

Section I

If in pairs, go to *a* or *a'* only.

If in chains, go to *b* only.

If in clumps, go to *c* only.

a—without a heavy cover—*Diplococcus meningitidis* (spinal meningitis)

a'—with a heavy cover (capsule)—*Diplococcus pneumoniae* (pneumonia)

b—small in size—*Streptococcus lactis* (buttermilk)

c—*Staphylococcus aureus* (boils)

Section II

If in chains, go to *d* only.

If in pairs, go to *e* only.

If single, go to *f* or *f'* or *f''*.

d—*Bacillus anthracis* (anthrax)

e—*Bacillus lactis* (sauerkraut)

f—with hairs (flagella)—*Bacillus typhosa* (typhoid fever)

f'—with a bulge (spore) in the middle—*Bacillus botulinum* (botulism poisoning)

f''—with a bulge at the end—*Bacillus tetani* (tetanus)

Section III

Treponema palladium (syphilis)

Questions and Conclusions

1. What part of the word is the same for all bacteria found in Section I? _____

This word refers to the shape of a bacterium. The shape is _____

2. The word "diplo-" when placed in front of a bacterium name must mean _____

3. The word "strepto-" when placed in front of a bacterium name must mean _____

4. The word "staphylo-" when placed in front of a bacterium name must mean _____

5. What part of the word is the same for all bacteria found in Section II? _____

This word refers to the shape of a bacterium. The shape is _____

6. Some bacteria produce chemicals that provide food with a certain taste. Name two such foods.

Strategy Check

_____ Can you use the key to identify bacteria by their shape and other characteristics?

_____ Can you understand how scientific names help to describe certain features of bacteria?