The Microscope

Akimel 6th Grade Science



Microscope

A microscope is an instrument for viewing objects that are too small to be seen easily by the naked eye.

- Micro means very small.
- Scope is a device to look at something.
- Uses more than one lens the image magnified by one lens can be further magnified by another.

Molecular Expressions Photo Gallery

How to Make a Simple Microscope

- Get 2 magnifying glasses and a sheet of printed paper.
- Hold one magnifying glass a short distance above the paper. The image will look a bit larger.
- Place the second magnifying glass between your eye and the first magnifying glass.
- Move the second glass up or down until the print comes into sharp focus.

Types of Microscopes

Compound Microscope

- Containing two or more lenses
- Uses light to magnify
- High magnification/Low resolution
- Most commonly used microscope
- \$150 \$1,500

Transmission Electron Microscope (TEM)

- Used to study parts inside cells
- Uses electron beams used to magnify
- High magnification/High resolution
- \$50,000

Microscope Terms

Magnify

To make an object look bigger

Reflect

To throw back light rays that strike a surface

Refraction

The bonding of light rays as they page

 The bending of light rays as they pass through one substance to another



A. Eyepiece



Contains the ocular lens you look through
 Top part of the microscope

J. Course Adjustment Knob



Moves the stage up and down for focusing Moves the objective lenses toward or away from the specimen being viewed

I. Fine Adjustment Knob



 Moves the stage slightly to sharpen the image
 Used after first using the coarse adjustment knob

B. Nosepiece



 Holds the high and low power objective lenses
 Can be rotated to change magnification

C. Objective Lenses



Magnification ranges from 10x to 40x The lens that first receives the light rays from the object to be viewed.





Supports the slide being viewed

D. Stage Clips



 Hold the slide in place

H. Diaphragm



Regulates the amount of light on the specimen
 Generally a five-holed disc under

the stage

F. Light Source



 Projects light upwards through the diaphragm, the specimen and the lenses

K. Arm



 Used to support the microscope when carried
 Connects the tube to the base

G. Base



Supports the microscope
Is used to carry it
Bottom part of the microscope



Using the Microscope

When carrying a microscope, grasp the arm with one hand and put your other hand under the base. You will NOT move the microscopes in the lab.

- Start by adjusting the nosepiece to the lowest power objective tube (the shortest one)
- Make sure your slide is on the stage.
- Looking through the eyepiece, slowly adjust the coarse adjustment knob until the specimen comes into focus
- Make sure the lens does not hit the slide
- Slowly adjust the fine adjustment knob until the specimen comes into focus