

**Biology: Unit IV- Cells
Microscope Lab**

Name _____
Date _____ Per. _____

Observations:

Part A: Magnification and Parts of the Compound Light Microscope

The total magnification of a microscope is calculated by multiplying the **magnification of the objective lens** by the **magnification of the eyepiece**.

For example:

$$\begin{array}{ccccccc} \text{Magnification of} & & \text{Magnification} & & \text{Total} & & \\ \text{Low-Power Objective} & \times & \text{of Eyepiece} & = & \text{Magnification} & & \\ 10 \times & \times & 10 \times & = & 100 \times & & \end{array}$$

Use the above formula to complete the Data Table using **YOUR** microscope.

Objective	Color	Magnification of Objective	Magnification of Eyepiece	Total Magnification
Low Power				
Medium Power				
High Power				

Part B: Viewing a Prepared Slide

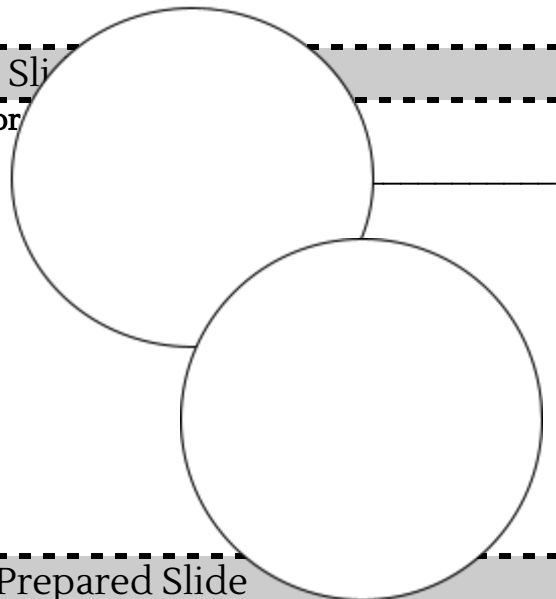
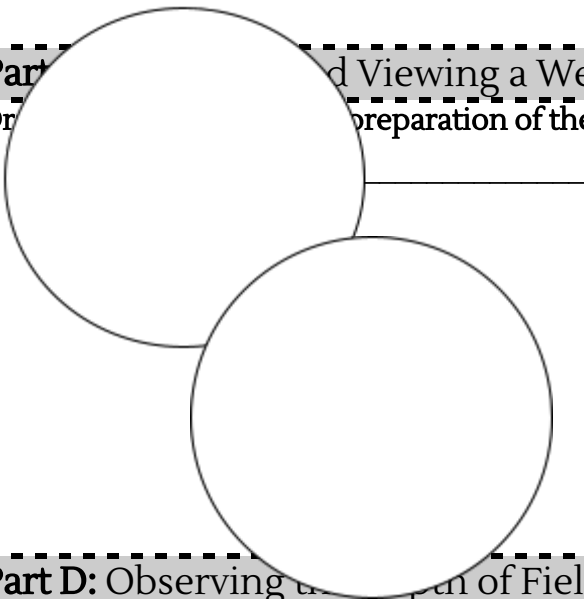
Drawings of prepared slide Slide Name: _____

Magnification: _____

Magnification: _____

Part C: Drawing and Viewing a Wet Mount Slide

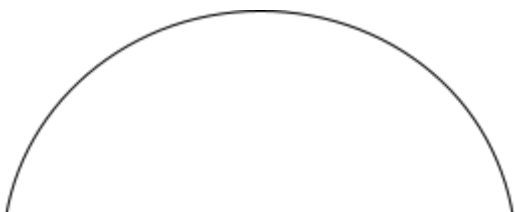
Drawings of the preparation of the letter "e" or _____



Part D: Observing a Small Part of Field with a Prepared Slide

Drawing of the threads.

Magnification: _____



Observations of what happened when focusing on different threads.

Part E: Viewing an Animal Cell

1. Gently rub the inside of your cheek with one side of a toothpick. Scraping lightly.
2. Swab (twist and stir the end of the toothpick) onto the middle of the slide. Throw the toothpick away.
3. Put a drop of water on top of the area where you swabbed the slide.
4. Put a drop of methylene blue on the area where you swabbed the slide.
Caution: *methylene blue will stain clothes and skin.*
5. Place a coverslip onto the slide.
6. Use the **LOW POWER** objective first. You probably will not see the cells at this power but will see a glob to center and investigate with the higher objective lenses.
7. Switch to the **MEDIUM POWER** objective. Cells should be visible but they will be small and look like nearly clear, purplish blobs.
8. Once you think you have located a cell, switch to the **HIGH POWER** objective and refocus using the fine focus adjustment.

Sketch the cell at **LOW**, **MEDIUM**, and **HIGH POWER**. Label the *nucleus*, *cytoplasm*, and *cell membrane*.

Analysis & Conclusion Questions:

1. How is the image of an object seen through the high-power objective different from the image seen through the low-power objective?
2. Why must you center and focus the object in the field of view under low-power before switching to high-power?

3. How does the letter “e” or “t” as seen through the microscope differ from the way an “e” or “t” normally appears?
4. When you move the slide to the left, in what direction does the image appear to move?
5. When you move the slide up, in what direction does the image appear to move?
6. Why is only the fine adjustment used for high-power focusing?
7. Why should a glass slide and a coverslip be held by their edges?
8. Compare **resolution** to **magnification**. (*research if needed*)
9. Explain why biologists might stain a specimen before viewing it under a microscope.
10. Suppose you were observing an organism through the microscope and noticed that it moved toward the bottom of the slide and then it moved to the right. What does this tell you about the actual movement of the organism? How should you move the slide to continue observing the organism?