**Compound Microscope**

What are Microscopes?

Microscopes are instruments that are used in science laboratories to visualize very minute objects, such as cell structures and microorganisms, giving a contrasting image that is magnified.

**Parts of a Compound Microscope**

Each part of the compound microscope serves its own unique function, with each being important to the function of the scope as a whole. Common compound microscope parts include:

* **Eyepiece (ocular lens) with or without Pointer**: The part that is looked through at the top of the compound microscope. Eyepieces typically have a magnification between 5x & 30x.
* **Monocular or Binocular Head**: Structural support that holds & connects the eyepieces to the objective lenses.
* **Arm**: Supports the microscope head and attaches it to the base.
* **Nosepiece**: Holds the objective lenses & attaches them to the microscope head. This part rotates to change which objective lens is active.
* **Base**: Bottom base of the microscope that houses the illumination & supports the compound microscope.
* **Objective lenses**: There are usually 3-5 optical lens objectives on a compound microscope each with different magnification levels. 4x, 10x, 40x, and 100x are the most common magnifying powers used for the objectives. The total magnification of a compound microscope is calculated by multiplying the objective lens magnification by the eyepiece magnification level. So, a compound microscope with a 10x eyepiece magnification looking through the 40x objective lens has a total magnification of 400x (10 x 40).
* **Specimen or slide**: The object used to hold the specimen in place along with slide covers for viewing. Most slides & slide covers are thin glass rectangles.
* **Stage**: The platform upon which the specimen or slide are placed. The height of the mechanical stage is adjustable on most compound microscopes.
* **Stage clips or mechanical stage**: Clips on the stage that hold the slide in place on the mechanical stage.
* **Iris Diaphragm**: Circular opening in the stage where the illumination from the base of the compound microscope reaches the platform of the stage.
* **Condenser**: This lens condenses the light from the base illumination and focuses it onto the stage. This piece of the compound microscope sits below the stage & typically acts as a structural support that connects the stage to arm or frame of the microscope.
* **Coarse and fine adjustment controls**: Adjusts the focus of the microscope. These knobs increase or decrease the level of detail seen when looking at the slide or specimen through the eyepiece of the compound microscope.
* **Stage height adjustment**: Adjusts the position of the mechanical stage vertically & horizontally. It is important to adjust these knobs so that the objective lens is never coming into contact with the slide or specimen on the stage.
* **Illumination**: Light used to illuminate the slide or specimen from the base of the microscope. Low voltage halogen bulbs are the most commonly used source of illumination for compound microscopes.
* **Bottom Lens or Field Diaphragm**: Knob used to adjust the amount of light that reaches the specimen or slide from the base illumination.

