Practical Human biology
MSc. Sara AL-Ghazal **lab:1 / stage:1**

The microscope

The microscope *(micron* = small, *scope* = to look at) is an instrument that is generally used to study the very small organisms (microorganisms) or particles which are not visible by the naked eyes.

The microscope can be simple, consisting of a single lens, or compound, consisting of several optical components in line.The microscope enlarges the view image of an object up to 1000 times of its original size and the times of enlargement is called as **Magnification Power**. The microscope is an expensive instrument so it requires great care in handling it.

Parts of a Microscope

1- **Arm:** The part of the microscope that connects the eyepiece tube to the base used to carry microscope .

2-Base: bottom part of microscope Supports the microscope .

3-Eyepiece: the lens you look through that magnifies the specimen.

4-Coarse Adjustment knob: This is the knob on the side of the microscope Moves the stage for focusing with the low-power objective lens. It is used in conjunction with the fine focus.

5-Fine Adjustment knob:small, round knob on the side of the microscope used to fine-tune the focus of the specimen after using the coarse adjustment knob..

6-Diaphragm: Controls the amount of light reaching the objective lenses located under the stage

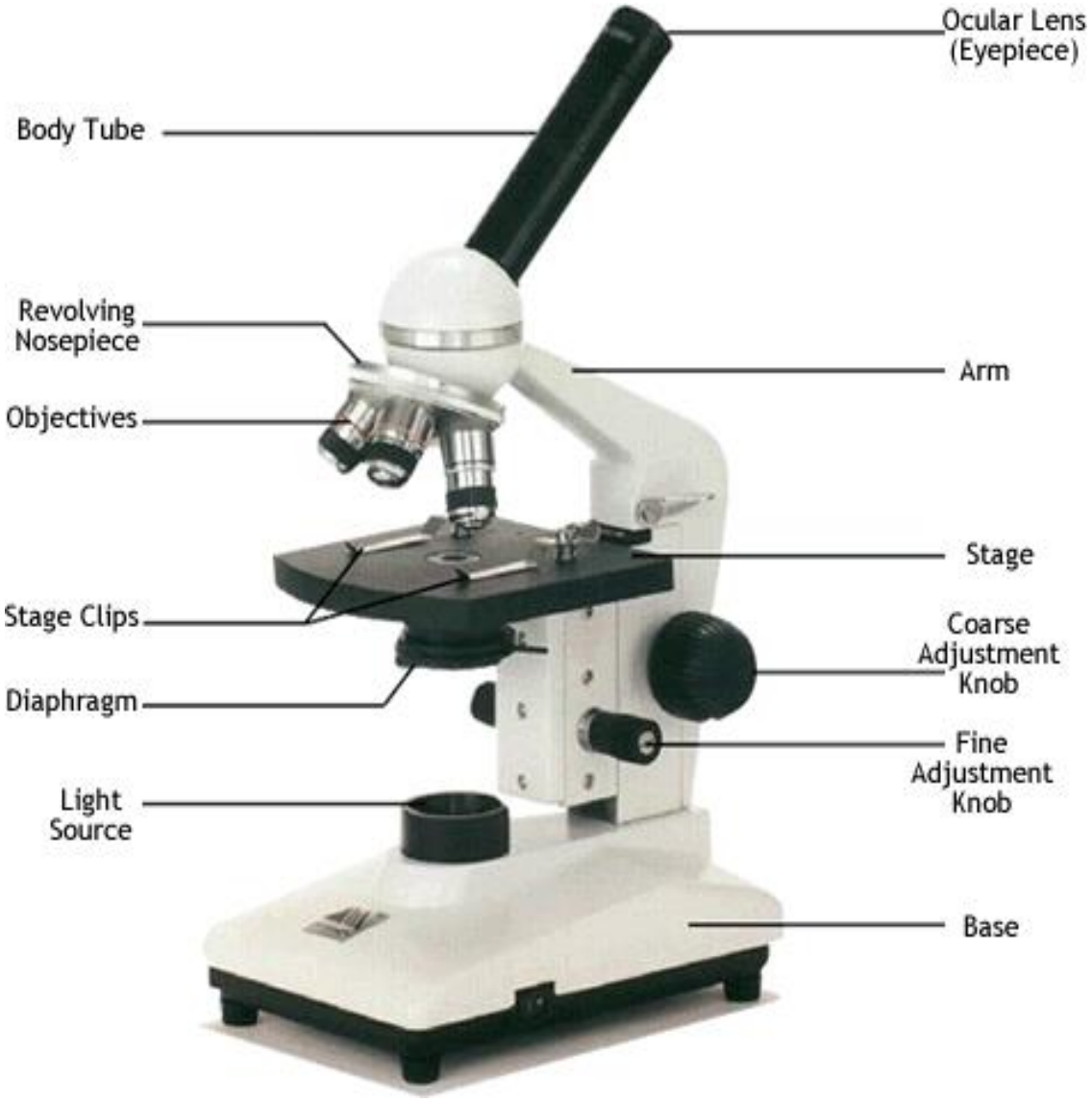
7-Stage: The platform on which slides and specimens are placed for viewing.

8-Stage Clips: Holds down the slide on stage

9-Nosepiece: is the round part that holds the objective lens. Also called a revolving nosepiece or turret.

10-objective lenses-(low, medium, high, oil immersion) the microscope may have 2, 3 or more objectives attached to the nosepiece; they vary in length (the shortest is the lowest power or magnification; the longest is the highest power or magnification).

11-Light Source: Uses a source of light to create an image of the specimen.



Calculating Magnification

Once the magnification of each individual lens is known, calculating total magnification is simple math. Multiply the magnification of the lenses together. For example, if the eyepiece magnification is 10x and the objective lens in use has a magnification of 4x, the total magnification is:

$10\times 4 = 40$

The total magnification of 40 means that the object appears forty times larger than the actual object. If the viewer changes to the 10x objective lens, the total magnification will be the ocular's 10x magnification multiplied by the new objective lens's 10x magnification, calculated as:

$10\times 10 = 100$