

NAME _____

DATE _____

Introduction to Prokaryotes: Bacteria

Currently, biologists divide all living organisms into three large groups, which are called domains. In this lab you will be introduced to organisms belonging to the Domain Bacteria.

Procedure

Proceed to one of the workstations. Masses of bacteria are growing on the surface of a nutrient agar in the petri dish. Observe the bacterial culture.

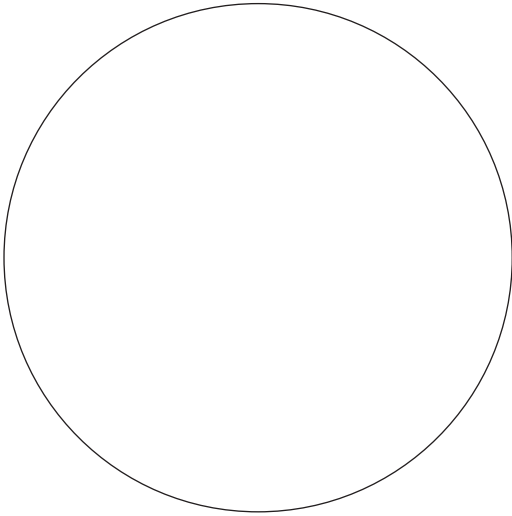
1. Record your observations of color or any other features of the bacterial growth that might distinguish it from the growth of other bacteria.

Preparing and Staining a Slide

1. Mark a microscope slide to identify the bacterium (B = *Bacillus subtilis*, etc.)
2. Place a drop of distilled water on the slide.
3. Flame the inoculating loop and wait a few seconds for it to cool.
4. Raise the lid of the dish enough to allow you to insert the inoculating loop. Pick up a small quantity of bacteria on the loop.
5. Remove the inoculating loop and close the lid.
6. Mix the bacteria in the drop of water on the slide and spread it thinly and evenly over an oval area of the slide.
7. Place the slide in an area where it will not be disturbed and allow it to air dry.
8. Once it is dry, retrieve the slide and clamp one end in a clothespin or slide holder.
9. With the smear side up, slowly pass the slide through the flame three times. Do not hold the slide in the flame. This kills the bacteria and causes them to stick to the slide.
10. Cover the smear with stain and allow the smear to remain covered for 1 minute.
11. After 1 minute, rinse away the stain with tap water. Let the water stream over the smear from the top edge of the slide. If the water stream strikes the smear directly, most of the cells will wash off.
12. Blot the slide dry and observe under an oil-immersion lens.

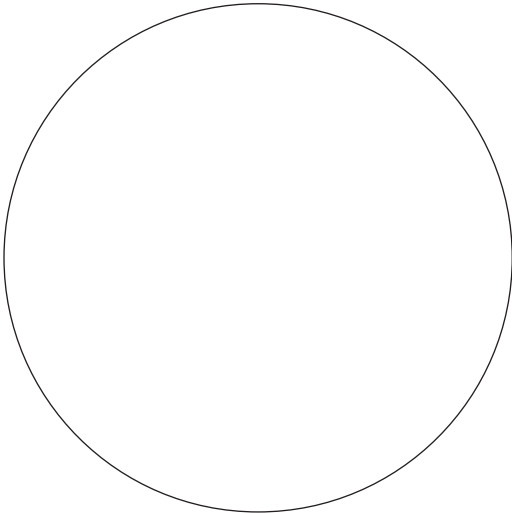
Observations

Examine the plate. Draw and record your observations below. Each circle represents the field of view seen through your microscope.



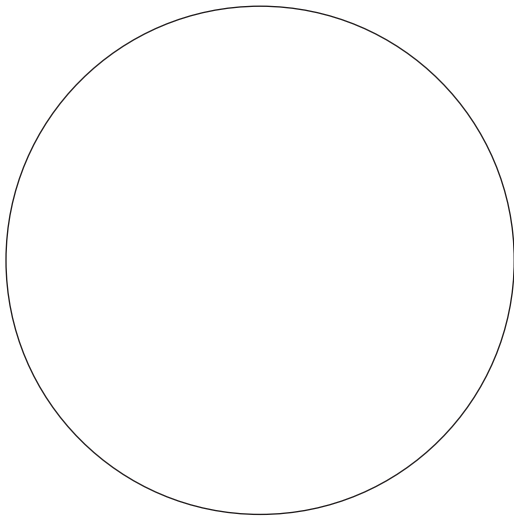
Name of bacteria _____

Magnification _____



Name of bacteria _____

Magnification _____



Name of bacteria _____

Magnification _____

Questions

2. Describe the shapes of the bacteria you have observed:

Bacillus subtilis _____

Micrococcus luteus _____

Rhodospirillum rubrum _____

3. Use your textbook or other resource(s) to give at least three additional ways that bacteria species may differ from one another.

Difference 1: _____

Difference 2: _____

Difference 3: _____

Other: _____

4. Bacteria are one of the domains of life. What are the other two?

5. Why did you stain the bacteria? If you are uncertain of the answer, make another slide but omit the stain.

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CB163561305