Microscopes and Cells Intro Lab

Purpose: To recognize, draw, and compare various parts of plant and animal cells using the microscope.

Materials:

* Microscope
* Glass slide
* Toothpicks
* Iodine
* Scissors
* Onion
* Methylene blue
* Cover slips
* Dropper

**\*\*ALL WORK FROM TODAY WILL BE COMPLETED IN YOUR GRAPH-PAPER LAB JOURNAL\*\***

PART A: Prepared slides: **Make 4 biological drawings**

1. Look at the 4 different prepared slides of plant and animal cells.
2. Observe the cells under low, medium, and high power.
3. Identify the cell membrane, cytoplasm, nucleus, and nucleolus. You may need to lessen the amount of light using the diaphragm.
4. Make a **biological drawing** of one of the slides of plant cells at scanning or low power.
5. Make a **biological drawing** of the same plant cell slide at high power.
6. **Repeat steps 4 and 5** with one of the animal cell prepared slides.

PART B: Animal Cells: **Make 2 biological drawings**

1. Place a drop of water on to a glass slide.
2. Scrape cheek cells from the inside lining of your mouth using the blunt end of a tooth pick.
3. “Dab” the toothpick into the water on the slide.
4. Place a cover slip on top.
5. Observe the cells under low, medium, and high power.
6. Identify the cell membrane, cytoplasm, nucleus, and nucleolus. You may need to lessen the amount of light using the diaphragm.
7. Add a drop of methylene blue to the slide, just beside the cover slip, such that it runs beneath it and stains the cheek cells. Observe again and note any visible changes.
8. Describe what the cheek cells look like.
9. Create a proper **biological drawing** of 3 or 4 cheek cells under low power.
10. Create a proper **biological drawing** of a cheek cell under high power.
11. (Calculate the size estimate of a cheek cell, and the magnification of your drawing.)- in class on Friday

PART C: Plant Cells:

* Onion Cells: **Make 2 biological drawings**

1. Place a drop of water on to a glass slide.
2. Peel and cut a piece of the skin from an onion.
3. Use tweezers to place a piece of onion skin into the water on the slide.
4. Place a cover slip on top.
5. Observe the cells under low, medium, and high power.
6. Identify the cell wall, cytoplasm, nucleus, and nucleolus. You may need to lessen the amount of light using the diaphragm.
7. Add a drop of iodine to the slide, just beside the cover slip, such that it runs beneath it and stains the cheek cells. Observe again and note any visible changes.
8. **Describe** what the onion cells look like.
9. Create a proper **biological drawing** of 3 or 4 onion cells under low power.
10. Create a proper **biological drawing** of an onion cell under high power.
11. (Calculate the size estimate of an onion cell, and the magnification of your drawing.)- in class on Friday

* Elodea Cells: **Make 2 biological drawings**

Repeat the same steps from above with an elodea leaf.

PART D: Analysis:

1. List the 4 key differences between plant and animal cells that can be observed with a light microscope.

PART E: Only if time

With your group, make a Venn Diagram comparing plant and animal cells

1. Include all the cell structures/organelles that you can.
2. Copy this Venn Diagram into your Notes journal.

Coursebook

1. Make sure you have defined any of the key terms that are present on the yellow sheet and found from pages 1-6
2. Look at page 4, discussing biological drawings. Identify WHY the left side of the picture is bad technique.