Microscope Notes

Parts of the Microscope

- **Coarse adjustment knob**: Focuses the image under low power (usually the bigger knob)
- **Fine adjustment knob**: Sharpens the image under all powers (usually the smaller knob)
- **Arm**: supports the body tube and is used to carry the microscope.
- **Body tube**: connects the eyepiece to the nosepiece (usually moves during focusing)
- **Eyepiece**: the lens you look through (usually at 10X magnification)
- **Nosepiece**: holds all the objectives and it revolves
- **Base**: supports the microscope and used for carrying the microscope.
- **Stage**: used to support the slide
- **Stage clips**: used to hold the slide in place
- **Diaphragm**: Used to regulate the amount of light
- **Light source**: provides light
- **Low power objective**: has the lowest magnification and is the shortest objective
- **Medium power objective**: increases the magnification
- **High power objective**: provides the most magnification and is the longest objective.

Care of the microscope

1. Always carry the microscope with one hand holding the arm and the other supporting the base.
2. Don’t touch the lenses with your fingers
3. Never lower the coarse adjustment knob while looking through the eyepiece.
4. Always focus first with the low-power objective.
5. DON’T use the coarse adjustment knob with medium or high power.
6. ALWAYS leave the microscope with the low power objective in place and the body tube at its highest position.
7. Cover the microscope.

Using the microscope

1. The microscope should be on a level surface (your desk).
2. Make sure the diaphragm is open and plenty of light comes through.
3. FOCUSING
   a. Always start with the low power objective and focus with the coarse adjustment knob.
   b. Once you have found and focused on an item, move the slide so the item is in the center of your field of vision.
   c. Rotate the nosepiece so that the medium objective is clicked into place. Do NOT use the coarse adjustment knob.
   d. Focus on the item using the fine adjustment. Move the slide so the item is in the center of your field of vision.
   e. Rotate the nosepiece until the high power objective is clicked into place. Do NOT use the coarse adjustment knob on high power.
   f. Use the fine adjustment knob to focus.
   g. If you lose the image going from one objective to the next, do NOT adjust the focus. Go back to the previous objective and center the item.

Making a wet mount slide

1. Place the item in the center of the slide.
2. Place 1 drop of water on the item.
3. Get a clean coverslip. Be sure to hold it by the edges.
4. Place 1 edge of the coverslip against 1 side on the water. Begin to lower the coverslip until you are close to the water.
5. Release the coverslip.

Calculating magnification
1. Determine the magnification of the eyepiece and each objective.
2. Multiply the magnification of the eyepiece with the magnification of the objective you are using.

Sharing the microscope
Often in labs you have to share the microscope with up to 3 other people.
Once an item is in focus, do not move the microscope.
Instead, allow the other students to view the item at your desk.

Cleaning the microscope lenses
1. Get a small piece of lens paper
2. Put it on the ocular lens and wipe in a circular motion
3. Put it on the smallest objective lens and wipe in a circular motion
4. Continue until all objective lenses have been cleaned
1. What is the difference between ocular and objective lenses?
2. What part of a microscope helps adjust the brightness of an image?
3. How should a microscope be carried?
4. The ocular and objectives are found at the top and bottom of what part of a microscope?
5. When focusing on low power, which knob is used to get a clear image?
6. Where are slides placed on a microscope?
7. How are slides held in place?
8. The fine adjustment knob is used to focus an image only on what power(s)?
9. The microscope you are coloring and labeling is what type of microscope?
10. What should be done whenever you are finished using a microscope?
11. What is the total magnification if the microscope is on low power (20X)?
12. What would be the magnification, if you were using a 40X objective?