

**Chapter 7- Lab
Cells- The Basic Unit of Life**

Purpose: The purpose of the lab is to have students recognize the differences between bacteria, plant and animal cells by observing bacteria, onion skin elodea leaf and human cheek cells.

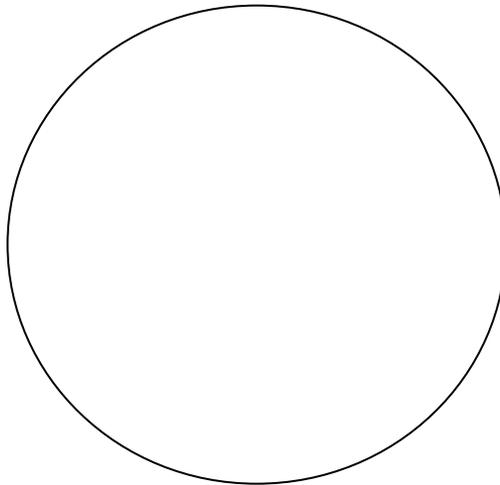
Materials: microscope slides coverslip forceps (tweezers) scalpel	onion skin prepared slide- 3 forms of bacteria prepared amphiuma liver cells slide iodine indicator methylene blue indicator	elodea leaves human cheek cells toothpick, flat edge water dropper colored pencils
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Procedure- Part 1- Observation of 3 Forms of Bacteria

- 1 Place the prepared slide- 3 forms of bacteria on the stage. Find and view the specimens in low power.
- 2 View the specimens under high power.
- 3 Choose one specimen and draw and color it in the field below. Be sure to calculate and record your total magnification.

Label the following:

Cell Membrane
Cytoplasm



Total Magnification _____

Questions:

- 1 Describe the shapes of the 3 different forms of bacteria.

- 2 Do these cells have a nucleus?

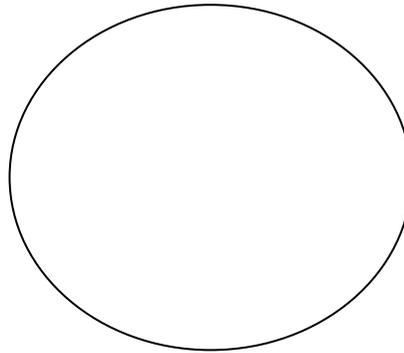
- 3 Are the bacteria that you observed prokaryotic cells or eukaryotic cells? Explain why.

Procedure- Part 2- Observation of Amphiuma Liver Cells

- 1 Place the prepared slide-Amphiuma Liver Cells on the stage. Find and view the specimens in low power.
- 2 View the specimens under high power.
- 3 Draw and color Amphiuma Liver Cells in the field below. Be sure to calculate and record your total magnification.

Label the following:

- Cell Membrane
- Nucleus
- Cytoplasm



Total Magnification _____

Questions:

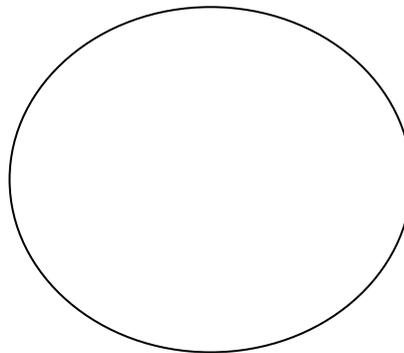
- 4 Are you viewing a unicellular or multicellular structure? Explain your choice.
- 5 Do these cells have a nucleus?
- 6 Are the Amphiuma Liver Cells that you observed prokaryotic cells or eukaryotic cells? Explain why.

Procedure- Part 3- Observation of Onion Skin Cells

- 1 Obtain an onion skin from your teacher.
- 2 Prepare a wet mount of the onion skin. Be careful not to wrinkle the tissue. Observe the onion skin under low power.
- 3 View the onion skin under high power. Add 1 drop of iodine and observe onion skin again.
- 4 Draw and color the onion skin in the field below. Be sure to calculate and record your total magnification.

Label the following:

- Cell Wall
- Nucleus
- Cytoplasm



Total Magnification _____

Questions:

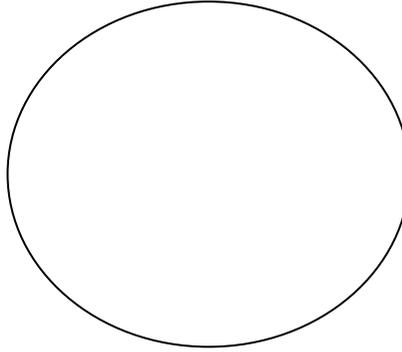
- 7 Describe the shape of the onion skin cells.
- 8 Do these cells have a nucleus?
- 9 Are the onion skin cells that you observed prokaryotic cells or eukaryotic cells? Explain why.

Procedure- Part 4- Observation of Elodea Leaf Cells

- 1 Obtain an elodea leaf from your teacher.
- 2 Prepare a wet mount of the elodea leaf. Observe the elodea leaf under low power.
- 3 View the elodea leaf under high power.
- 4 Draw and color the elodea leaf in the field below. Be sure to calculate and record your total magnification.

Label the following:

Cell Wall
Nucleus
Cytoplasm
Chloroplast



Total Magnification _____

Questions:

10 Describe the shape of the elodea leaf cells.

11 Do these cells have a nucleus?

What are the tiny green spherical structures that you see?

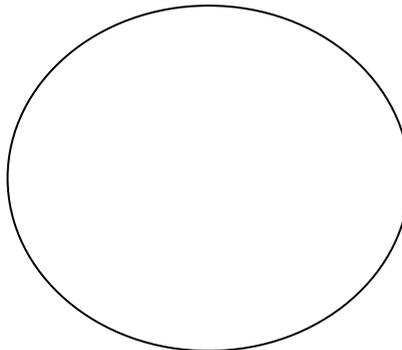
12 Are the elodea leaf cells that you observed prokaryotic cells or eukaryotic cells? Explain why.

Procedure- Part 5- Observation of Human Cheek Cells

- 1 Gently scrape the inside of your cheek with the flat side of a clean toothpick.
- 2 Prepare a wet mount of the cheek cells by adding one drop of methylene blue. Observe the cheek cells under low power.
- 3 View the cheek cells under high power.
- 4 Draw and color the cheek cells in the field below. Be sure to calculate and record your total magnification.

Label the following:

Cell Membrane
Nucleus
Cytoplasm



Total Magnification _____

Questions:

13 Describe the shape of the cheek cells.

14 Do these cells have a nucleus?

15 Are the cheek cells that you observed prokaryotic cells or eukaryotic cells? Explain why.

Analysis Questions:

- 1 Of the specimens that you observed today, which were plant cells and which were animal cells?
- 2 List 3 structures or organelles that distinguishes a plant cell from an animal cell.
- 3 What was the purpose for adding iodine indicator to the onion cell and the methylene blue indicator to the human cheek cells?
- 4 During your lab, how were you able to distinguish the difference between a prokaryotic cell and a eukaryotic cell.
- 5 Of the specimens that you observed today, which were unicellular and which were multicellular?