

Subject _____

Name _____

Period _____

Date _____

How to Use/Focus the Microscope

Day 1

Introduction Many students in science want to use the microscope, but become disappointed because they do not get the desired results. This disappointment is largely from not knowing how to properly focus the microscope. Labs will go much better if you learn how to properly focus the microscope.

Follow each instruction only when instructed to do so. Obtain your microscope from the storage area and return to your lab station. Be sure to carry the microscope by using **both hands**, one grasping the neck of the microscope and the other grasping the base of the microscope. Your arms should be close to you sides. Place the microscope on your lab table, then do not touch the microscope until directed. **WAIT** Plug in your microscope and turn the switch to on. Obtain a prepared slide; be sure to handle the slide by its edges as demonstrated by the instructor. Focus the microscope using the low power objective as outlined in your guide.

1. Turn the low objective down, and then using the coarse adjustment, turn the stage to its lowest position.
2. Place the slide on the stage. Never place a specimen-directly on the stage.
3. Using the **nosepiece**, turn the **low power** objective into place.
4. Looking through the eyepiece, turn the stage up slowly until the specimen comes into focus. Use the coarse adjustment. Teacher Initials _____
5. You may need to use higher power objective. In this case, follow the next steps.
6. Be sure the low power objective is in focus. Use the **nosepiece** to turn the **middle power** objective into place.
7. Use the **fine adjustment** to get a clear image. **Do not use the coarse adjustment!** Teacher Initials _____
8. Use the **nosepiece** to turn the **high power** objective 'into place.
9. Use the **fine adjustment** to get a clear image. **Do not use the coarse adjustment!** Teacher Initials _____

Three Basic Principles to Follow (Know these steps for the quiz.)

1. The key ideas in focusing the microscope is to start with the low power objective and work up the high power objective. **The high power objective can crack the slide!**
2. **Always** use the nosepiece to turn the objective.
3. If you should lose the focus with the middle or high power objective you **must** start over again with the low power objective.

How to Store the Microscope

1. Turn the microscope switch to off.
2. Turn the low power objective into place.
3. Place the stage at its lowest place.
4. Take the slide off the stage, and put in the proper place.
5. Unplug the cord by grasping the head of the cord, not the cord itself
6. Wrap the cord around the base.

Day 2

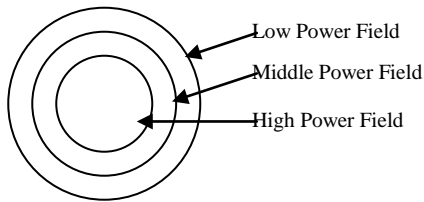
Do steps 1-9 from previous day. Once you show the teacher your slide clearly focused on high power, have teacher initial here _____, and then you may continue with the following questions.

(Know these six questions for the quiz.)

Use the word bank to answer the following questions. Four of the words will NOT be used.

Left Up Pointer
Right Opposite Brighter
Down Same Dimmer

1. Look through the microscope. Some microscopes have a needle or a spike-like structure called a _____. It is used to locate an exact place on the specimen.
2. Now use your thumb to move the slide, while looking through the eyepiece, move the slide to the left. It appears to move to the _____. While still looking through the eyepiece move the slide up. It appears to move _____. Therefore, we can conclude that while looking through the eyepiece, the slide always appears to move in the _____ direction.
3. Place the diaphragm setting on the #1. Observe the amount of light coming through the microscope. Carefully rotate the diaphragm from 1 to 2 to 3 to 4. We can say that as the diaphragm number becomes higher the light intensity (brightness) becomes _____.
4. Focus the specimen under **low** power. Notice the **amount** of the specimen that can be seen. The amount of the specimen that can be seen is called the “field” or “field of view”. Using the guide, focus the specimen under the **middle** power. Remember to use the nosepiece when turning the objectives. As the power of the microscope increases, the field **increase, decrease, or remains the same** (choose one of the 3 choices).



5. Focus the specimen under low power. Place the diaphragm setting to #4. Notice the light intensity when using the low power. Now focus the specimen intensity **increase, decrease, or remains the same** (choose one of the 3 choices).
6. The **formula** for calculating the power of the microscope is as follows:

Power of eyepiece X power of objective = magnification

Examples:

(Eyepiece) 10x X (low power objective)10x = 100x (lower power)
(Eyepiece) 10x X (middle power objective)25x = _____ (middle power)
(Eyepiece) 10x X (high power objective)65x = _____ (high power)

When you are done with the questions, follow the directions from the other side on how to store the microscope.