**Goals:**

* To become efficient in the use and application of the compound light microscope
* To prepare a wet mount slide, and stain both plant and animal cells
* To differentiate between the basic structure of plant and animal cells

**Supplies:**

* Compound light microscope
* Pipette
* Lettuce
* Human epithelial cells
* Slides
* Slide covers
* Methylene blue stain
* Lugol’s solution (I2KI) – (Iodine solution)

**Directions:**

* Design a procedure to analyze and draw lettuce and human epithelial cells

**Background:**

* [Intro to slide preparation](http://www.microscopemaster.com/microscope-slides.html), [introduction to microscopy](http://www.microbehunter.com/the-beginners-guide-to-microscopy/), [preparing slides](http://www.scienceprofonline.com/cell-biology/how-to-prepare-wet-mount-slide-eukaryotic-cells.html)

**Data:**

* The write up for this lab will include your answers to the probing questions, the procedure that you have designed using the background information provided to you along with drawings of what you discovered under the microscope! In IB Biology there are specific instructions on how to make biological drawings as follows: (note: you may find it necessary to take a photo through the objective lens with your phone so you can finish your drawings outside of class)
  + Use only pencil to draw
  + Use colored pencils for color (as needed)
  + Each diagram should be ½ page
  + Write the name of the cell type and the magnification in which you viewed it

**Probing Questions:**

1. Hypothesize why it is necessary to stain the plant and animal cells as opposed to just putting them under the microscope as is.
2. Consider the paradigm that the developers of the cell theory were in, and identify some of the first thoughts one might come to when first analyzing human epithelial cells.
3. Through completion of this lab activity evaluate the relationship between field of view and magnification with the compound light microscope?
4. Had you used an electron microscope for today’s lab formulate some ideas on the different structures you might have seen.