Practical plant anatomy

Plant anatomy (Second stage)/ Mustansiriyah University/ College of Science/ Dept. of Biology

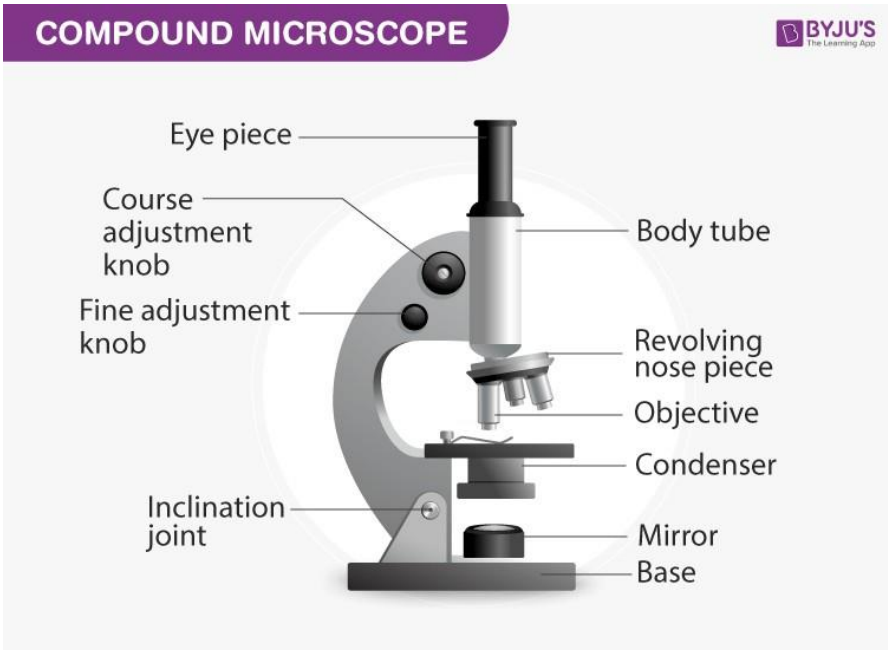
Prepared by Dr. Hadeel Al-Newani and Ruaa Fadhil

Supervised by Dr. Raghad Dhyea, Dr. Dina Yousif, Dr. Zina Khallel and Zina Hassen

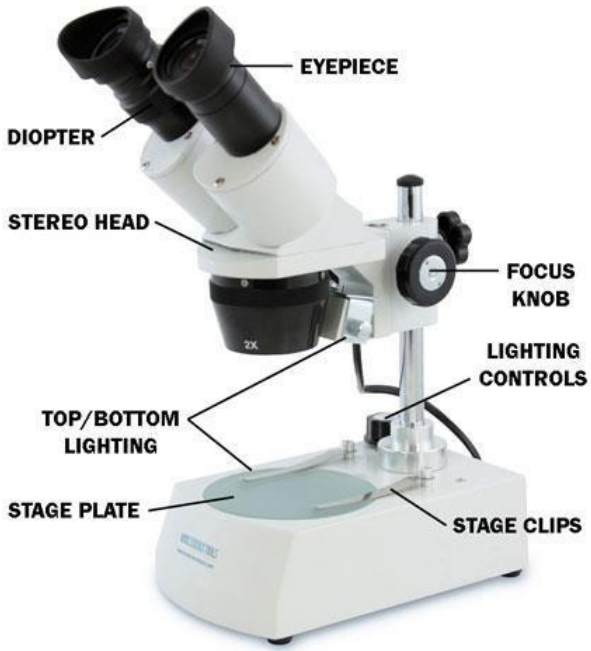
Lab 1:

Types of microscopes:-

1- **Compound microscope: -** It is a high resolution and uses two sets of lenses providing a 2-dimensional image of the sample. With this microscope, light is transmitted through a specimen that is mounted on a glass slide, and then focused through a series of lenses. Special lenses and optical refinements make magnifications of up to 2000 times. It is possible to observe Cell types, many of the larger cellular organelles (plastids, nuclei, vacuoles), and metabolic products such as calcium oxalate crystals and starch granules can be distinguished.

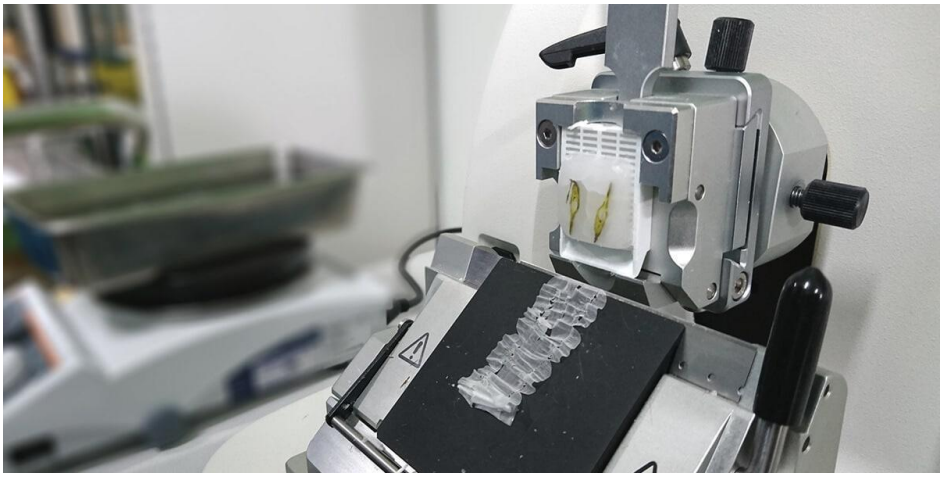


2- **Stereo or dissecting microscope:-** It allows the user to view the subject magnified up to 250 times its normal size; they are used primarily to study the morphology of a specimen. The magnification is relatively low.

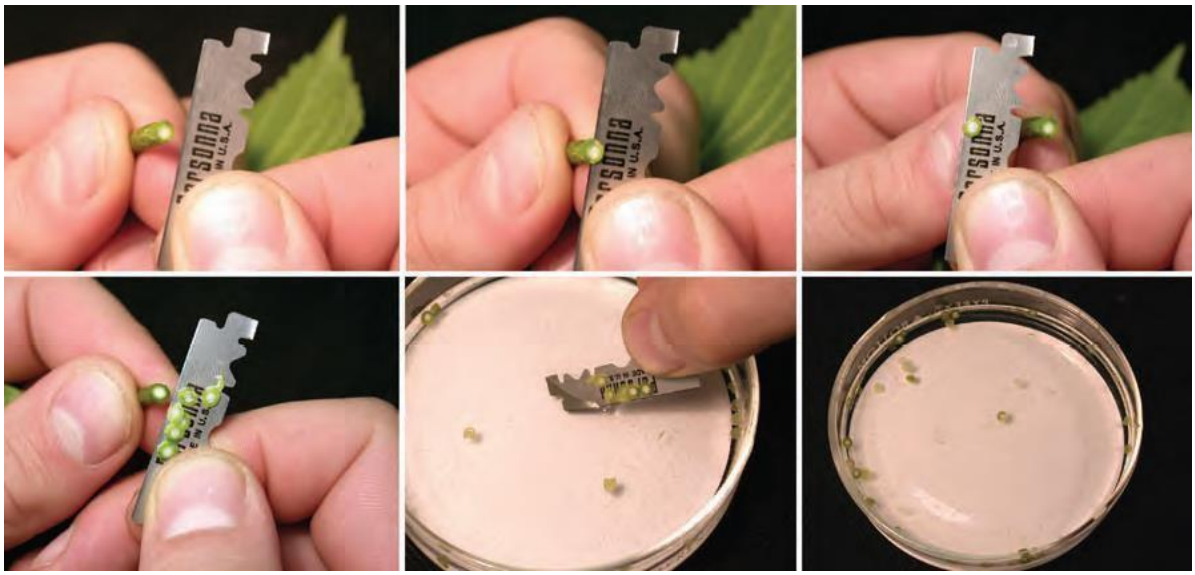


Sectioning: - There are two methods of sectioning

A- Microtome: - It is alternative methods to cut plant sections include the use of hand and electric and freezing microtomes.



B- Free-hand sectioning of living plant tissues: - It is usually done with a single edge razor blade often provides a good method for rapid and inexpensive microscopic observation of plants internal structure as illustrated in figure below.



Section types:-

There are various types of sections can be prepared depending on the shape of the organ.

A- Cross sections: - When making cross (transverse) sections, it is important to cut at right angles to the longitudinal direction of the stem (or other organ) as illustrated below.

B- Longitudinal sections: - Those which are cut lengthwise along the line of the long axis of an organ or tissue.