

Biology – Microscope & Cell Lab

NAME: _____ PERIOD: _____

- First, on your drawing of a microscope, identify the following:
Eyepiece, Body Tube, Arm, Coarse Focus, Fine Focus, Objective Lenses, Base, Light Source, Diaphragm, Stage, Stage Clips
- Next, tell the total magnification of the following combinations of objective lenses and eyepiece powers:

Chart of Total Magnification

Eyepiece Magnification	Objective Lens Power	Total Magnification
10X	4X	
10X	10X	
10X	40X	
20X	20X	
20X	30X	
20X	50X	

- Make a chart similar to the one on the board. Then, use the metric rulers on transparencies. View them under the 4X, 10X, and 40X objective lenses, and draw what you see. What is the Field of Vision for the:

A. **4X Objective:** _____

B. **10X Objective:** _____

C. **40X Objective:** _____

- Next, cut out three letters “e” from the newspaper. Make them small, a little bigger, and Big, but the largest **MUST** be smaller than the circle on the stage. Put a drop of water on the slide and put your letter on the drop of water. View each letter “e” on all three objective lenses. Also, have your ruler on the stage so you can measure through the lenses the Field of Vision of each letter on each power. Draw what you see on your chart and fill in below.

Field of Vision for the letter “e” with different Objective Lenses

	4X Objective	10x Objective	40X Objective
Small “e”			
Bigger “e”			
Big “e”			

5. Onion Cells – Break off a little bit of onion skin as shown by the instructor and put it on your slide. Put a couple drops of iodine on it to “stain” it so that the cells will show up better. Wait a minute for the iodine to soak into the cells. View the onion cells under all three magnifications, measuring the Field of Vision of ONE onion cell each time. Make another chart similar to the one in #3 above to draw the onion and the following items. Record your measurement for Field of Vision below.
6. Select two Bacteria slides of your own choice and view them on all three objectives, draw them, and record Field of Vision for 1 cell.
7. Select 1 Protista slide of your own choice and view it on all three objectives, draw it and record Field of Vision for one cell.
8. Take one leaf of Elodia (Anachrus), put it on your slide, dampen it with one or two drops of water, view it on all three objectives, draw it, and record Field of Vision for one cell.
9. Find at least 2 ordinary things of your own that may be made of cells and view them under all three objectives. Record what you looked at under the “Elodia Cells”. Draw them and record Field of Vision for them.
10. When done, return your ruler and slide, wrap the cord around your microscope and put it back on the cart, and put back anything else you may have borrowed and used.

Field of Vision for Different Types of Cells

	4X Objective	10X Objective	40X Objective
Onion Cells			
Bacteria #1 Cells			
Bacteria #2 Cells			
Protista Cells			
Elodia Cells			

Answer the following questions on a separate piece of paper and turn in with this:

1. How did Onion Cells differ from the two Bacteria Cells?
2. How did Onion Cells differ from the Elodia Cells?
3. How did Protista cells differ from the Onion and Elodia Cells?
4. How did your things differ from the Elodia Cells? Why?
5. What major difference exists between Animal Cells and Plant Cells? Could you see this under the microscope?