
Microbiologist: _____

Microscope #: _____

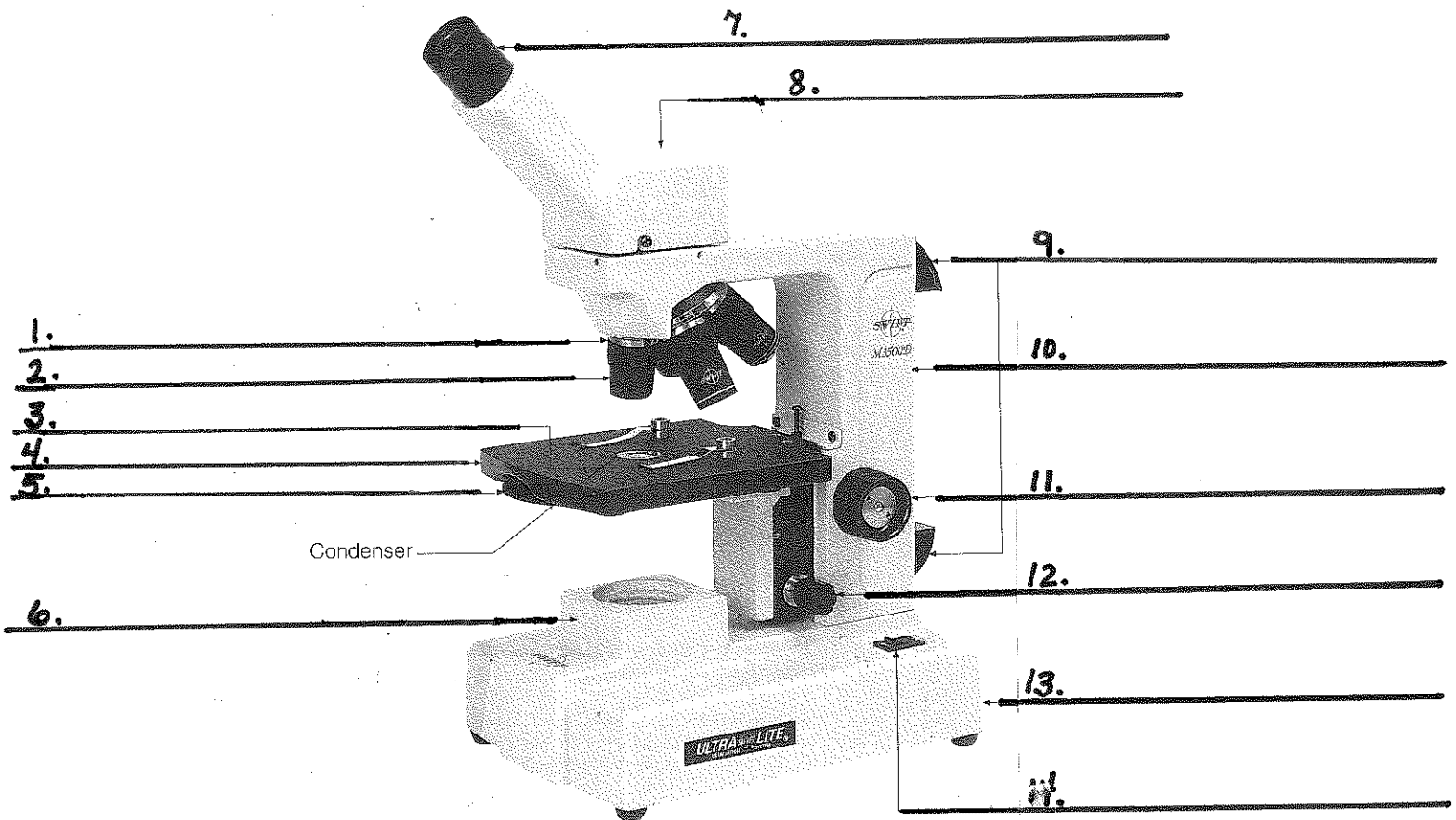
Date: _____ HR: _____

Activity: Using our Microscopes

First of all, since one microscope costs around \$800, let's make every attempt to learn how to use and care for it properly. Always be respectful of school equipment. We are fortunate to have these microscopes in our classroom.

I. The Parts of the Microscope

Directions: Please fill in the parts of the microscope on the diagram below.

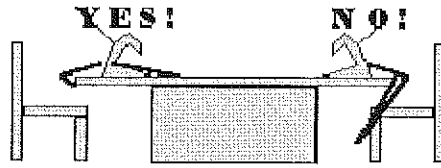


1. _____ : rotating device that holds the objectives (lenses)
2. _____ : magnifies the specimen
3. _____ : metal clips that hold the slide securely on the stage
4. _____ : platform where the slide or specimen is placed
5. _____ : controls amount of light onto the stage
6. _____ : directs illumination upward toward the slide
7. _____ : where you place one eye to view specimen
8. _____ : provides a rotating view of specimen
9. _____ : used to store the electrical cord, which can be wound around these two devices
10. _____ : side portion of the microscope that one hand should always be on during transportation; attached to base, head, and stage
11. _____ : large knob that makes big adjustments to focus specimen
12. _____ : little knob that sharpens the view of your specimen
13. _____ : bottom portion of the microscope; one hand should always be on this when transporting microscope
14. _____ : turns the electrical switch on and off

II. GENERAL PROCEDURES:

1. Make sure all belongings (books, folders, etc.) are out of the aisles before you get a microscope! Always carry the microscope with one hand on the Arm and one hand on the Base. Carry it close to your body.

2. Remove the cover, plug in the microscope, and place the excess cord **on the table!** If you let the excess cord dangle over the edge, your knee could get caught on it, and the next sound you hear will be a **very expensive crash.** (This is NOT your teachers favorite noise to hear.)



3. Always start and end with **Wide Angle, 40x (RED lettering)!**

4. Place the slide on the microscope stage, with the specimen directly over the **center** of the glass circle on the stage (directly over the light). Then you have a better chance of finding the specimen **as soon as you look through the eyepiece!**

NOTE: If you wear **glasses**, take them **off**; if you see only your **eyelashes**, move **closer**. Be sure to **close**, or **cover**, your **other eye!!**

NOTE: If you see a **dark line** that goes *part way* across the *field of view*, try turning the eyepiece. That dark line is a pointer that will be **very valuable** when you want to *point out* something to your *lab partner*, or your *teacher*.

5. If, **and ONLY if**, you are on the **Wide Angle (40x – RED lettering)**, lower the objective lens to the lowest point, then focus using first the coarse knob, then the fine focus knob. The specimen will be in focus when the Wide Angle (40x) objective is close to the *lowest point*, so start there and focus by *slowly* raising the lens. If you can't get it at all into focus using the coarse knob, then switch to the fine focus knob.

6. Adjust the **Diaphragm** as you look through the **Eyepiece**, and you will see that **MORE** detail is visible when you allow in **LESS** light! **Too much** light will give the specimen a **washed-out** appearance. **TRY IT OUT!!**

7. Once you have found the specimen on Wide Angle (40x), center the specimen in your field of view. Then, switch it to **Low Power (100x – YELLOW Lettering)**. If you don't center the specimen, it will not be in your field of view when you switch to a higher power.

8. After experiencing success with low power, switch your objective to **High Power (400x – BLUE Lettering)**. Remember that you **only use the fine focus knob when you use High Power (400x)!** **“Caution, use only the fine focus knob.”** **“Caution, do not remove the slide when it is on High Power.”** -- The High Power Objective (400x) is **very close** to the slide. Use of the coarse focus knob will **scratch** the lens, and **crack** the slide. *More expensive sounds . . .*

III. Tips On Making Good Drawings:

1. Don't even think of starting your drawing unless you have a **PENCIL!** Drawings in **PEN** are **UNACCEPTABLE!** This is for two reasons:

- (a) You can erase pencil!
- (b) You can shade in areas more easily in pencil.

2. **Please label your drawings!** Drawings should include the specimen you are viewing and the magnification (40x, 100x, or 400x) you are using to view them.

3. Labels should start on the **outside of the circle**. The circle indicates the field of view as seen through the eyepiece. All lines should end with the point touching the object that you are labeling! _____

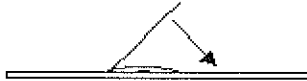
IV. How To Make A Wet Mount:

1. Gather a thin slice/piece of whatever your specimen is. If your specimen is too thick, then the coverslip will wobble on top of the sample like a see-saw:

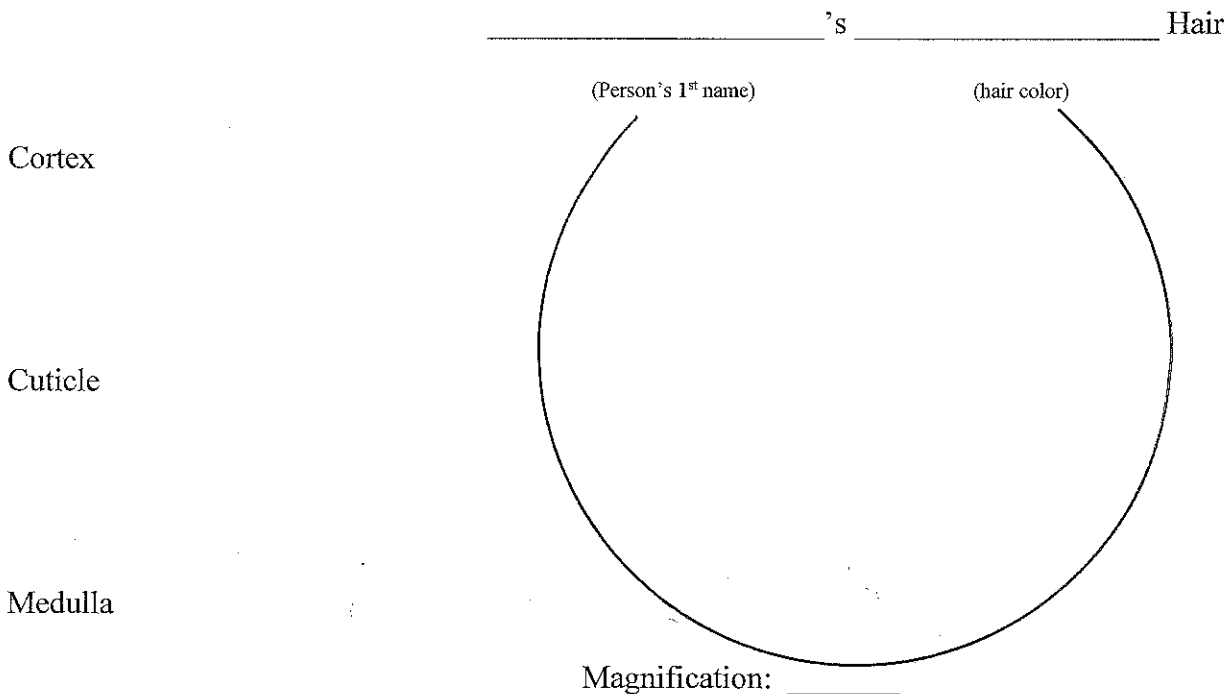


2. Place ONE drop of water directly over the specimen. If you put too much water over the specimen, then the coverslip will float on top of the water, making it harder to draw the specimens as they float past the field of view!

3. Place the coverslip at a 45 degree angle (approximately), with one edge touching the water drop, and let go.



4. Draw your specimen. In our case, we are viewing a piece of hair from:



5. When you have completed your drawings, be sure to wash and dry both the slide and the coverslip. Remember to return them to their correct places!

6. You will NOT be dismissed until all materials are in their proper places! **REMEMBER: Be careful with the equipment, and be sure to leave the lab in the same (or even BETTER) condition it was in when you arrived.**