**Handling the Microscope**

1. Clean lenses as needed using \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ONLY ( not Kleenex or your clothing!). Other tissues will \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the lens.
2. Carry the microscope with \_\_\_\_\_\_\_\_\_\_\_\_ hands at all times. One hand under the \_\_\_\_\_\_\_\_\_\_\_ and the other holding the \_\_\_\_\_\_\_\_\_\_\_\_\_. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ should be secured so that is not hanging down or dragging on the floor.
3. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ power objective should be in place when the microscope is taken out AND when it is put away.

**Preparing slides**

To prepare a wet mount slide:

1. Place a drop of \_\_\_\_\_\_\_\_\_ on a clean, new slide.
2. Place a small and/or thin piece of specimen in the water.
3. Place a clean, new \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ over the water and press carefully to get rid of any air bubbles. Be careful not to leave fingerprints or smudges!

**Viewing & Focusing slides**

1. Place the slide you wish to view on the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ using the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_to keep it in one place. Try to place the spot where the specimen is directly over the light opening, and under the low power objective.
2. To focus on the specimen:
   1. Always begin with the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ power objective (smallest and shortest) as it will let you see the widest area (so you can find the specimen more easily).
   2. To avoid breaking the slide, always watch from the side as you move the lowest power lens as close to the slide as you can using the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ adjustment knob (the larger knob).
   3. Look through the \_\_\_\_\_\_\_\_\_\_\_\_\_ and slightly move the slide to try to locate your specimen (it will likely be pretty blurry at this point).
   4. Once you have found your specimen, clear up the focus by turning the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ adjustment knob (the smaller knob).
   5. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ regulates the amount of light that can pass through a slide. Too little light and too much light make it hard to see a specimen. Adjust this for greater contrast between dark and light.
   6. If you wish to view under a higher magnification, **first** \_\_\_\_\_\_\_\_\_\_\_\_ your specimen so that it will be easier to find at a higher power of magnification. **Next**, \_\_\_\_\_\_\_\_\_ the stage using the coarse adjustment knob, and **then** switch the objective to medium or high. Try not to move the slide or it will be very difficult to locate your specimen.

**Determining Total Magnification (the Math!)**

Total magnification = eye piece lens power x objective lens power

\*\*you need to know the total magnification because you will need to write it beside all drawings & observations!!\*\*

Example: *Eye piece = 5x , low power objective = 10x*  *5 x 10* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ X total magnification

Example 2: *Eyepiece = 5x, high power objective = 30x* *5 x 30* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ X total magnification

**Lab 1: Exploring the Compound Microscope**

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Purpose:** To practice proper handling techniques and using microscopes to observe specimens in the lab

**Hypothesis:** We will effectively use microscopes to look at slides, and prepare our own slides to observe. By the end of this lab, we will know the names of the parts of a microscope, and how to use a microscope properly.

**Materials:** (per group)

**Procedure:**

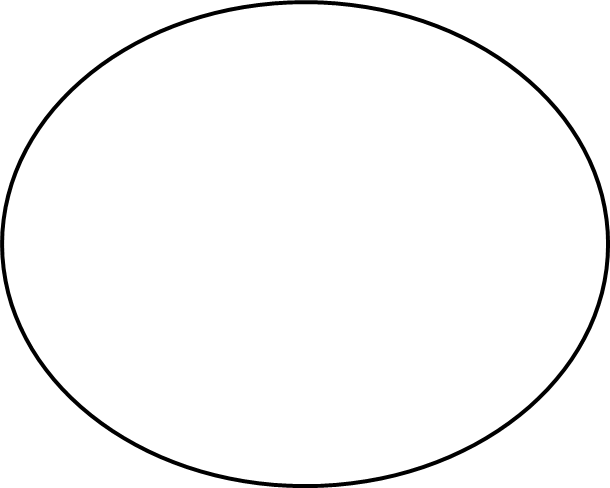
1. Using 2 hands, carry the microscope from the counter to your lab group’s table. A different person can obtain a slide from the teacher.
2. Turn on the microscope (plug it in) and adjust the diaphragm so the light is the brightest it can be.
3. Follow the steps in your notes for viewing & focusing a slide. Make sure that each group member gets a chance to try this.
4. Sketch / Draw a picture of what you saw (in the observations section). Make sure you **label the picture with the name of the slide, and show all work to find the total magnification**!
5. Repeat steps 3&4 with a new slide from the teacher.
6. Make a wet mount slide of a human hair using the steps in your notes. Follow steps 3&4.
7. Answer the questions on the last page in your lab notebook.

Observations:

Name of Slide 1:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Total Magnification:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of slide 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Total magnification: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of slide 3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_’s hair Total Magnification: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Results (answer questions in lab scribbler): (10 marks)**

1. Describe the proper way to carry a microscope. Be specific. (2 marks)
2. Why is too much or too little light a bad thing? How can you adjust the light coming through the specimen? (2 marks)
3. How do you calculate the total magnification of a specimen? Provide an example. (2 marks)
4. How do you prepare a wet mount slide? List the steps. (2 marks)
5. What part of this lab did you find the most difficult? Why? (1 mark)

You will receive a mark for the following skills you exhibited in the lab as well, based on teacher observations:

* 1. Proper handling of the microscope. /2
  2. Following directions. /2
  3. Responsible use of the lab equipment and time in the lab. /3
  4. Works effectively in a group. /3

Total /10 marks