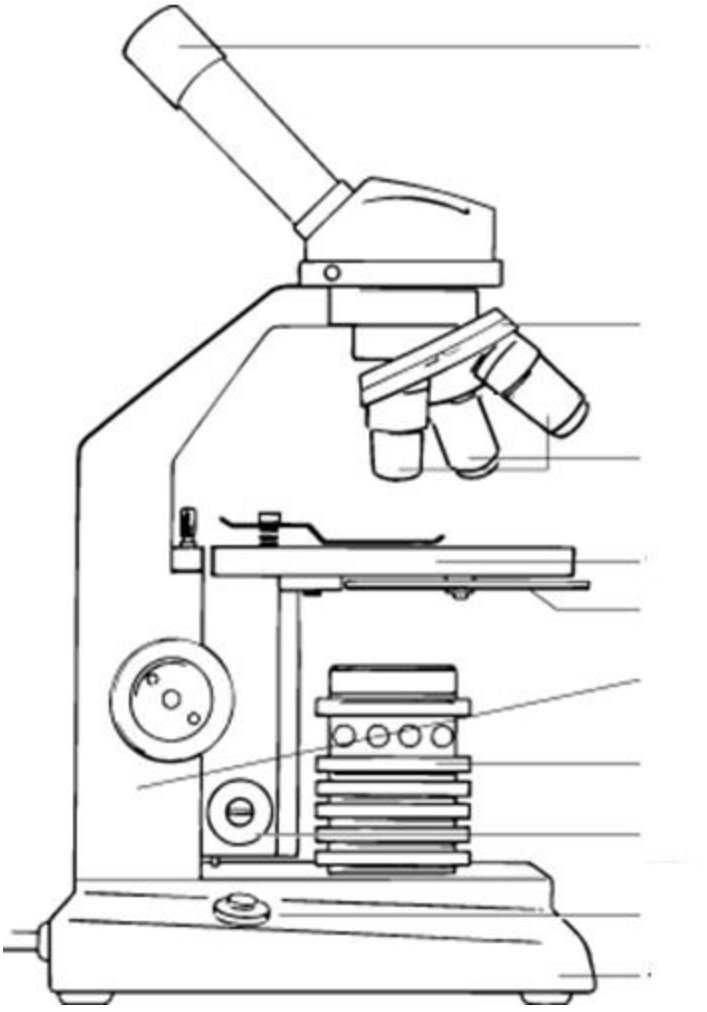
Introduction to the Microscope Lab Activity

Part I: Microscope Parts

1. Condenser – The light rays are concentrated on the object to be observed by the condenser
2. Ocular – 10X
3. Objective – 4X scanning
   10X low power
   40X high dry power
   100X oil immersion
4. Light switch
5. Stage – holds the specimen
6. Iris diaphragm – controls the amount of light reaching the object through the condenser
7. Coarse adjustment/Fine adjustment
8. Arm and Base – how you carry the microscope



Part II: Total Magnification.

Eyepiece magnification _____	(X)	Objective magnification _____	=	Total Magnification _____X

Analysis

1. What is the total magnification when observing a specimen under the immersion oil objective?
2. What is the total magnification when observing a specimen under the high dry objective?
3. What is the total magnification when observing a specimen under the scanning objective?
4. What is the total magnification when observing a specimen under the low objective?

Part III: Preparing a wet mount of the letter "e".

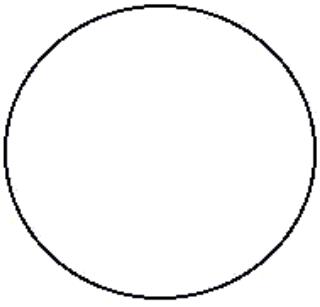
1. Obtain a prepared 'e' slide.

2. Focus the slide first with the scanning objective, then click to lower power and focus again.

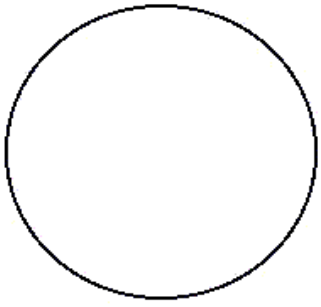
3. Finally, focus the slide under high power. Remember, at high power, you should ONLY use the fine adjustment knob.

4. Draw the 'e' exactly as it appears in your viewing field for each magnification. The circles below represent your viewing field. The 'e' should take up as much space in the drawing as it does in your viewing field while you're looking at it.

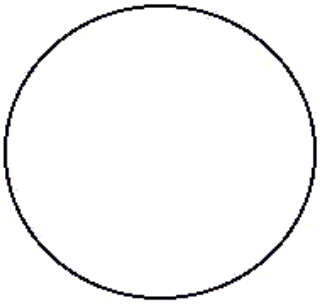
Scanning



Low Power



High Dry Power



Analysis:

1. How does the letter "e" as seen through the microscope differ from the way an "e" normally appears?

2. When you move the slide to the left, in what direction does the letter "e" appear to move? When you move it to the right? Up? Down?

3. How does the ink appear under the microscope compared to normal view?

4. Why does a specimen placed under the microscope have to be thin?

Part IV: Cheek Cell Wet Mount

1. Place a small drop of methylene blue onto a clean slide.

2. Using a toothpick, gently scrape the inside of you cheek.

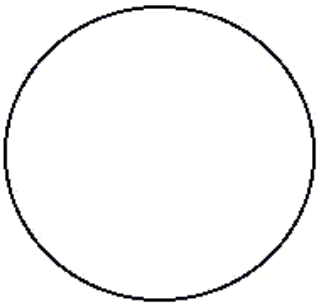
3. Place the toothpick tip into the dye and mix. The methylene blue stains the cells so you can see them.

4. Place a cover slip over you specimen. Make sure there are no air bubbles. Use a paper towel to get rid of excess dye.

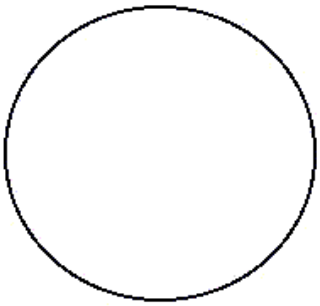
5. Place the slide under scanning (4x). Draw what you see.

6. Switch to low power (10x). Draw 2 or 3 cells. Label the nucleus, cell membrane, and cytoplasm.

Scanning



Low Power



Analysis:

1. Why did we add iodine to our cheek cells?

2. What structure in the cheek cell was stained the darkest?

3. Is your cheek cell an animal cell?

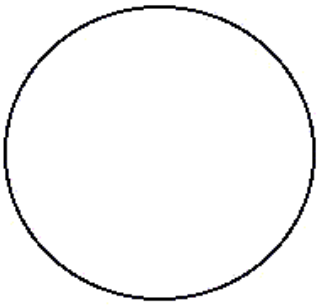
Part V: Elodea Leaf Wet Mount

1. Place a drop of water on a clean slide.

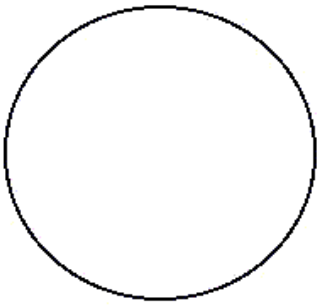
2. Place an Elodea leaf in the drop of water, place a cover slip on top.

3. Observe under scanning first (4x), then under low power (10x) Draw and label the following organelles: nucleus, cytoplasm, cell wall, chloroplasts, and vacuole.

Scanning



Low Power



Analysis:

1. Was anything happening in your cell?

2. What structures were in the plant and animal cell?

3. What structures were only in the Elodea cell?

Part VI: Onion Wet Mount

1. Take a small piece of onion and peel off the membrane from the underside.

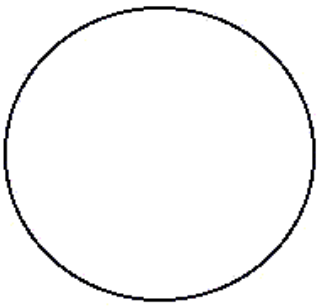
2. Lay the membrane flat on the surface of a clean glass slide, add a drop of iodine to stain the cells.

3. Lower a clover slip onto the slide. Make sure there are no air bubbles. Use a paper towel to get rid of excess dye.

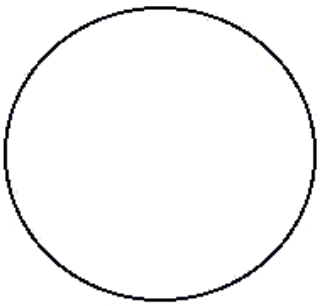
4. Place the slide under scanning power (4x). Draw what you see.

5. Switch to low power (10x). Draw 2 or 3 cells. Label the nucleus, cell membrane, vacuole, and cytoplasm.

Scanning



Low Power



YOU MUST CLEAN UP! ALL SLIDES ARE CLEANED AND PUT AWAY

Conclusion Questions:

1. State 2 procedures which should be used to properly handle a light microscope.
2. Images observed under the light microscope are reversed and inverted. Explain what this means.
3. Explain why the specimen must be centered in the field of view on low power before going to high power.
4. In three steps using complete sentences, describe how to make a proper wet mount of the letter e.
5. Describe the changes in the field of view and the amount of available light when going from low to high power using the compound microscope.
6. Explain what the microscope user may have to do to combat the problems incurred in question 5.
7. How does the procedure for using the microscope differ under high power as opposed to low power?