

Name: _____

Date: _____

Microscope Skills

- To properly use a microscope, one must acquire the proper skills. These skills include:

A) Handling the scope:

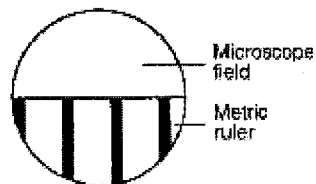
- Always use two hands when carrying a scope; one hand holding the arm the other under the base.
- Remove dust cover and clean lenses but only with proper lens paper so that they do not get scratched.
- Slides and other parts of the scope can be cleaned with paper towel.
- After using the scope, the slide should be taken off the stage, light turned off, cord unplugged and wrapped, and dust cover put back on. Then return to proper storage place.

B) Proper Focusing:

- Always rotate revolving nose piece to a position so that a clean slide can easily slide into the appropriate place on the stage. The specimen well should be aligned with the light coming through the stage window.
 - Then move the low power (4X) objective lens into place, it should align with the light coming through the stage window and with the specimen well on the slide.
 - Start with medium-high light intensity from below (adjust the condenser diaphragm if necessary).
 - Using the Coarse Focus knob slowly turn it up then down until you pick up a glimpse of your specimen.
 - Try to bring it into the best focus possible using just the Coarse Focus knob.
 - It is at this time, and only at this time that you may want to gently move the specimen around, so as to align one cell/part so that it is in the center of the field of view.
 - Then dial it in to perfect focus with the fine focus.
- To go to a higher power, rotate the 4X objective out of the way, and rotate the 10X objective into position. Then using only the fine focus, try to bring it into perfect focus.
- Continue on with the high-powered 40X objective.

C) Measuring the field of view.

- The field of view is a measure across the diameter of the circle that is seen when looking through the ocular lens of a microscope.

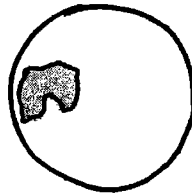


- One must know the field of view to be able to estimate the size of a specimen.
- Recall that 1 meter = 100 cm, or 1000 mm.
- A single mm can be divided into even smaller units of measures called micrometers (μm). One millimeter (1mm) = 1000 μm

- The field of views for a light microscope, are measured in micrometers.
- For example if viewing a ruler under low power and you could see that a distance of 8 mm runs across the diameter of the low power field of view, then one would say that the field of view equals 8000 μm .
- When you go to a higher power, you zoom in on a smaller part of what you were looking at. Perhaps on medium power you can only see 3.5 mm, so the field of view would be 3,500 μm .

D) Estimating the size of a specimen.

- If you are viewing a specimen and you know the field of view, you can easily estimate the size of the specimen.



For Example. If this specimen was viewed under high power and the field of view was 2000 μm , we would see that about two and a half specimens fit across the field of view.

$$\text{Therefore : Estimated Size of Specimen} = \frac{\text{Field of View}}{\# \text{ of specimens that Fit across field}}$$

$$\text{Therefore the cell is } \frac{2000 \mu\text{m}}{2.5 \text{ specimens}} = 800 \mu\text{m long}$$

E) Proper drawing technique and calculating drawing magnification:

Drawings: if the lab has drawings to be included these are to be done on plain white paper and must be done using the following format. There is no excuse for sloppy work. . . You do not need to be an artist to do an appropriate drawing!

- Please use a pencil for all drawing and labeling
- All labeling of the diagram is to be done to the right of the drawing outside the circle.
- The drawing must have a title above the circle
- If asked for magnification calculations, these must appear to the left of the drawing.

Human cheek cell

