

Name: _____ Period: ____ Date: _____

LAB: COMPARISON OF PROKARYOTIC (BACTERIA) CELLS AND EUKARYOTIC (PROTIST) CELLS

INTRODUCTION

In this lab, students use microscopes to compare and contrast prokaryotic cells (bacteria) and eukaryotic cells (Protists).

Pre Lab Questions: (Use Page 470-475)

1. What are the three main shapes of Bacteria? Include a diagram of each.

2. What is binary fission?

OBJECTIVES:

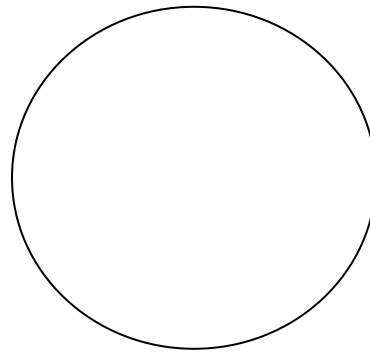
By the end of this exercise, you should be able to...

- ◆ explain how the cell is the basic unit for all living things.
- ◆ relate characteristics of living things to cell structure.
- ◆ Draw a biological diagram of prepared slides of prokaryotic cells (bacteria) and label the cell wall, cell membrane, and cytoplasm. Identify the shape of the species of bacteria.
- ◆ Draw a biological diagram of eukaryotic cells (Protists) and label the cell membrane, cytoplasm, nucleus, and any other organelles that are visible.
- ◆ Calculate Actual Size, Total Magnification and Drawing Magnification for both eukaryotic and prokaryotic cells
- ◆ compare and contrast Prokaryotic (bacteria) cells with eukaryotic (Protist) cells.

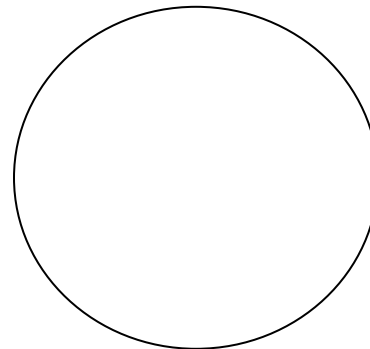
PROCEDURE PART A: EUKARYOTIC CELLS (PROTISTS)



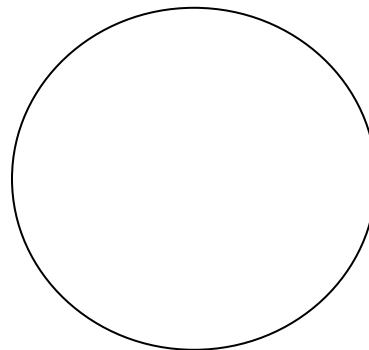
1. Acquire a prepared slide labelled “Paramecium-Fission”
2. Focus the slide under the low power objective and move the slide to find good examples of these cells undergoing fission. Draw what you see. Make sure to include total magnification. Label the cell membrane, cytoplasm, nucleus, and any other organelles that are visible.



3. Repeat steps focusing under medium power



4. Repeat steps focusing under high power



5. Estimate the size of a single cell on low power. Assume the FOV on low power is 2.5mm. Your answer should be in micrometers.
6. Using the same objective as your estimated size, calculate the drawing magnification.

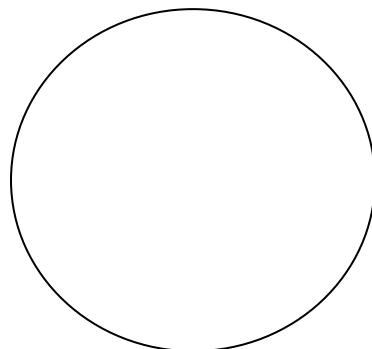
Estimated size (show work):

Drawing Magnification (Show work):

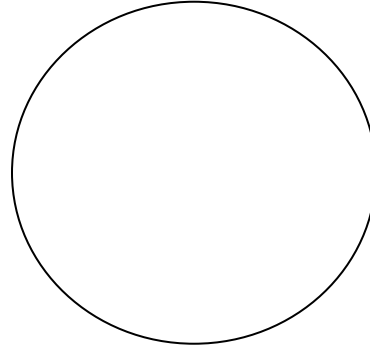
PROCEDURE PART B: PROKARYOTIC CELLS (BACTERIA)



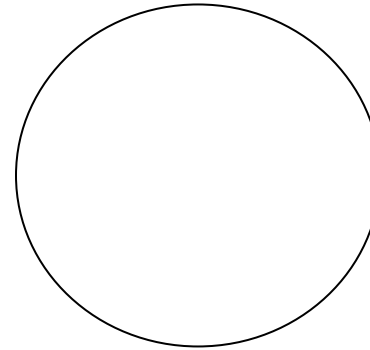
1. Acquire a prepared slide from the box labeled "146- 3 Types of Bacteria"
2. Each black circle has a different shape of bacteria inside. **Observe** the three shapes on all three objectives (no drawing necessary)
3. Choose one shape of bacteria to complete the following:
4. Focus the slide under the low power objective and move the slide to find good examples of these cells. Draw what you see. Make sure to include magnification. Label the cell membrane, (cell wall), and cytoplasm (IF VISIBLE). Cells may be hard to locate on low power....Why is this?



5. Repeat steps under medium power



6. Repeat steps under high power



7. Estimate the size of a single cell. You may choose to estimate the size under **medium or high power** (High power may be the easiest). Assume the FOV for the low power objective is 2.5 mm

8. Using the same objective as your estimated size, calculate the drawing magnification.

Estimated size (Show work):

Drawing Magnification (Show work):

Discussion: How do the size of prokaryotes and eukaryotes compare? (include estimated cell size)