

MICROSCOPE

If you have ever used a magnifying glass, you have used a microscope. a **MAGNIFYING GLASS** is a lens that makes things look larger than they are. A **LENS** is a piece of glass that is curved on both sides. "MICRO" means very small and "SCOPE" means to look at. A microscope is a tool used for looking at very small things. A **SIMPLE MICROSCOPE** has one lens. You can look at the skin on your arm with this kind of microscope.

Scientists found that two lenses could make things look larger than one lens. A **COMPOUND MICROSCOPE** has two or more lenses. It is one of the most important tools used in science.

The compound microscope was invented about 1590. The compound microscope you are going to use is much more powerful. It is easy to use if you know its parts and what they are for.

PARTS OF THE COMPOUND MICROSCOPE:

- EYEPIECE:** Located at the very top of the microscope. It holds the top lens of the microscope.
- BODY TUBE:** A hollow tube through which light can travel. It holds all the lenses of the microscope.
- NOSEPIECE:** The part at the bottom of the tube. It holds the lower lenses of the microscope.
- OBJECTIVES:** The lenses that are found on the nosepiece. The position of the lenses can be changed. The high-power objective makes objects look larger than the low-power objective does. The low power objective should first be clicked into place when viewing any object on the stage.
- ARM:** Supports the body tube. It is used as a handle to carry the microscope.
- COARSE ADJUSTMENT KNOB:** The large wheel that is found on the arm. It is used to raise and lower the body tube.
- FINE ADJUSTMENT KNOB:** A smaller wheel that also raises and lowers the body tube, but more slowly than the coarse adjustment knob.
- STAGE:** The flat plate where the object you are looking at is placed. It has a hole to let light pass through the object you are viewing.
- CLIPS:** The two metal strips that are attached to the stage. They are used to hold down the object you are viewing.
- DIAPHRAGM:** Under the stage. It changes the amount of light coming through the hole in the stage and into the microscope. It must be open in order to see anything.
- LIGHT:** Located below the diaphragm. It is used to aim light toward the hole in the stage.
- BASE:** The bottom part of microscope. It is shaped like a horseshoe. It is used, with the arm, to carry the microscope.

DEFINE:

Magnifying glass: _____

Lens: _____

Simple microscope: _____

Compound microscope: _____

ANSWER THESE:

1. How is a lens different from window glass? _____

2. What is a microscope? _____

3. How many lenses does a simple microscope have? _____
4. What is top lens of the compound microscope called? _____
5. What are the lower lenses of the compound microscope called? _____
6. What does the diaphragm do? _____
7. What is the difference between the simple and compound microscope? _____

8. The microscope should be carried by the _____ and _____.
9. Which objective should be placed directly over the hole in the stage first

10. Why must the diaphragm be open? _____
11. How does light enter the microscope? _____

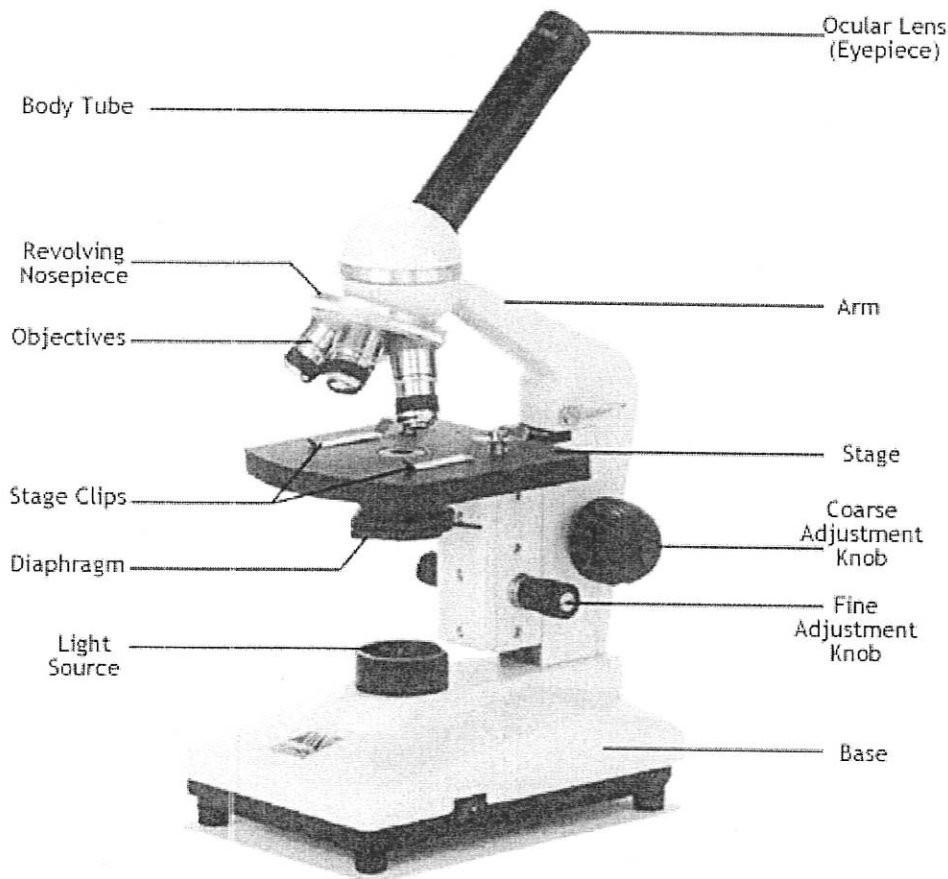
LIST THE PARTS OF A COMPOUND MICROSCOPE: [from top to bottom]

- | | |
|----------|-----------|
| 1. _____ | 7. _____ |
| 2. _____ | 8. _____ |
| 3. _____ | 9. _____ |
| 4. _____ | 10. _____ |
| 5. _____ | 11. _____ |
| 6. _____ | 12. _____ |

Microscope Introduction

Name _____

The Compound Microscope



Microscope Safe Handling Guidelines

1. Always carry the microscope with two hands- one under the base and one holding the arm.
2. Always begin with the low power objective (short lens) and the stage moved all the way down.
3. Use the adjustment knob slowly to bring the stage closer and the image into focus. Only switch to a higher objective (longer lens) when the image is in focus. Then refocus *slowly* with the adjustment knob.
4. When finished using the microscope, lower the stage all the way, put the low power objective in place, turn the light off and put the dust cover back on.

Slide Safe Handling Guidelines

1. Hold the slide carefully by the edges. It is glass-- it will break.
2. Place the slide under the stage clips with both hands.
3. Take care not to raise the stage (focus) too high with the slide on it, or it may be crushed by the high power objective/lens.
4. Always lower the stage completely before removing the slide.