# BIOLAB 12 CLASSIFYING BACTERIA

Chapter 12

**oblem: How is a key used to classify bacteria?**

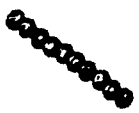
## Materials

paper

## Procedures

1. Look at the drawings of bacteria in the data table. Use the table and diagrams to complete this exercise.
2. Follow the directions in the key to identify each bacterium.
3. Look at the shape of each bacterium in the table. Read the directions under A of the key. Select the choice that best describes the bacterium. Move to the end of the line. If there is a name, you have identified the bacterium. If not, follow the direction given. Repeat the procedure until you arrive at a number and scientific name. Write the number next to the correct bacterium on your paper. Repeat the procedure for each bacterium.

## Data and Observations

| Bacterium | Number | Bacterium | Number |
|---|---|---|---|
|  | |  | |
|  | |  | |
|  | |  | |
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## Key

| | | |
|---|---|---|
| A | shape is round..... | go to B |
| AA | shape is rodlike..... | go to C |
| AAA | shape is spiral..... | 1. *Treponema pallidum* |
| B | bacteria are in pairs... | go to D |
| BB | bacteria are in chains.. | go to E |
| BBB | bacteria are in clumps | 2. *Staphylococcus aureus* |
| C | bacteria are in pairs... | 3. *Bacillus anthracis* |
| CC | bacteria are in chains.. | 4. *Bacillus lactis* |
| CCC | bacteria are single .... | go to F |
| D | bacteria have a heavy covering | 5. *Diplococcus meningitidis* |
| DD | bacteria lack a heavy.. covering | 6. *Diplococcus pneumoniae* |
| E | bacterium is large in .. size | 7. *Streptococcus pyogenes* |
| EE | bacterium is small in .. size | 8. *Streptococcus lactis* |
| F | bacterium has flagella | 9. *Bacillus typhosa* |
| FF | bacterium has a spore in its center | 10. *Bacillus botulinum* |
| FFF | bacterium has a spore at its end | 11. *Bacillus tetani* |

Name _____ Date _____ Class _____

# PROBLEM SOLVING/CRITICAL THINKING

Chapter 12

## SOME BACTERIAL DISEASES

*Read the descriptions of various bacterial diseases. For each disease, the bacterial agent is given in italics. Then diagnose the bacterial disease of fictitious patients based on the case histories presented.*

Botulism: very dangerous form of food poisoning; *Clostridium botulinum;* symptoms include headache, weakness, constipation, and nerve paralysis; may cause death if respiratory organs are paralyzed

Cholera: common in areas where sanitation is very poor; acute and infectious; *Vibrio cholerae;* symptoms include severe diarrhea and vomiting, extreme dehydration, muscle cramps, and prostration

Diphtheria: highly contagious childhood disease; *Corynebacterium diphtheriae;* symptoms include sore throat, fever, headache, and nausea; a yellowish membrane forms in the throat that restricts breathing

Gonorrhea: a sexually-transmitted disease; *Neisseria gonorrhoeae;* attacks the reproductive system; symptoms do not appear immediately and include painful urination, pus discharged from the penis or vagina; if untreated, may result in sterility

Lobar Pneumonia: inflammation of the lung; leading cause of death in infants and elderly; *Streptococcus pneumoniae;* solidified lung tissue prevents air from entering alveoli

Scarlet Fever: contagious childhood disease; *Group A beta-hemolytic streptococci;* symptoms include sore throat, swelling of lymph nodes in neck, bright red rash, nausea, hot dry skin, and fever

Tetanus: fatal unless treated; *Clostridium tetani;* symptoms include lockjaw, muscle spasms, convulsions, stiffness, restlessness, headache, and chills; bacterial organisms enter body through a puncture wound

Typhoid Fever: transmitted by contaminated water and food; *Salmonella typhosa;* symptoms include sore throat, high fever, loss of appetite, diarrhea and constipation, and periods of sweating and chills

Whooping Cough: infectious disease common in children under 10; *Bordetella pertussis;* symptoms include chills, vomiting, and bluish skin because extreme coughing prevents air from entering the alveoli

_____ Patient A: 82 years old; has generally poor health; has sharp chest pains, blood-streaked saliva, high fever, and rapid pulse rate; X ray confirms solid material in lung tissue

_____ Patient B: 6 years old; mother thought child had a slight cold until a red rash broke out; child is listless and has a slight fever

_____ Patient C: recently traveled to an undeveloped country and unknowingly consumed contaminated food and water; proper toilet facilities were nonexistent; exhibits severe muscle cramps and dehydration

_____ Patient D: food handler in rural areas where proper toilet facilities are not always available; exhibits a very high fever and the chills; blood is in his stool

_____ Patient E: 30 years old; recently discovered a whitish fluid being discharged by penis; has had severe pain in urination for the last several weeks; additional tests have shown that inflamed testes have resulted in sterility

_____ Patient F: teenager walking barefoot in a construction area has been punctured with a rusty nail; several days later he exhibited mild convulsions that rapidly became more severe

_____ Patient G: has recently eaten food from a damaged can; has difficulty in seeing, swallowing, and breathing

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