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Microscope

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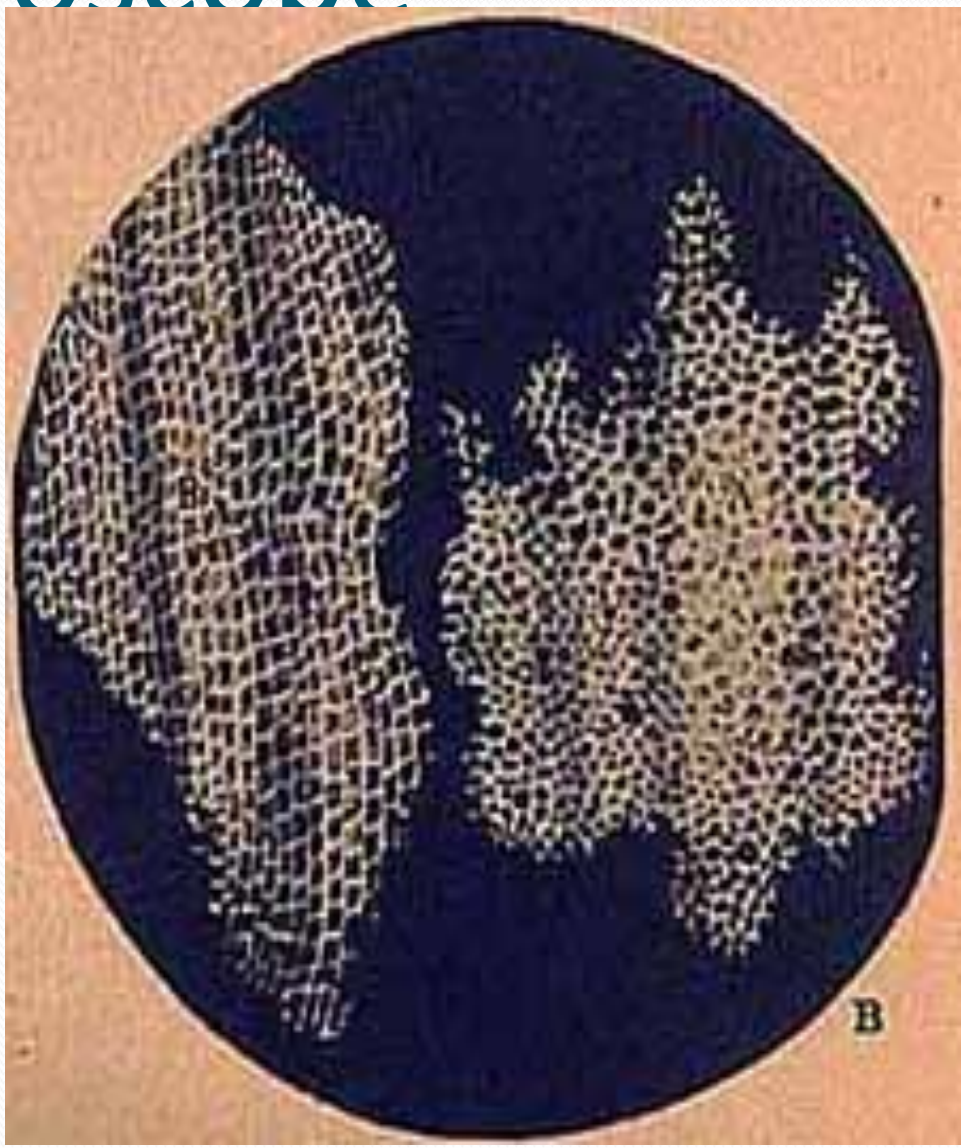
History of the Microscope

- 1590 –first compound microscope

The First Compound Microscope (circa 1595)

History of the Microscope

- 1655 – Robert Hooke used a compound microscope to observe pores in cork.
  - He called them "cells"



History of the Microscope

- Antoine van Leeuwenhoek
  - 1st to see single-celled organisms in pond water

Types of Microscopes

- 1. Compound Light Microscope
  - 1st type of microscope, most widely used
  - light passes through 2 lenses
  - Can magnify up to 2000x

Types of Microscopes

- 2. Electron Microscope
  - Used to observe VERY small objects: viruses, DNA, parts of cells
  - Uses beams of electrons rather than light
  - Much more powerful

Types of Electron Microscopes

- Transmission Electron Microscope (TEM)
  - Can magnify up to 250,000x

Types of Electron Microscopes

- Scanning Electron Microscope (SEM)
  - Can magnify up to 100,000x

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The Light Microscope

Guidelines for Use

- Always carry with 2 hands
- Only use lens paper for cleaning
- Do not force knobs
- Always store covered

Microscope Parts

Eyepiece

Body Tube

Revolving Nosepiece

Arm

Objective Lens

Stage

Stage Clips

Coarse Focus

Diaphragm

Fine Focus

Light

Base

Microscope Vocabulary

- Magnification: increase of an object's apparent size
- Resolution: power to show details clearly
- Both are needed to see a clear image

Magnification

Your microscope has 3 magnifications: Scanning, Low and High. Each objective will have written the magnification. In addition to this, the ocular lens (eyepiece) has a magnification. The total magnification is the ocular x objective

	Magnification	Ocular lens	Total Magnification
Scanning	4x	10x	40x
Low Power	10x	10x	100x
High Power	40x	10x	400x

Using the Microscope

General Procedures

1. Make sure all backpacks and materials are out of the aisles and off the tops of desks.

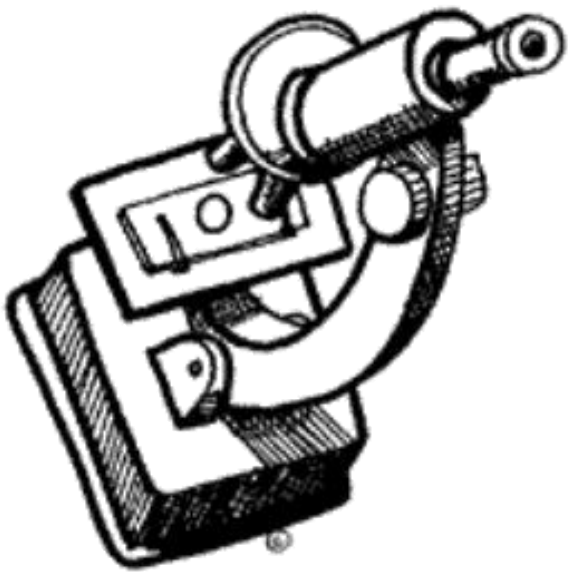
2. Plug your microscope in to the outlet.

3. Store with cord wrapped around microscope and the scanning objective clicked into place.

4. Carry by the base and arm with both hands.

Focusing Specimens

1. **Always start with the scanning objective**.
Use the Coarse Knob to focus and then the fine adjustment knob until clear, image may be small at this magnification.



2. **Once you've focused on Scanning, switch to Low Power**.
Use the Coarse Knob to refocus, then fine adjustment until clear.

Now switch to High Power.. At this point, ONLY use the Fine Adjustment Knob to focus specimens.

Using High Power

- Your slide MUST be focused on low power before attempting this step
- Click the nosepiece to the longest objective
- Do **NOT** use the Coarse Focusing Knob, this could crack the slide or the lens
- Use the Fine Focus Knob to bring the slide

Thank you