Sci 9 Microscope Lab Name:

**Part A: Determine the Field of View (FOV)**

1. Place a see-through ruler on the stage and focus on the ruler at *low power*. Draw what you see:
2. Record the length of the ruler you can see at low power (across the diameter of the circle): \_\_\_\_\_\_\_\_\_\_\_\_. This is called the Field of View (FOV).
3. Now try measuring the field of view under medium power. Draw what you see in the next circle.

Field of View under medium power: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part B: Determine Size using Field of View**

1. You can use the field of view to determine the *approximate size* of an object you are viewing.

For example, if the field of view at low power is 4.2 mm, and the object takes up *half* the field of view at low power (2 could fit across the diameter), its approximate size would be 2.1 mm (half of the FOV)

Or stated mathematically: $approximate size=(\frac{field of view}{\# of times the object fits across})$

 For example, if you see the face below at low power (field of view = 4.2 mm):

 You would approximate that 3 could fit across, like so:

So the size of one smiley face would be:

 $approximate size=\left(\frac{field of view}{\# of times the object fits across}\right)=\left(\frac{4.2 mm}{3}\right)=1.4 mm$

1. Select two different prepared slides, one plant and one animal, draw what you see under low or medium power. Label cell wall, cell membrane, nucleus and any other structures you recognize.

Specimen: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Specimen:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Magnification: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Magnification:\_\_\_\_\_\_\_\_\_\_\_

1. E*stimate the size of the specimen* using the FOV’s you found in Part A.

 Approximate Size = (FOV/ number of times object fits across FOV)

 Remember, FOV will depend on the magnification you used.

 Approximate Size of plant cell: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Approximate Size of animal cell:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part C Questions:**

1. When using a microscope, why must we start with the lowest objective first?
2. What similarities did you notice between the plant and animal cells in terms of structures you observed?
3. Compare plant and animal cells in terms of shape that you saw under the microscope.
4. Compare plant and animal cells in terms of that you saw under the microscope.
5. Observe other groups drawings of plant and animal cells? Are they the same? What could account for some differences?