



Introduction

"Micro" refers to **tiny**, "scope" refers to **view or look** at. Microscopes are tools used to enlarge images of small objects so as they can be studied. The compound light microscope is an instrument containing **two lenses**, which magnifies, and a variety of **knobs to resolve (focus)** the picture. Because it uses more than one lens, it is sometimes called the compound microscope in addition to being referred to as being a light microscope. In this lab, we will learn about the proper use and handling of the microscope.

Instructional Objectives

- Demonstrate the proper procedures used in correctly using the compound light microscope.
- Prepare and use a wet mount.
- Determine the total magnification of the microscope.
- Explain how to properly handle the microscope.
- Describe changes in the field of view and available light when going from low to high power using the compound light microscope
- Explain why objects must be centered in the field of view before going from low to high power using the compound light microscope.
- Explain how to increase the amount of light when going from low to high power using the compound light microscope.
- Explain the proper procedure for focusing under low and high power using the compound light microscope.

Materials

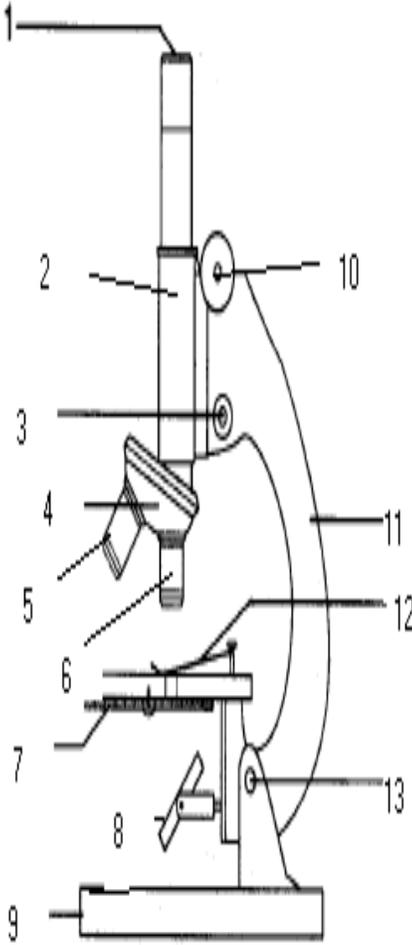
- Compound microscope
- Glass slides
- Cover slips
- Eye dropper
- Beaker of water
- The letter "e" cut from newsprint
- Scissors

Procedures

I. Microscope Handling

1. **Carry the microscope with both hands** --- one on the arm and the other under the base of the microscope.
2. One person from each group will now go over to the microscope storage area and properly **transport one microscope to your working area.**
3. The other person in the group will **pick up a pair of scissors, newsprint, a slide, and a cover slip.**

4. Examine the microscope and give the function of each of the parts listed on the right side of the diagram.

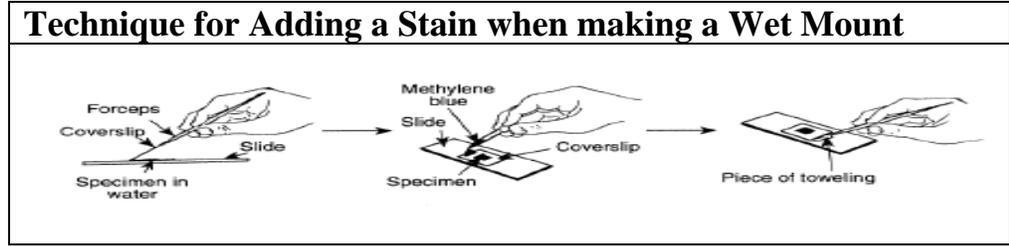
XXXXXXXXXXXXXXXXXXXX	Name of Part	Function of Part
	1. _____	1. _____
	2. _____	2. _____
	3. _____	3. _____
	4. _____	4. _____
	5. _____	5. _____
	6. _____	6. _____
	7. _____	7. _____
	8. _____	8. _____
	9. _____	9. _____
	10. _____	10. _____
	11. _____	11. _____
	12. _____	12. _____
	13. _____	13. _____

Part II. Preparing a wet mount of the letter "e".

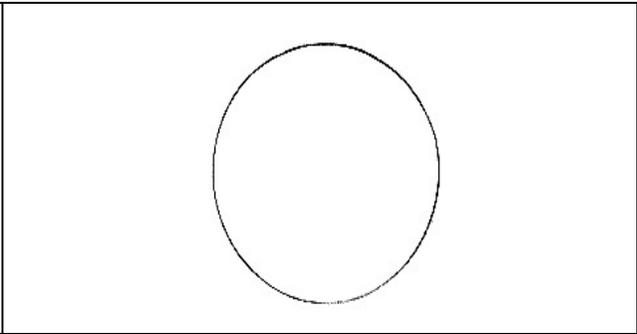
1. With your scissors cut out the letter "e" from the newspaper.
2. Place it on the **glass slide** so as to look like (e).
3. **Cover it with a clean cover slip.** See the figure below.



4. **Using your eyedropper, place a drop of water on the edge of the cover slip** where it touches the glass slide. The water should be sucked under the slide if done properly.



5. **Turn on the microscope and place the slide on the stage; making sure the "e" is facing the normal reading position** (see the figure above). Using the coarse focus and low power, move the body tube down until the "e" can be seen clearly. **Draw what you see** in the space at the right.

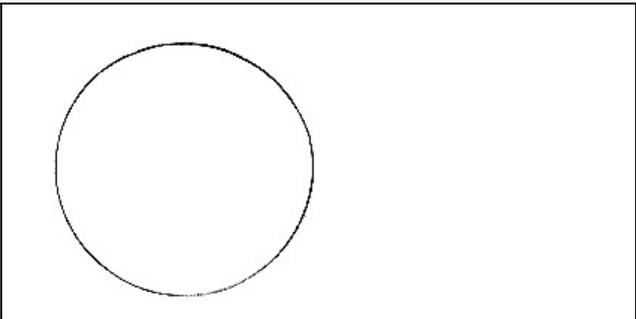


6. Describe how the image viewed on the stage compares with that viewed through the eyepiece..

7. Looking through the eyepiece, move the slide to the upper right area of the stage. **What direction does the image move?**

8. Now, move it to the lower left side of the stage. **What direction does the image move?**

9. Re-center the letter e in the field of view and change from the low power to the high power objective. You will notice the "e" is out of focus. **Do Not** touch the coarse focus knob, instead use the fine focus to resolve the picture. Draw the image you see of the letter e (or part of it) on high power in the space at the right.



10. **Locate the diaphragm under the stage.** Move it and record the changes in light intensity as you do so.

III. Determining Total Magnification:

1. Locate the numbers on the eyepiece and the low power objective and fill in the blanks below.

Eyepiece magnification _____	(X)	Objective magnification _____	=	Total Magnification _____X
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2. Do the same for the high power objective.

Eyepiece magnification _____	(X)	Objective magnification _____	=	Total Magnification _____X
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3. Write out the **rule for determining total magnification of a compound microscope.**
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4. **Remove the slide and clean it up.** Turn off the microscope and wind up the wire so it resembles its original position. Place the low power objective in place and lower the body tube. Cover the scope with the dust cover. Place the scope back in its original space in the cabinet.

Conclusion Questions: On separate loose leaf paper

1. State 2 procedures which should be used to properly handle a light microscope.
2. Explain why the light microscope is also called the compound microscope.
3. Images observed under the light microscope are reversed and inverted. Explain!!
4. Explain why the specimen must be centered in the field of view on low power before going to high power.
5. A microscope has a 20 X ocular (eyepiece) and two objectives of 10 X and 43 X respectively:
 - a.) Calculate the low power magnification of this microscope. Show your formula and all work.
 - b.) Calculate the high power magnification of this microscope. Show your formula and all work.
6. In three steps using complete sentences, describe how to make a proper wet mount of the letter e.
7. 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.
8. Explain what the microscope user may have to do to combat the problems incurred in question # 7.
9. How does the procedure for using the microscope differ under high power as opposed to low power?