

How to Use a Microscope

A License to Learn

Observers, are you ready to get your license to use a microscope and learn about cells? Microscopes are fun and easy to use if you know their parts and what they do. Microscopes are very expensive and require knowledge to use them properly. Always use both hands to carry a microscope. One hand should be on the arm, and the other hand should be under the base. Always store microscopes with the low-power objective in place. When focusing your microscope, use the low-power objective first. All microscopes have the same basic parts. Read about the parts of the microscope and locate each part in the drawing below. The sheet on the next page will help you study for your microscope test. Once you've passed your test, you will get a license to operate a microscope and study cells.

Arm: supports the body tube and is used to carry the microscope.

Base: supports the microscope and is used to carry it; the bottom part of the microscope.

Body tube: Light passes through this hollow tube; it also maintains the correct distance between the eyepiece lens and the objective lens.

Coarse adjustment knob: turns to raise and lower the body tube or stage for focusing; always use this knob first.

Diaphragm (DY uh fram): changes the amount of light that enters the body tube

Eyepiece: contains the lens you look through; the top part of the microscope.

Fine adjustment knob: moves slightly and is used to sharpen the image.

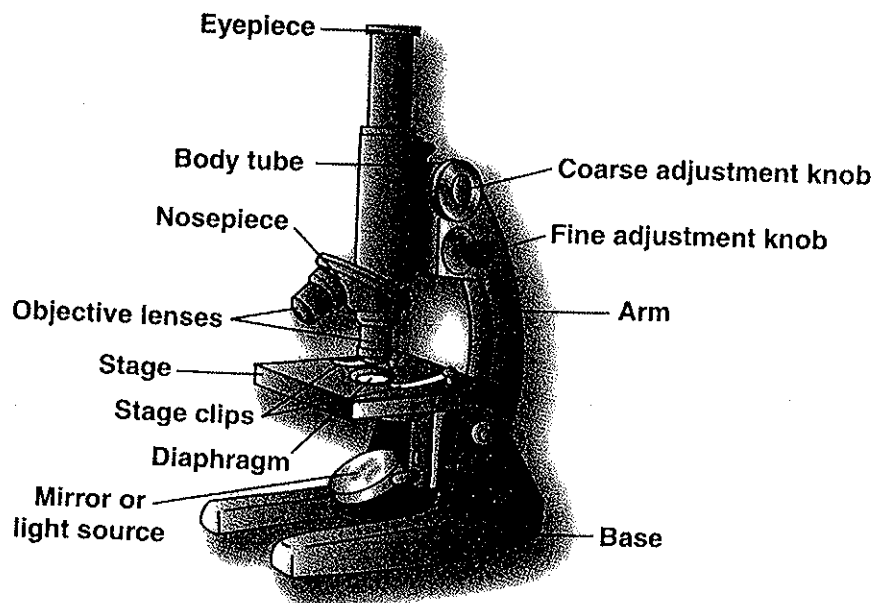
Mirror or light source: is used to send light up through the hole in the stage, object, and lenses.

Nosepiece: holds the objective lenses and rotates to change the magnification.

Objective lenses: usually range from 10X to 40X magnification; located on the nosepiece.

Stage: supports the object (microscope slide) being viewed.

Stage clips: hold the microscope slide in place.



Name: _____

Date: _____

What Is a Microscope?: Reinforcement Activity

To the student observer: What does the word *microscope* mean?

Analyze: When you change the objective lens from low to high power, what effect does that have on the image of the object being viewed? (How does it appear to change what you see in the microscope?)

Directions: Answer the following questions.

1. How does a compound microscope differ from a simple microscope?

2. If the eyepiece of the microscope has a 10X lens and you are using a 55X high-power objective lens, what is the total magnification in high power? _____

3. What kind of microscope is found in most classrooms?

4. What kind of lens curves outward like a sphere? _____

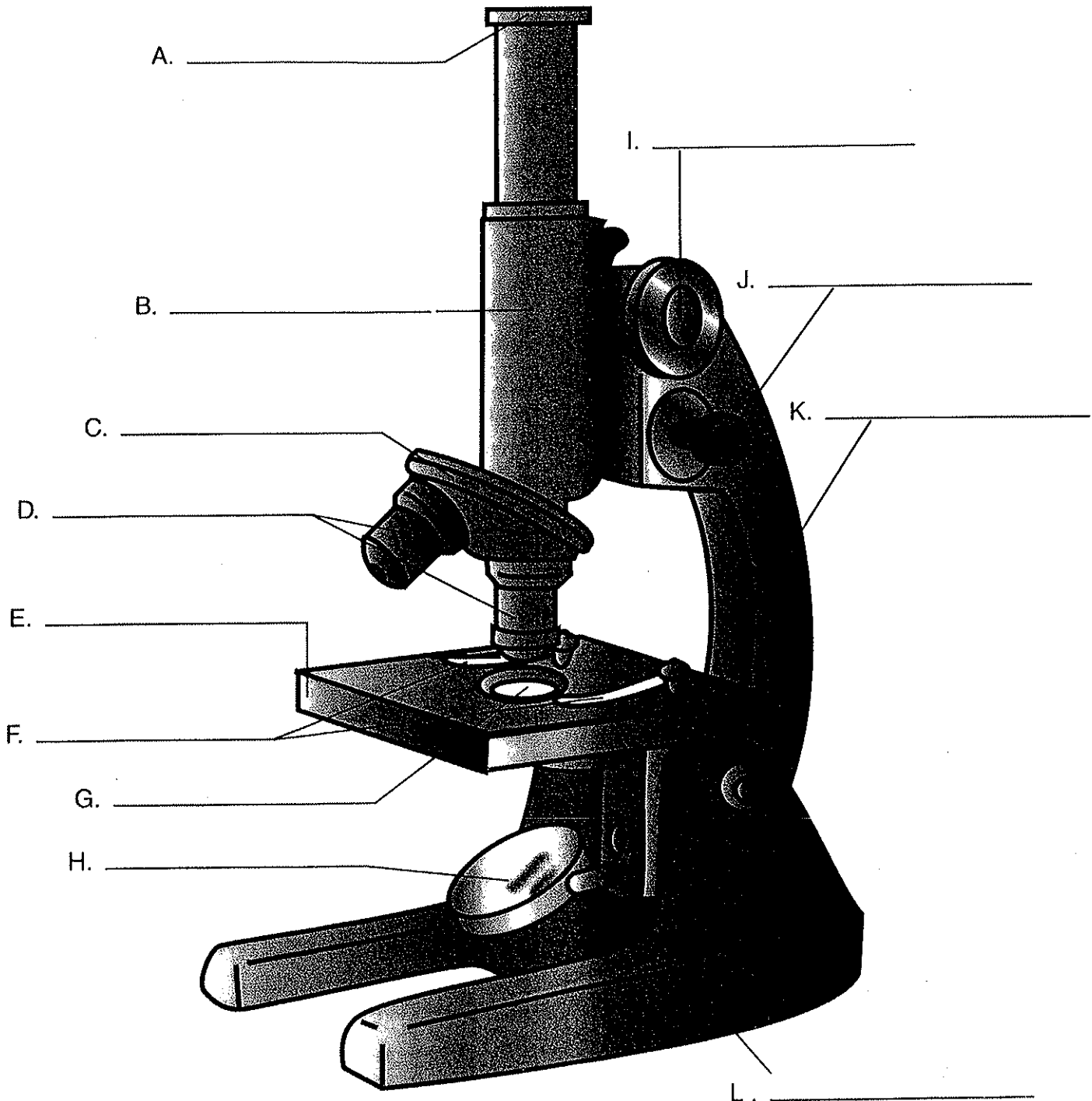
5. What kind of microscope has the greatest magnification? (used to study cell structures)

6. Which microscope would you use if the object is too thick to let light pass through it?

Name: _____ Date: _____

The Parts of a Microscope

Directions: Use this sheet to label the parts of the microscope. On your own paper, explain the function of each part. This will make a great study tool to gain your license to use a microscope. Good luck, observers!



Name: _____ Date: _____

Microscope Quiz

To the student observer: After passing this quiz, you will have successfully demonstrated your knowledge of microscope parts and handling rules to gain your microscope license.

Directions: Match the microscope parts listed with the proper function.

Microscope Parts		
A. Eyepiece	B. Low-power objective	C. Coarse adjustment knob
D. Diaphragm	E. High-power objective	F. Mirror G. Arm
H. Fine adjustment knob	I. Base	J. Stage clips
K. Revolving nosepiece	L. Stage	M. Body tube

Functions

- _____ 1. Moves body tube or stage up and down for focusing
- _____ 2. Supports the microscope slide and viewing object
- _____ 3. Supports the body tube and is used to carry the microscope
- _____ 4. Contains the lens you look through
- _____ 5. Reflects light up through the diaphragm, stage, viewing object, and lenses
- _____ 6. Provides the least magnification; usually 10X
- _____ 7. Supports the microscope
- _____ 8. Hold the microscope slide in place
- _____ 9. Provides the greatest magnification; usually 40X
- _____ 10. Controls the amount of light that enters the body tube
- _____ 11. Passageway for light and maintains the correct distance between the lenses
- _____ 12. Moves slightly and is used to sharpen the image of the object you are viewing
- _____ 13. Holds high- and low-power objectives; rotates to change magnification

Microscope License

Congratulations! You have demonstrated the knowledge of microscope parts and handling rules required to operate a light microscope and are hereby awarded this license.

Student Name: _____

Authorized by: _____

Valid: For Life