

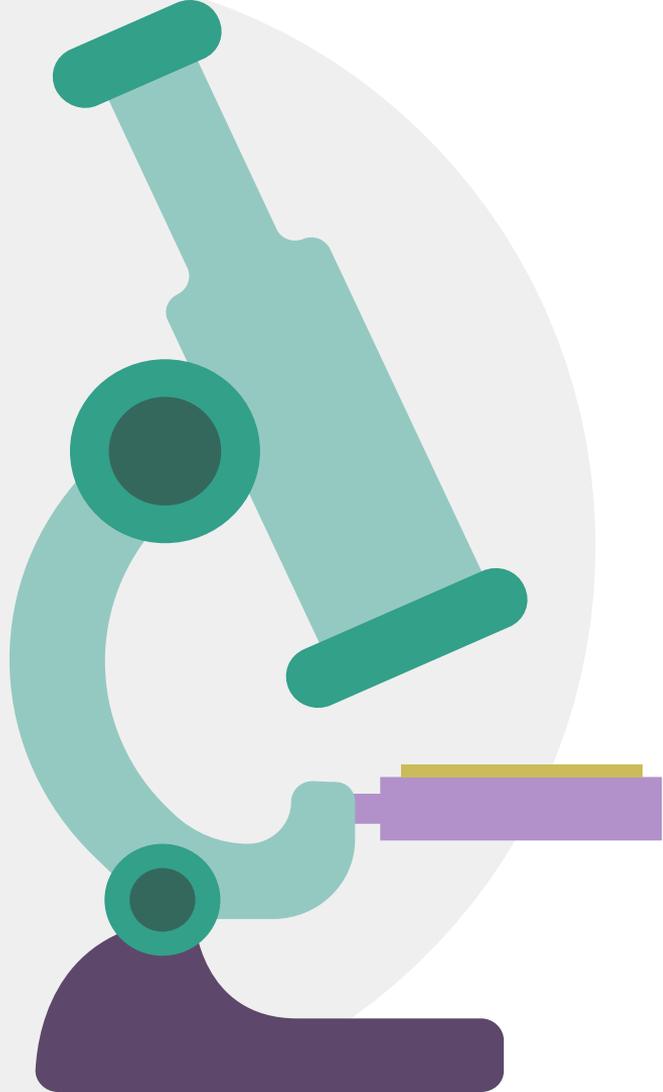
بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَأَنْ لَّيْسَ لِلْإِنْسَانِ إِلَّا مَا سَعَى وَأَنَّ سَعْيَهُ سَوْفَ يُرَى ثُمَّ يُجْزَاهُ

الْجَزَاءَ الْأَوْفَى ﴿٣٩-٤٠﴾

صدق الله العلي العظيم

سورة النجم الآية ﴿٣٩-٤٠﴾



Microscope

MSc. Hussein ali sahib

AL-Hilla University

husseinalmosawi944@gmail.com

Objectives

Define the Microscope

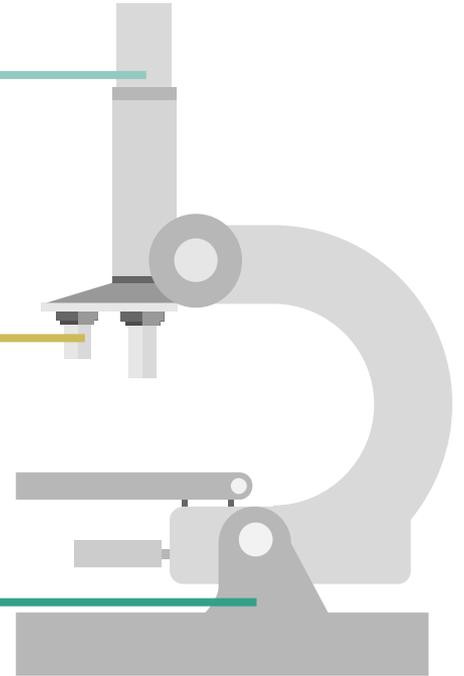
01

Enumerate types and characteristics of microscope

02

Enumerate parts of Microscope

03



Microscope

A microscope is an instrument that uses visible light and magnifying lenses to examine small objects not visible to the naked eye, the word of microscope is combination of two words; "micro" meaning small and "scope" meaning view.



Types of Microscopes

01

Light microscope
(Compound Microscope)

02

Dissection Microscope

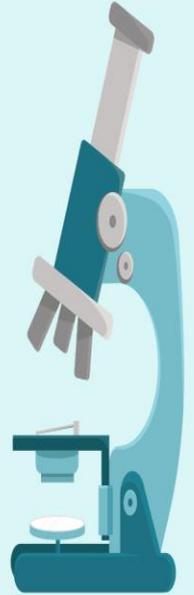


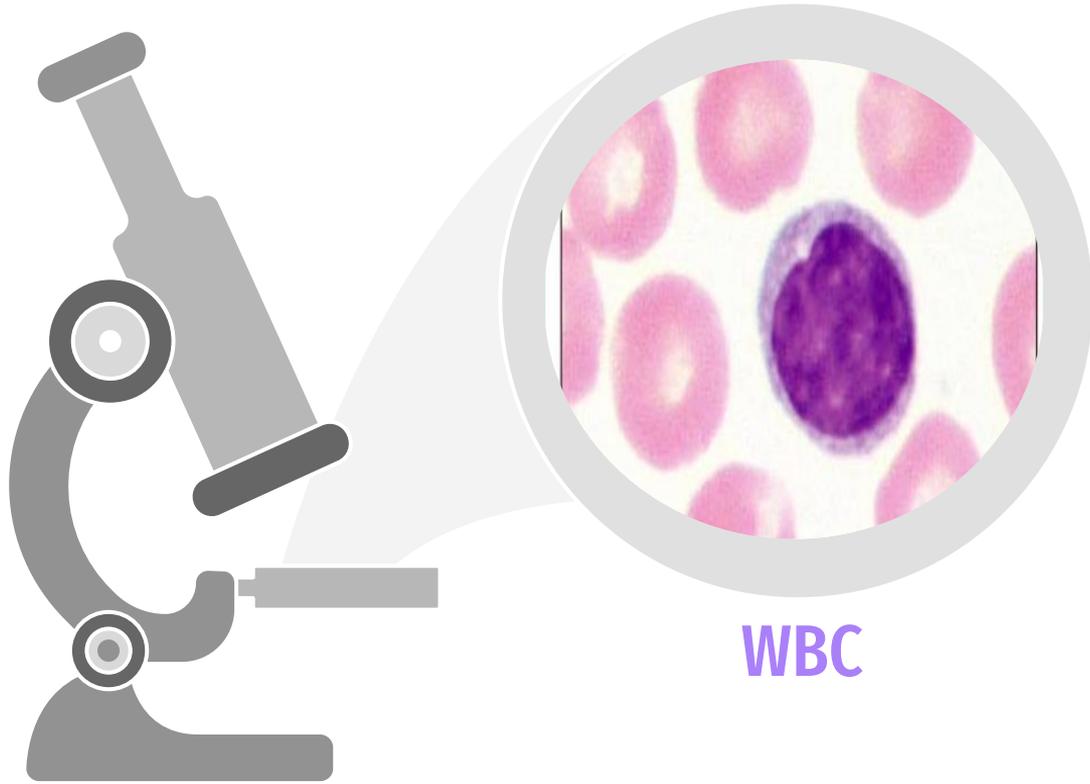
03

Scanning Electron
Microscope (SEM)

Light Microscope

Compound microscopes are light illuminated. The image seen with this type of microscope is two dimensional. This microscope is the most commonly used. You can view individual cells, . It has high magnification(1000x). However, it has a low resolution.





WBC

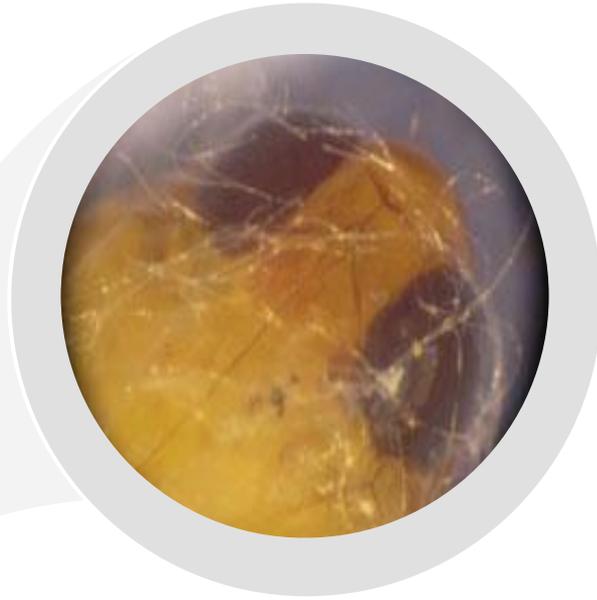
Video about Light microscope



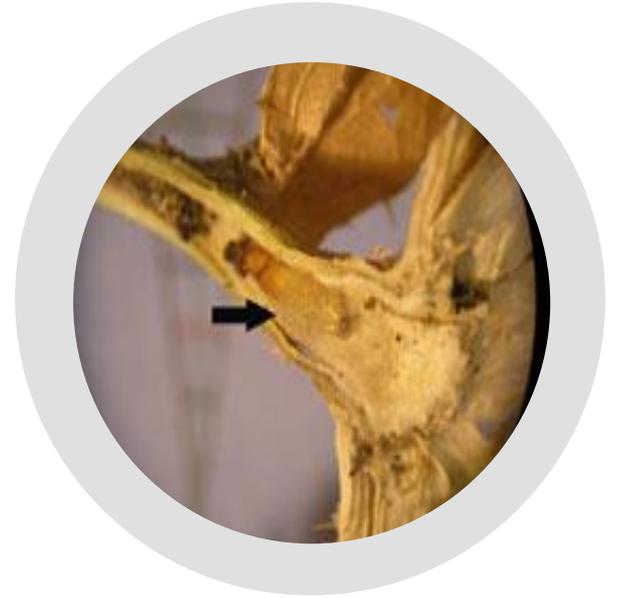
Dissection Microscope

A dissection microscope is light illuminated. The image that appears is three dimensional. It is used for dissection to get a better look at the larger specimen. You cannot see individual cells because it has a low magnification.



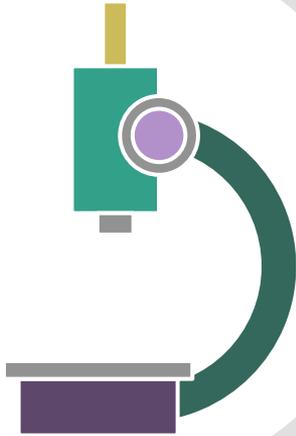


Head of a moth pupa 60x



**Sunflower with moth pupa
in the stem 10x**

Group activity



**Enumerate characteristics
of dissection microscope**

Scanning Electron Microscope - SEM

SEM use electron illumination. The image is seen in 3-D. It has high magnification (100000 x) and high resolution.

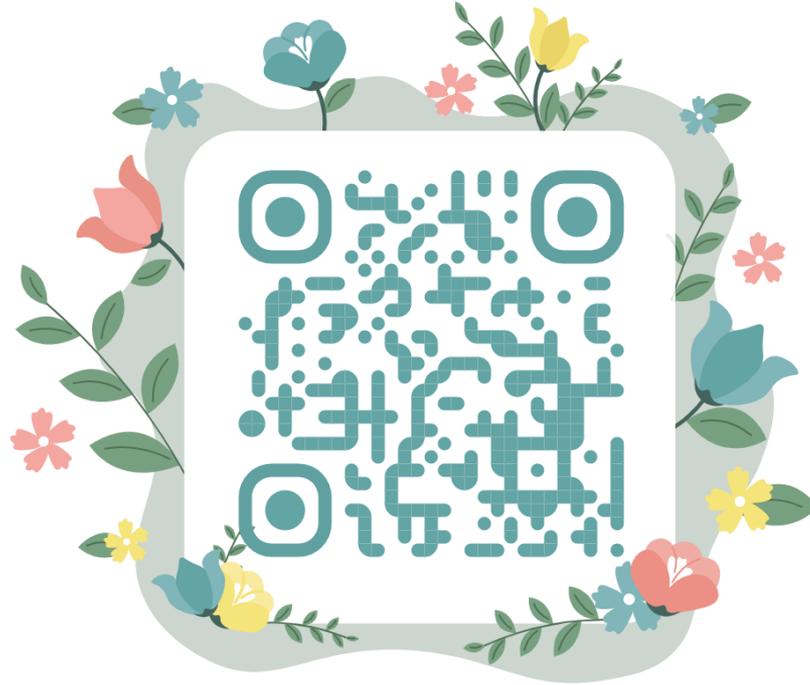
The specimen is coated in gold and the electrons bounce off to give you an exterior view of the specimen. The pictures are in black and white.



Scanning Electron Microscope - SEM

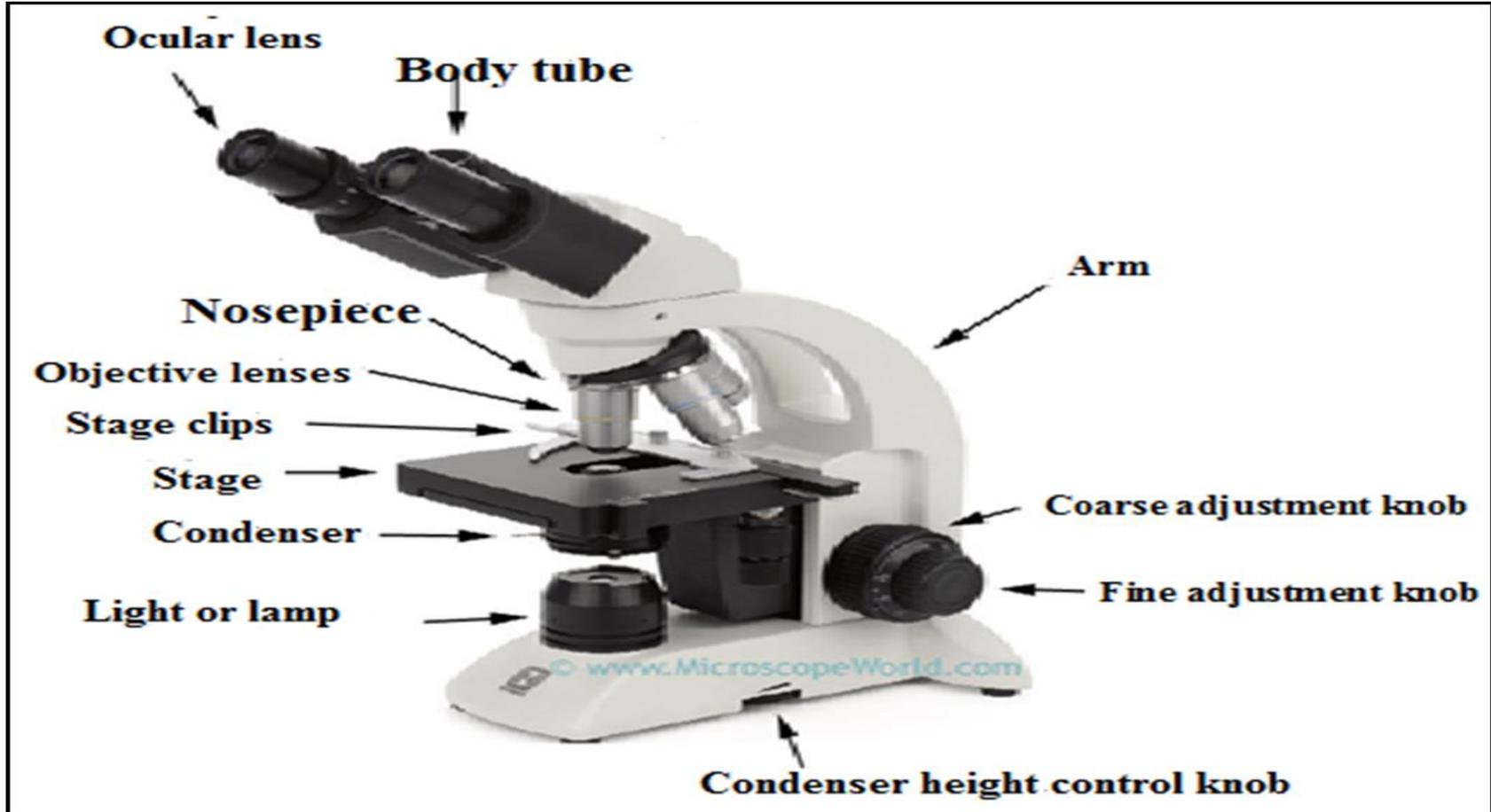


Assignment



Quiz

Compound Microscope part



ocular lenses

magnifies; where you look through to see the image of your specimen
They are usually 10X.



objective lenses

- Usually you will find 3 or 4 objective lenses on a microscope.
- always consist of 4X, 10X, 40X and 100X powers. When coupled with a 10X (most common



Body Tube

**connects the Ocular lens to
the objective lenses**



revolving nosepiece

the part that holds objective lenses
and can be rotated to
easily change power



Arm



supports the tube and connects it to the base

stage

**the flat platform where
you place your slides**



stage clips

Stage clips hold the slides in place. If your microscope has a mechanical stage, you will be able to move the slide around by turning two knobs. One moves it left and right, the other moves it up and down



Condenser

Condenser: It is a vital part of the microscope, act on collect, control and concentrate light from the lamp into the specimen



coarse and fine adjustment knob

moves stage (or body tube) up and down

small, round knob on the side of the microscope used to fine-tune the focus of your specimen after using the coarse adjustment knob



light

**makes the
specimen
easier to see**



Using the Microscope

- ✓ Put the microscope on flat table where the handle toward you.
- ✓ Clean the microscope lenses by special papers and don't touch lenses by hands.
- ✓ Put the slide on the stage carefully and make sure the cover glass on the slide.
- ✓ Examine the sample by low objective lens (10×) then by high objective lens (40×) with fine adjustment but without using coarse adjustment to avoid the breaking of slide.

Using the Microscope

- ✓ Avoid the use of immersion oil lens without oil and directly clean the lens and slide from oil after the use.
- ✓ Magnification
- ✓ Multiply the eyepiece magnification (10X) by the objective magnification (4X, 10X, 40X)
- ✓ Example: $4 \times 10 = 40X$ total
- ✓ Don't use one eye during the examination of sample.
- ✓ After the finish of examining rise the slide from stage carefully then clean it and clean the microscope lenses then cover the microscope to keep out it from dust.

finle assignment

Draw microscope and mention the parts

Upload your answer on classroom

Summary

1. **Define microscope**
2. **Enumerate types microscope**
3. **Characteristics Light Microscope**
4. **Characteristics Dissection Microscope**
5. **Characteristics Scanning Electron Microscope – SEM**
6. **parts Light Microscope**
7. **How to use Light Microscope**

Reference

Medical Cell Biology by Steven R.

A Dictionary of Ecology by Michael Allaby

Medical Cell Biology by Steven R. Goodman (Editor)

THANK YOU
FOR
LISTENING

