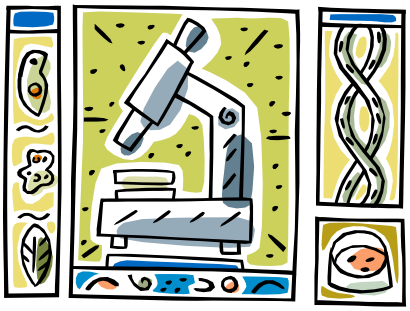
Name_____

Using a Microscope & Microscope Safety



In almost every type of biological research, the microscope is an essential tool. The microscope we will use in class is called a *compound light microscope* and uses light to form enlarged images of specimens. Use the following procedure when operating your microscope. Read the steps and then answer the questions below.

_____1) Carry the microscope safely as shown by your teacher with one hand under the base and one hand on the arm.

_____2) Remove the cover, unwind the cord, and plug in the microscope.

_____3) Make sure the stage is all the way down and set the low power objective lens into place (this is the one marked 4X). Make sure it clicks into place.

_____4) Insert your prepared slide on the stage and fasten the stage clips. Look through the eyepiece.

_____5) Raise the stage with the coarse adjustment knob, and adjust the diaphragm as necessary by rotating the wheel to let in the best amount of light.

_____6) Focus the coarse adjustment knob and rotate the eyepiece pointer so that it points to the clearest specimen.

_____7) When the specimen is in focus, use the fine adjustment knob to focus more finely. STOP! YOU SHOULD NOW BE FOCUSED ON LOW POWER!

_____8) Make sure your specimen is in the CENTER of the viewing field. If you cannot view your specimen, repeat steps 5-8 and make sure your specimen is centered before switching powers.

_____9) Lower the stage slightly, rotate the revolving nosepiece to the medium power objective, raise the stage, and adjust with the fine adjustment knob. Also adjust the eyepiece pointer as needed.

_____10) Lower the stage slightly, rotate the revolving nosepiece to the high power objective, SLOWLY and CAREFULLY raise the stage, and adjust with the fine adjustment knob. Also adjust the eyepiece pointer as needed.

_____11) Use extreme caution when moving the coarse adjustment knob on high power. It could result in cracked slides.

_____12) Complete all the laboratory instructions including your paper work.

____13) Return the microscope to the starting position and place the used slide in the appropriate container.

____14) Unplug the microscope, wrap the cord around the microscope, and place the cover back on the microscope. Leave your station the same way you found it! Clean and free of trash.

Preparing a Wet Mount

Some samples can be placed directly under the microscope. However, many samples look better when placed in a drop of water on the microscope slide. This is known as a "wet mount."

1. Place the sample on the center of the slide.

2. Place a drop of water (or stain) onto the slide.

3. Hold a cover slip at a 45 degree angle to the slide at the edge of the drop (see picture below). Slowly lower the cover slip to avoid forming air bubbles.

- The liquid should just fill the space between the cover slip and the slide.
- If there is too much water and the cover slip is floating around, remove some water by holding the edge of a paper towel next to the edge of the cover slip.
- If there is too little water and some of the space under the cover slip is still dry, add more water by placing a drop right next to the cover slip.

☺ PLEASE KEEP THIS PAPER AS A REFERENCE FOR FUTURE MICROSCOPE USE ☺

Microscope Questions:

1. Where should your hands be when carrying a microscope?

2. Which objective lens do you always start with when observing a specimen?

3. Which focusing knobs can be used with low power?

4. Which focusing knob should be used with the medium- or high-power objective?

5. What structure can be used to make the image brighter?

6. To calculate total magnification one should _____ magnification of the eye piece and the objective lens.

7. This statement is false. Correct it to make it true. When first focusing your microscope you should use the low power objective and the fine adjustment knob.

8. The lens that is within the eyepiece of the light microscope is called the _____.

9. To focus a specimen, it is best to start with which objective?

10. The low (scanning), medium, and high power objectives are mounted on the

11. When preparing a slide, what must you do to prevent the bubbles from becoming trapped under the cover slip

Calculating Magnification

Calculate total magnification by multiplying the power of the objective lens times the power of the eyepiece.

Objective Magnification	Eyepiece Magnification	Total Magnification=
Low Power (scanning) _____4_____	X 10	
Medium Power _____10____	X10	
High Power _____40____	X 10	