

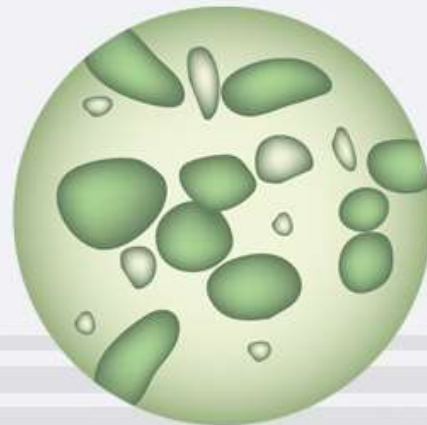
كلية
المستقبل الجامعة

قسم الصيدلة



Microscope

Lab 1



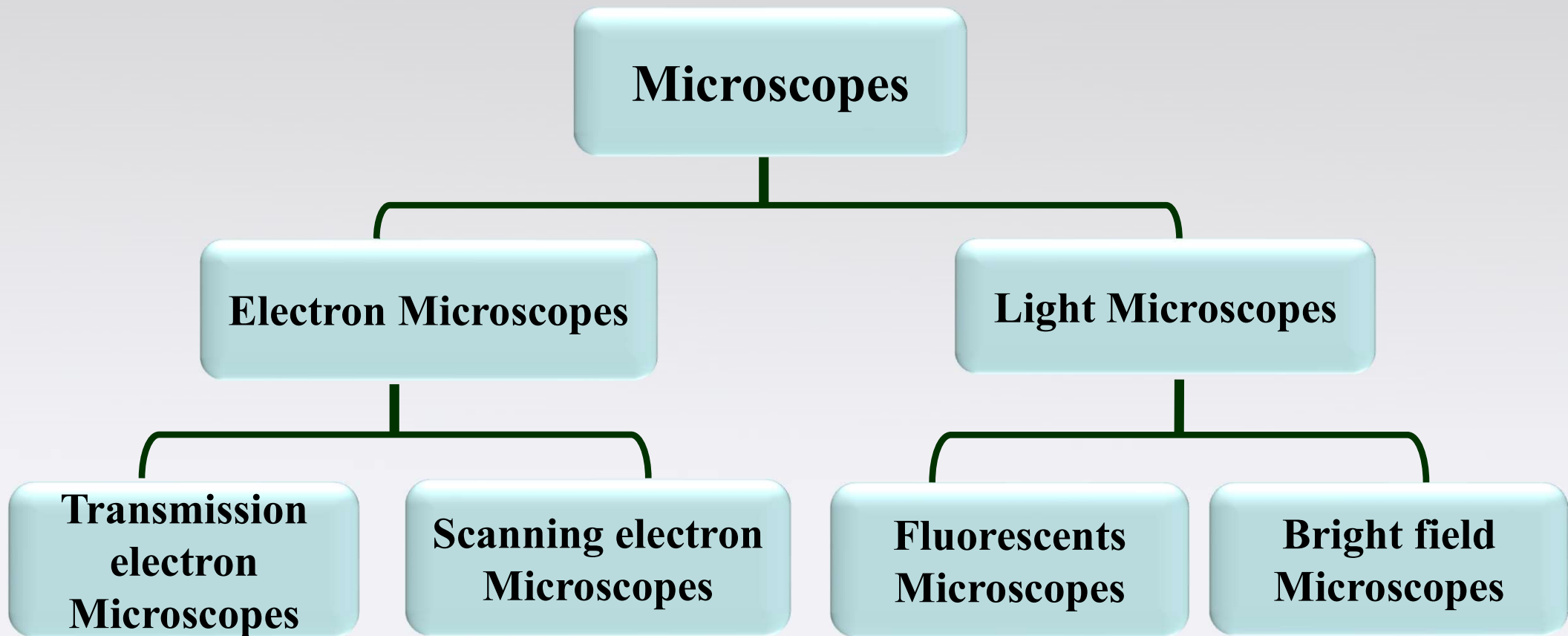
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Microscope

- ❖ **Microscope** : It is an instrument used to study the cells and microorganisms.
- ❖ It's not clear who invented the first microscope, but the Dutch spectacle maker **Zacharias Janssen** is credited with making one of the earliest compound microscopes (ones that used two lenses) around 1600. The earliest microscopes could magnify an object up to 20 or 30 times its normal size.



Microscopes are divided into two categories :



Microscope Parts

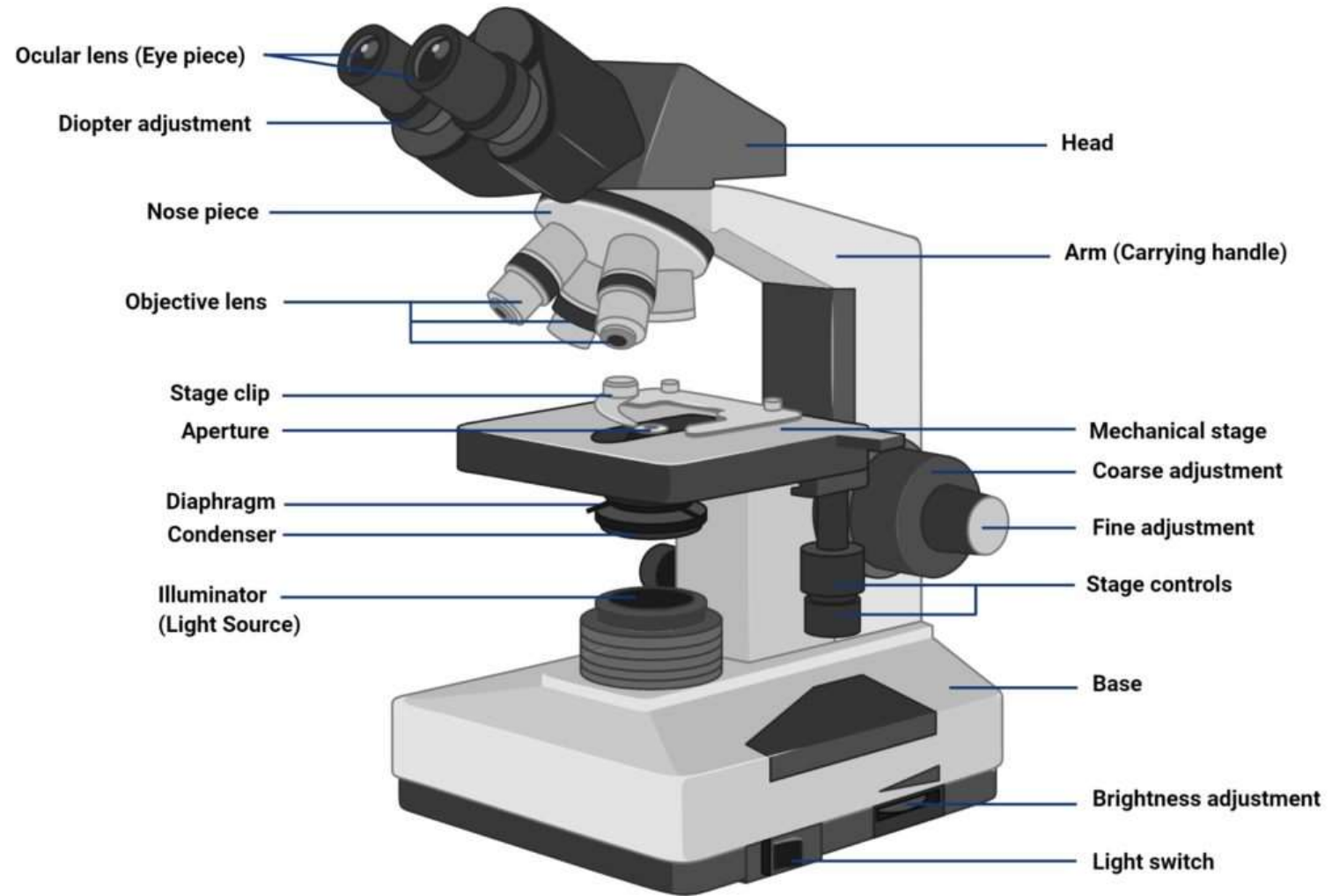


Figure: Parts of a microscope,

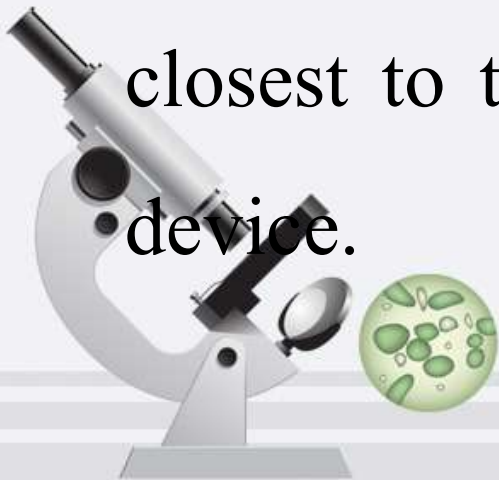


Microscope parts

□ Head

□ Consist of the following parts

- 1. Ocular (eye pieces):** Is the part of the microscope that magnifies the image produced by the microscope's objective so that it can be seen by the human eye. It is so named because it is usually the closest to the eye when someone looks through the device.



Objective Lenses: (4x, 10x, 40x and 100x)

are the optical elements closest to the specimen. The objective lens gathers light from the specimen, which is focused to produce the real image that is seen on the ocular lens.



Microscope parts

□ **Arm:** Supports the tube and connects it to the base

1. **Stage (Mechanical stage):** The flat platform where you place your slides



2. Adjustment knob: Coarse focus adjustment, Fine adjustment

-Fine adjustment: small, round knob on the side of the microscope used to fine-tune the focus of your specimen

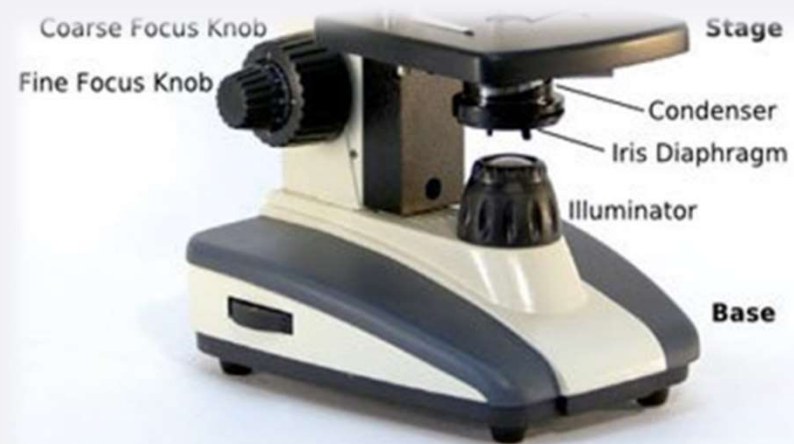
-Coarse adjustment: moves stage (or body tube) up and down



3. Mechanical stage clip: Hold the slides in place

4. Condenser: act to gather light from the microscope's light source and concentrate it into a cone of light that illuminates the specimen.

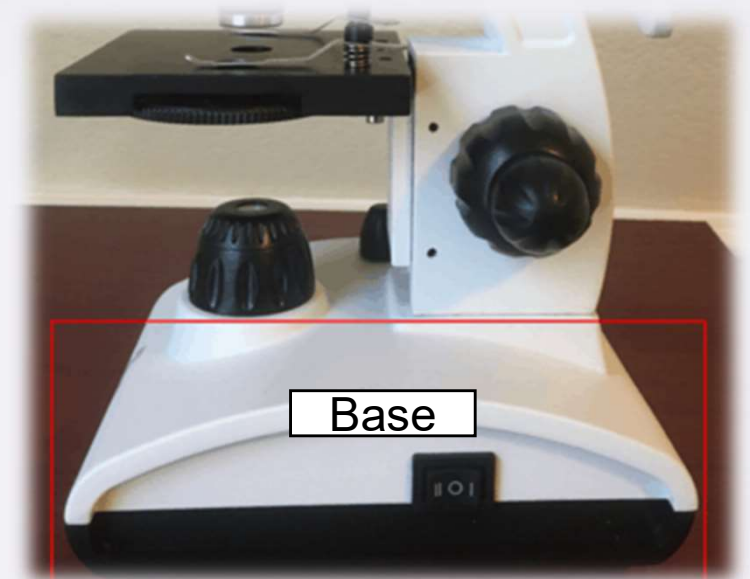
5. Diaphragm: controls the amount and shape of the light that travels through the condenser lens and eventually passes through the specimen by expanding and contracting the diaphragm blades that resemble the iris of an eye.



❑ Base (foot)

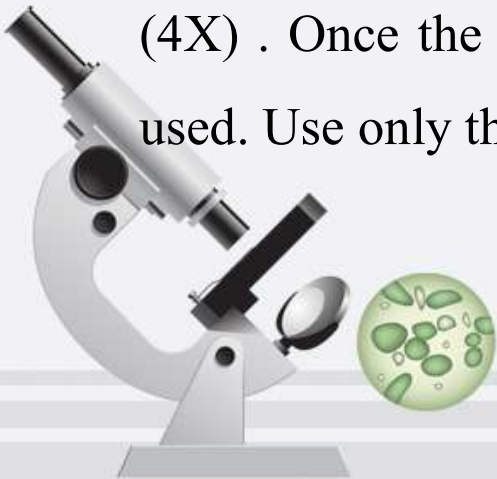
The bottom of the microscope, used for support

- ❖ **Illuminator:** There is an illuminator built into the base of most microscopes. The purpose of the illuminator is to provide even, high intensity light, so that light can travel through the condenser to the specimen



How to use the Compound Microscope

1. Always carry the microscope by holding the arm of the microscope with one hand and supporting the base with the other hand.
2. Place the microscope on a flat surface, the arm should be positioned toward you.
3. Look through the eye piece, adjust the diaphragm so that the light comes through the opening in the stage.
4. Place a slide on the stage so that the specimen is in the field of view. Hold it firmly in place by using the stage clips.
5. Always focus first with the coarse adjustment and the low power objective lens (4X) . Once the object is in focus on low power, the high power objective can be used. Use only the fine adjustment to focus the high power.





Thank you for listening