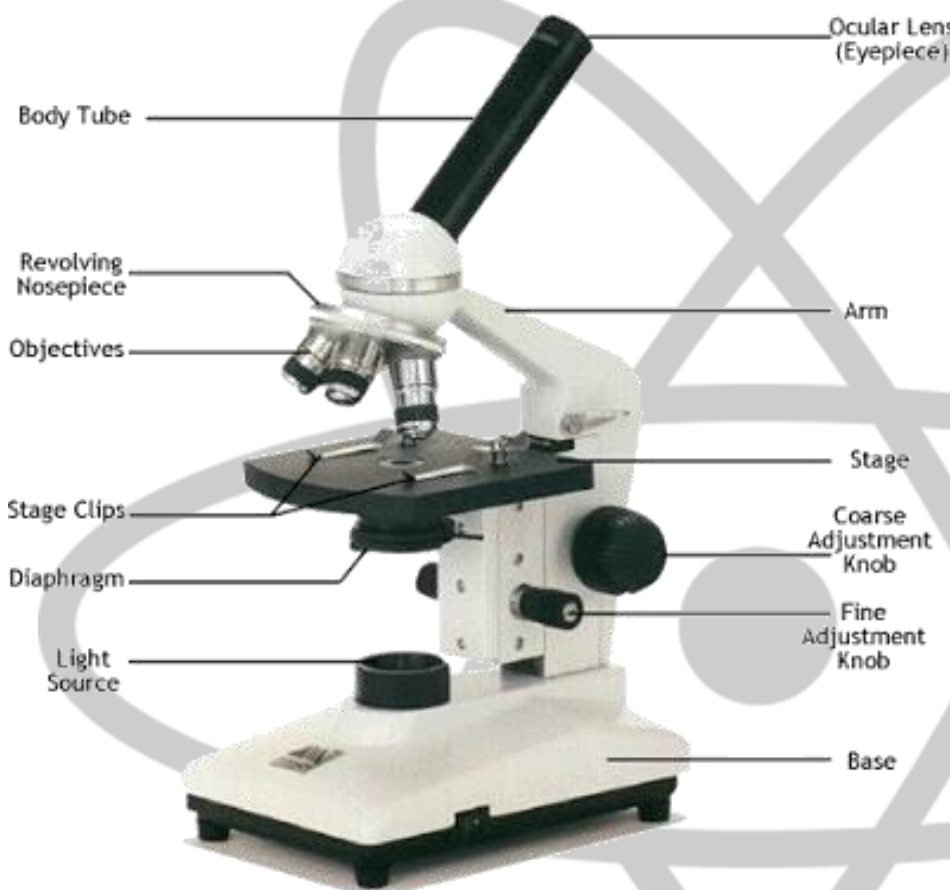


Name: _____

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Microscope Parts and Use



Historians credit the invention of the compound microscope to the Dutch spectacle maker, Zacharias Janssen, around the year 1590. The compound microscope uses lenses and light to enlarge the image and is also called an optical or light microscope (vs. an electron microscope). The simplest optical microscope is the magnifying glass and is good to about ten times (10X) magnification. The compound microscope has two systems of lenses for greater magnification, 1) the ocular, or eyepiece lens that one looks into and 2) the objective lens, or the lens closest to the object.

Before purchasing or using a microscope, it is important to know the functions of each part.

Ocular (Eyepiece) Lens: the lens at the top that you look through. They are usually 10X power.

Tube: Connects the eyepiece to the objective lenses

Arm: Supports the tube and connects it to the base. It is used along with the base to carry the microscope.

Base: The bottom of the microscope, used for support.

Light Source: A steady light source (110 volts) used in place of a mirror.

Stage: The flat platform where you place your slides. Stage clips hold the slides in place.

Revolving Nosepiece: This is the part that holds two or more objective lenses and can be rotated to easily change power.

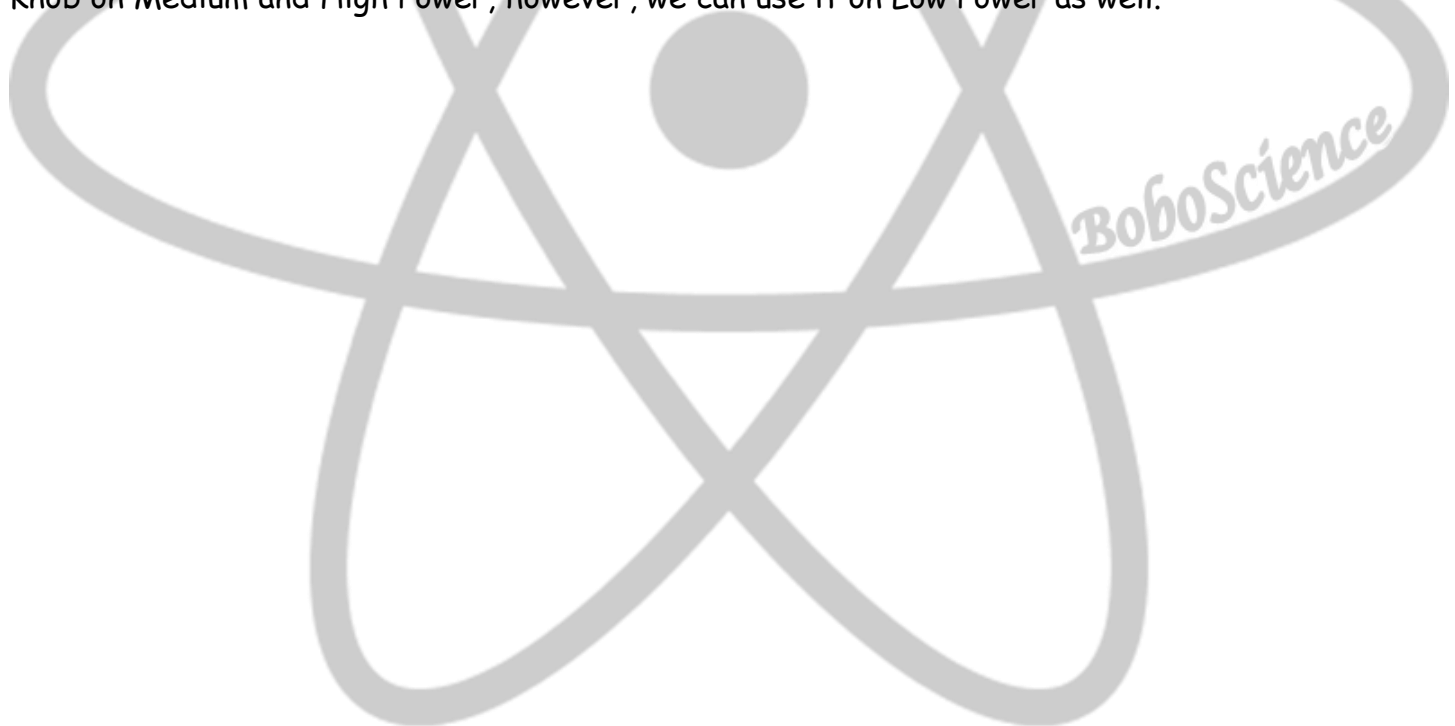
Objective Lenses: Usually you will find 3 or 4 objective lenses on a microscope. They almost always consist of 4X, 10X, 40X and 100X powers. When coupled with a 10X (most common) eyepiece lens, we get total magnifications of 40X (4X times 10X), 100X, 400X and 1000X. The shortest lens is the lowest power, the longest one is the lens with the greatest power.

Rack Stop (We do not have one of these): This is an adjustment that determines how close the objective lens can get to the slide. It is set at the factory and keeps students from cranking the high power objective lens down into the slide and breaking things.

Diaphragm: Many microscopes have a rotating disk under the stage. This diaphragm has different sized holes and is used to vary the intensity and size of the cone of light that is projected upward into the slide. There is no set rule regarding which setting to use for a particular power. Rather, the setting is a function of the transparency of the specimen, the degree of contrast you desire and the particular objective lens in use.

Coarse Adjustment Knob: This is used to focus the microscope. Course Adjustment Knob is always used first, and it is used only with the low power objective.

Fine Adjustment Knob: This is used to focus the microscope. We only use the Fine Adjustment Knob on Medium and High Power, however, we can use it on Low Power as well.



Name: _____

Date: _____

Hour: _____

How to Focus Your Microscope

1. Pull the Microscope away from the wall and make sure that you can easily look into the Eyepiece.
2. Make sure that the stage is lowered all of the way to the bottom, and on the Low Power Objective lens.
3. Insert your slide underneath the Stage Clips, remember that they move, but we do not use them to "talk." Remember that our slides have an up and a down, so make sure that you are facing the slide so that all of the writing is on the top.
4. Raise the stage all of the way up, and turn it on.
5. Look into the Eyepiece and slowly lower the stage using the Course Adjustment Knob to bring your slide into focus. You may then use the Fine Adjustment Knob to make final adjustments to further bring your slide into focus. If you are sharing your microscope with other students, each student will use the fine focus knob to focus the specimen best for their eyes.
6. Once you have your slide in focus on the lowest magnification level, you can switch to the next Medium Power objective lens. You may need to re-focus slightly with the fine focus knob (ONLY!).
7. If the image of your slide seems too dark or bright to see anything, try adjusting the light intensity.
8. When you are done with your microscope be sure to lower the stage as far as it will go, remove your slide, place the slide in the tray by the microscope, turn the microscope off, switch back to the lowest objective, and push the microscope so that it is touching the wall.

Name: _____

Date: _____

Hour: _____

Parts of the Microscope and Use Questions

1. What should you always remember when you use the coarse adjustment? _____

2. Under what conditions would you adjust the diaphragm? _____

3. What should you always remember when handling microscope slides? _____

4. What is the purpose of the stage clips? _____

5. What are the two parts used to carry the microscope? _____

6. Which objective lens is used to locate the specimen and first focus the microscope? _____

7. When do you use the Course Adjustment Knob? _____

8. How should you leave a Microscope, when you are done with it? _____

Name: _____

Date: _____

Hour: _____

Microscope Parts

Directions: Without your Notes, label the microscope below.

