

Microscope Lab: The Letter “e”

Purpose:

Microscopes are only as accurate as their users. If you do not know how to use a microscope properly, you will have a difficult time finding specimens/cells in this unit. The letter “e” is something everyone should be familiar with (or at least I hope so). We all know that an “e” is round with a line connecting the upper half. Today, you will use that knowledge to determine how a microscope works.

You have two objectives to fulfill by the end of this lab:

1. Properly use and focus a microscope from a low power to a high power objective lens.
2. Determine what happens to the image of a specimen in the microscope.

Materials:

- Microscope
- Slide
- worksheet
- Ruler

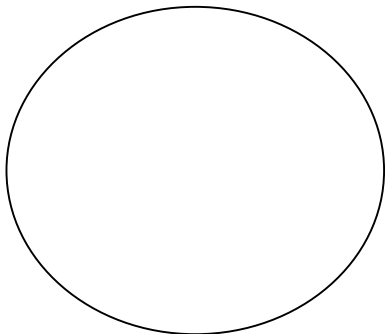
Procedures:

Part A: Getting familiar with the microscope

1. Notice the eyepiece, what is the magnifying power of the **eye piece**? _____
2. Notice the **low-power objective lens**: It reads “4X lens.” It is used to view the whole slide. If total magnifying power of this lens is determined by multiplying the magnifying power of the eyepiece by the magnifying power of the objective, what is the total magnifying power of this objective? _____
3. Notice the high-power objective lens: It reads “Holds 40X lens.” Used to view object in even greater detail. What is the total magnifying power of this lens? _____

Part B: Focusing the letter “e”

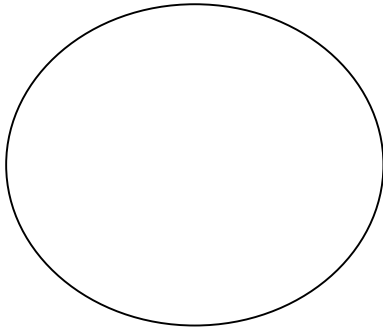
1. Lower the **stage** using the **coarse adjustment** knob.
2. Place the **slide** of the letter “e” on the **stage** and stabilize it with the **stage clips**. Center the “e” the best you can on the stage. **The letter “e” should be facing you right side up.**
3. Place the lowest (ie. **4X Objective Lens**) into position.
4. Looking into the eyepiece. SLOWLY use the **coarse adjustment** to raise the **stage** closer to the **objective lens** until the object (ie. “e”) comes into focus.
5. Once the object is seen, it may be necessary to adjust the amount of light. To increase or decrease contrast, rotate the **iris diaphragm** slightly.
6. Use the **fine adjustment** knob to sharpen focus if necessary.
7. In the space provided, draw an outline of the letter “e” as it appears through the **eyepiece**.



Magnification: _____ 4X _____

Total Magnification: _____

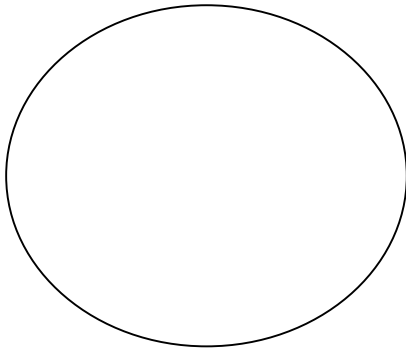
8. Change Magnification. Place the **10X (medium power) objective lens** into position. Follow procedures 6 – 8. Draw the outline of the letter “e” as it appears through the eyepiece.



Magnification: _____ 10X _____

Total Magnification: _____

9. Lower the **stage**. Place the **40X objective lens** into position. Follow procedures 6 – 8. Draw the letter “e” as it appears through the eyepiece.



Magnification: _____ 400X _____

Specimen: _____

Discussion Question: (full sentences)

1. Was the image of “e” “right side up” or “upside down”?
2. What happens to the microscope image when you move the microscope slide towards you?
3. What happens to the image when you move the microscope slide away from you?
4. How do you move your eyepiece image to the right?