

Name: _____ Date Completed: _____

Block: _____

Instructions: Tape this lab into your lab notebook. Be sure to include each appropriate section in your notebook. Record the answers to your conclusion questions in your lab notebook.

Introduction to the Microscope Lab Activity

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.
- Observe a prepared slide.
- 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.

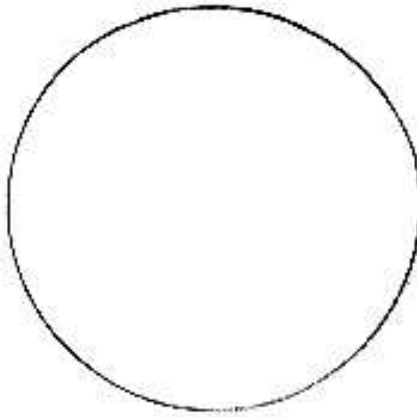
Materials

- Compound microscope
- Prepared Glass slides

Procedure

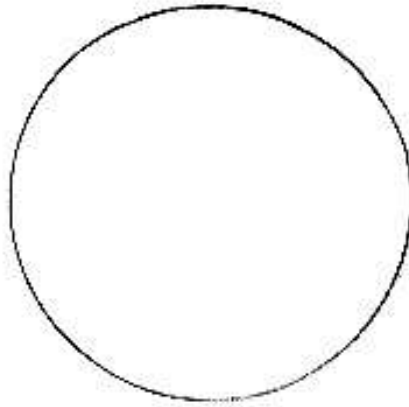
Part I. Observing a prepared slide.

1. Choose a prepared slide and place it on the microscope stage.
4. **Turn on the microscope and make sure the microscope is on the low objective.** Using the course focus and low power, move the body tube down until the specimen on the prepared slide can be seen clearly. **Draw what you see** in the space below.



6. Describe the relationship between what you see through the eyepiece and what you see on the stage.
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 slide and change the scope to high power. You will notice the prepared slide 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 prepared slide on high power.



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 _____
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2. Do the same for the high power objective.

Eyepiece magnification _____	X	Objective magnification _____	=	Total Magnification _____
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3. Write out the rule for determining total magnification of a compound microscope:

4. **Remove the slide.** 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.

Conclusion Questions:

1. State TWO procedures that 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 what this means.
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. 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.
7. Explain what the microscope user may have to do to combat the problems incurred in question # 7.
8. How does the procedure for using the microscope differ under high power as opposed to low power?