

Name _____ Date _____

"e" Lab:
Learning to Use a Microscope

INTRODUCTION: "Micro" means tiny and "scope" means to view or look out. So, microscope literally means tiny view. Microscopes are tools used to enlarge images of small objects so they can be studied. Microscopes range from a simple magnifying glass to very expensive electron microscopes. The compound light microscope is the most common instrument used in education today. It is an instrument containing two lenses, which magnify, and a variety of knobs to focus) the picture. It is a rather simple piece of equipment to understand and use. In this lab, we are going to learn the proper use and handling of the microscope.

OBJECTIVES:

1. Demonstrate proper use of a compound light microscope.
2. Prepare and use a wet mount slide.
3. Determine the total magnification of the microscope.
4. Develop a checklist to insure the proper handling of a microscope.

MATERIALS:

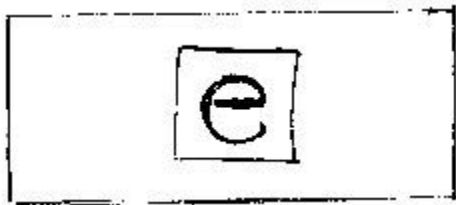
Compound Microscope	Glass Slides	fabric
Cover Slips	Eye dropper	Yuan
Beaker of water	Newsprint "e"	Forceps
Scissors	Magazine Clippings	Fabric

PROCEDURES:

1. Unwind the microscope cord plug it in.
2. Turn on your microscope.

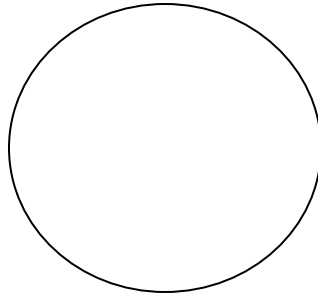
Preparing the wet mount of the letter "e":

1. With your scissors, cut out the letter "e" from the newsprint.
2. Place it on the glass slide.
3. Cover the "e" 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. Make sure the "e" is facing the normal reading position. Using the COURSE adjustment knob and LOW objective, move the body tube down until the "e" 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. **Offer an explanation on why this happened.**
8. Looking through the eyepiece, move the slide to the upper right area of the stage. **What direction does the image move?**
9. Now, move the slide to the lower left side of the stage. **What direction does the image move?**
10. Re-center the slide and change the scope to HIGH power. You will notice the "e" is out of focus. DO NOT touch the coarse focus knob; instead use the FINE focus knob to focus the picture.
11. Locate the diaphragm under the stage. Move it and **record the changes in light intensity as you do so.**

Determining Total Magnification:

12. Locate the numbers inscribed on the eyepiece and LOW power objective and fill in the blanks below.

Eyepiece Magnification _____	(X)	Objective Magnification _____	=	Total Magnification _____ X
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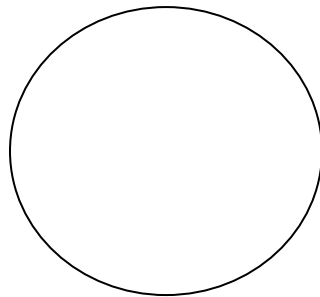
13. Locate the numbers inscribed on the eyepiece and HIGH power objective and fill in the blanks below.

Eyepiece Magnification _____	(X)	Objective Magnification _____	=	Total Magnification _____X
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14. Write an equation that shows how to find total magnification of a compound microscope.

Preparing the wet mount of the magazine print:

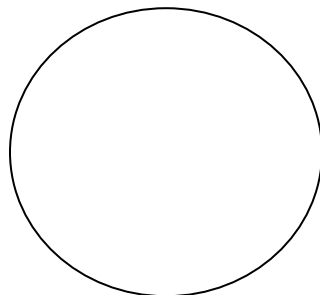
15. With your forceps, get a piece of magazine clippings.
16. Place it on a clean glass slide.
17. Cover the clipping with a clean cover slip.
18. Using your eyedropper, place a drop of water on the edge of the cover slip where it touches the glass slide. The water should be sucked under the slide if done properly.
19. Place the slide on the stage. Using the COURSE adjustment knob and LOW objective, move the body tube down until you can see the clipping clearly. **Draw what you see in the space below & calculate the magnification used.**



Magnification _____X

Preparing the wet mount of a piece of Yuan:

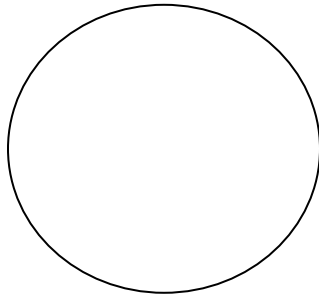
20. With your forceps, get a piece of Yuan.
21. Place it on a clean glass slide.
22. Cover the Yuan with a clean cover slip.
23. Using your eyedropper, place a drop of water on the edge of the cover slip where it touches the glass slide. The water should be sucked under the slide if done properly.
24. Place the slide on the stage. Using the COURSE adjustment knob and LOW objective, move the body tube down until you can see the fabric clearly. **Draw what you see in the space below & calculate the magnification used.**



Magnification _____X

Preparing the wet mount of a piece of fabric:

25. With your forceps, get a piece of fabric.
26. Place it on a clean glass slide.
27. Cover the fabric with a clean cover slip.
28. 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.
29. Place the slide on the stage. Using the *COURSE* adjustment knob and *LOW* objective, move the body tube down until you can see the fabric clearly. **Draw what you see in the space below & calculate the magnification used.**



Magnification _____X

30. **CLEAN UP!** Clean all slides and dry them off. 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.