

LAB: Prokaryotic vs Eukaryotic cells

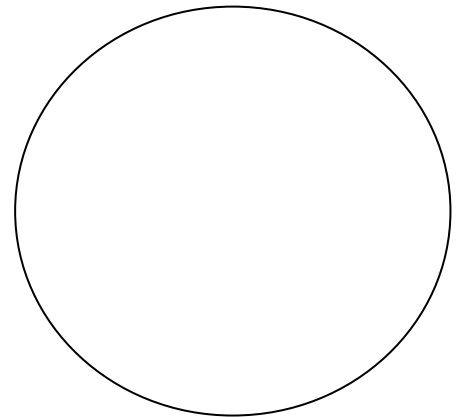
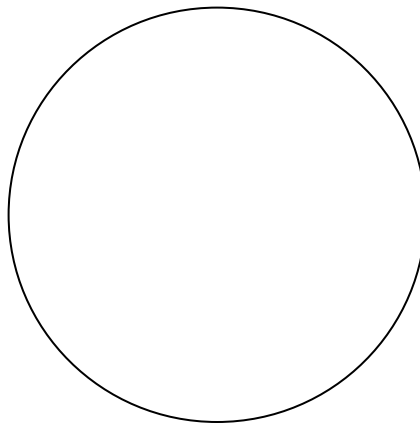
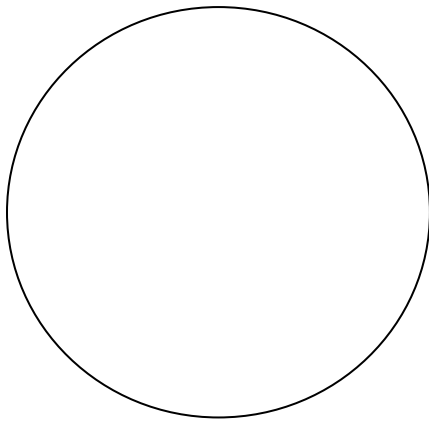
Purpose: to examine cells under a microscope and to determine the significant differences between prokaryotic and eukaryotic cells.

Materials:

- Slide & cover slip
- prepared slides: bacteria, plant cell, animal cell
- Yogurt culture
- Plant Leaf
- Tooth pick
- Water dropper bottle
- Paper towel
- Methylene blue

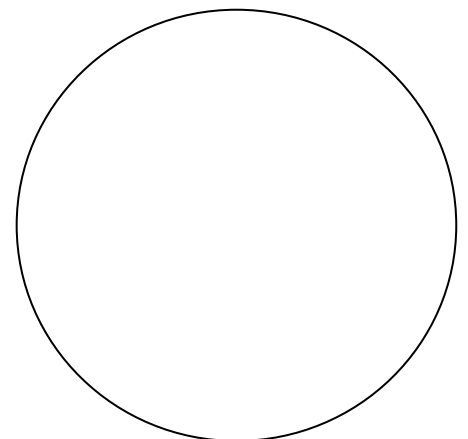
Procedure and Observations:

1. Observe each of the prepared (bacteria, plant and animal) under 100x magnification. Sketch and describe the appearance of each. Label any parts that you recognize.

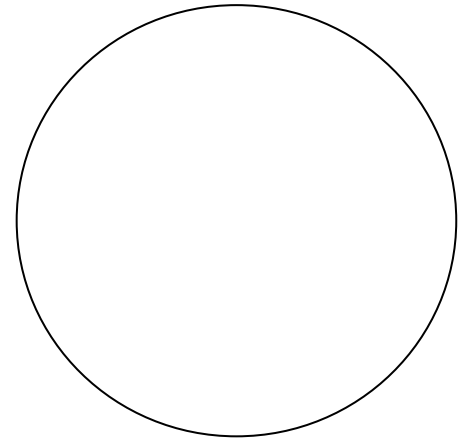


Description of Bacteria	Description of Plant cells	Description of Animal cells

2. Prepare a wet mount of a yogurt (include active bacteria). Observe under 100x magnification. Sketch and describe the appearance of several bacteria. Label any parts that you recognize.



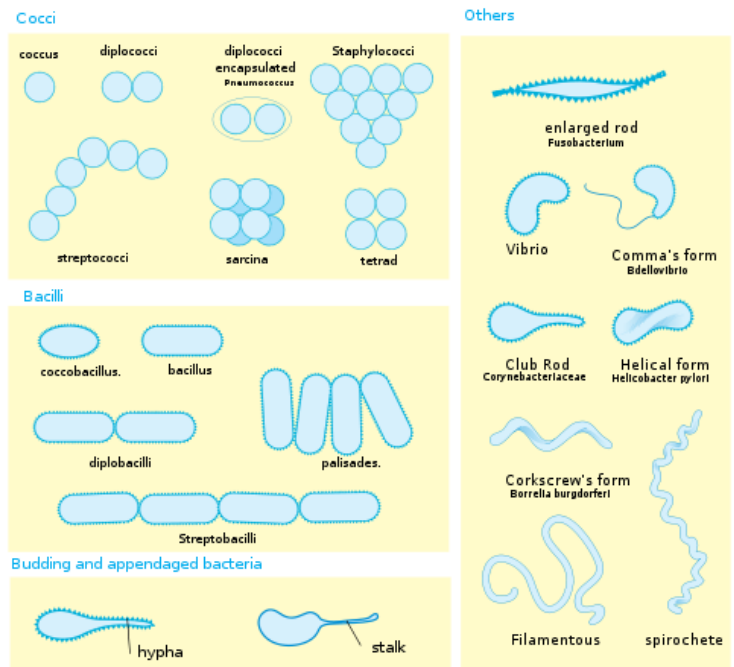
- Prepare a wet mount of the plant leaf. Observe under 100x magnification. Sketch and describe the appearance of 8-10 plant cells. Label any parts that you recognize.



Analysis & Discussion:

- Describe the observable difference between prokaryotic and eukaryotic cells.

- Based on the diagram below, what type of bacteria did you see in the yogurt?

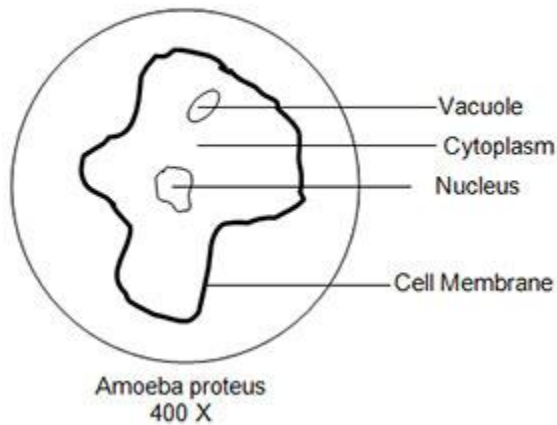


- Find out more about the bacteria in yogurt? What are the names and what is their function in the yogurt?

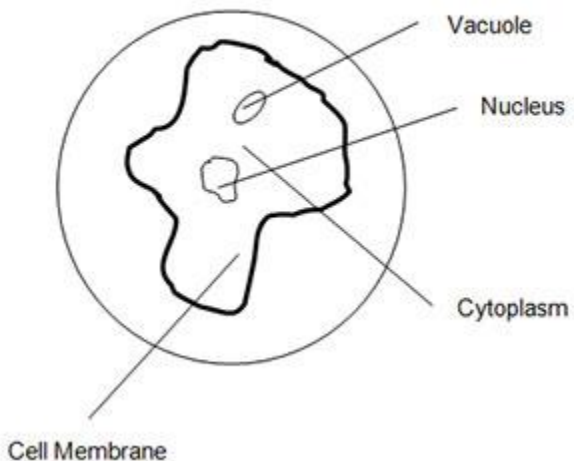
Practicing some Microscope Skills

Drawings:

Correct scientific drawing



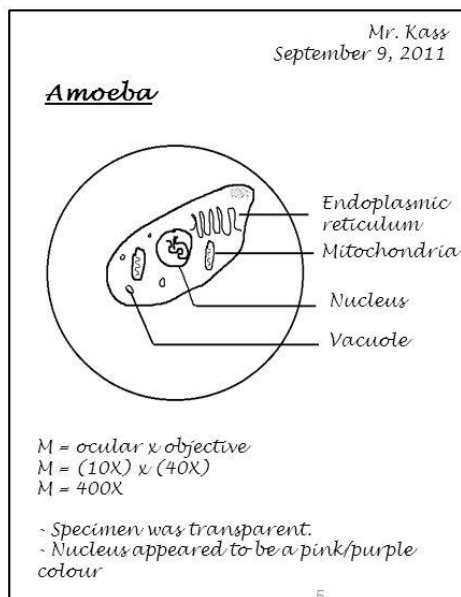
Incorrect scientific drawing



Based on the *correct scientific drawing* and the notes below, what are the mistakes in the incorrect scientific drawing above?

Biological Drawing Rules

- Drawing is neat and LARGE. Must take up most of the paper
- Diagram is drawn in pencil and "coloured" using stipples (little dots)
- All diagram labels are printed to the right of the drawing and are lined up in a straight line
- Name and date are written in the upper right hand corner of the diagram
- An appropriate title is given to the diagram
- Lines between label and feature are drawn using a ruler
- Lines do not cross
- Calculations and qualitative observations are included at the bottom of the diagram



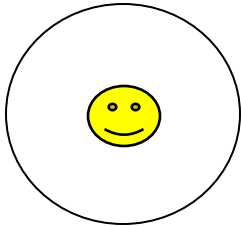
Measurement:

You can use the field of view to determine the approximate size of an object you are viewing.

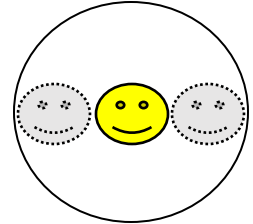
For example, the field of view at low power is usually 4.2 mm. If an object takes up half the field of view at low power (2 could fit across the diameter), this would mean that its approximate size would be 2.1 mm.

Or stated mathematically: $approximate\ size = \left(\frac{field\ of\ view}{\#\ of\ times\ the\ object\ fits\ across} \right)$

For example if I saw the below at low power (field of view = 4.2 mm):



I would approximate that 3 could fit across, like so:



So the size of one smiley face would be: $approximate\ size = \left(\frac{field\ of\ view}{\#\ of\ times\ the\ object\ fits\ across} \right) = \left(\frac{4.2\ mm}{3} \right) = 1.4\ mm$

Try and estimate from your drawings the size of:

Bacteria: _____mm

Plant cell: _____mm

Animal cell: _____mm