



DIAGNOSTIC MICROBIOLOGY

Sawa University

College of health and medical techniques

Department of Medical Laboratories

4 Stage

جامعة ساوة الاهلية

كلية التقنيات الصحية والطبية

قسم تقنيات المختبرات الطبية

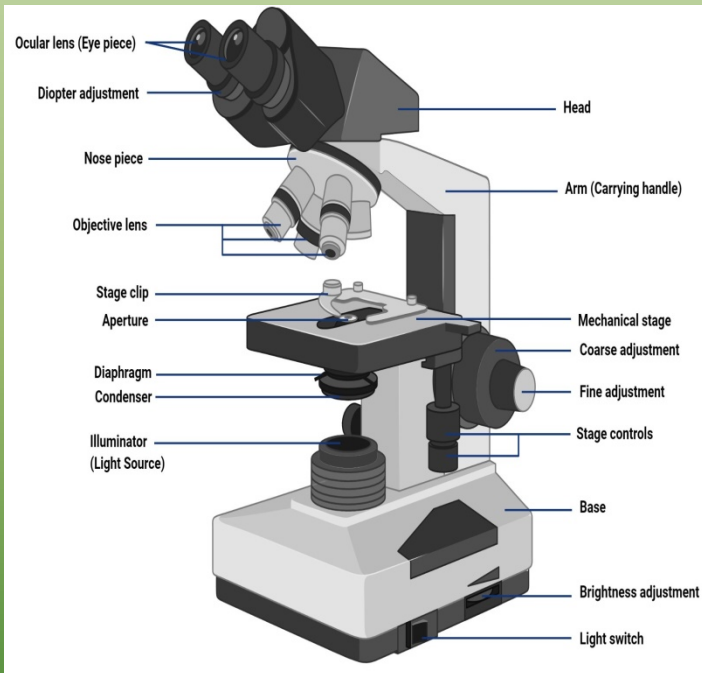
المرحلة/الرابعة

محاضرة رقم:6

Lecture No 6:

تدريسي المادة : م.م عذراء هادي

Types of Microscope



Bright-field microscopy (also known as light microscopy)

Many bacteria are difficult to see well because of their lack of contrast with the surrounding medium. Dyes (stains) can be used to stain cells or their organelles and increase their contrast so that they can be more easily seen in the bright-field microscope

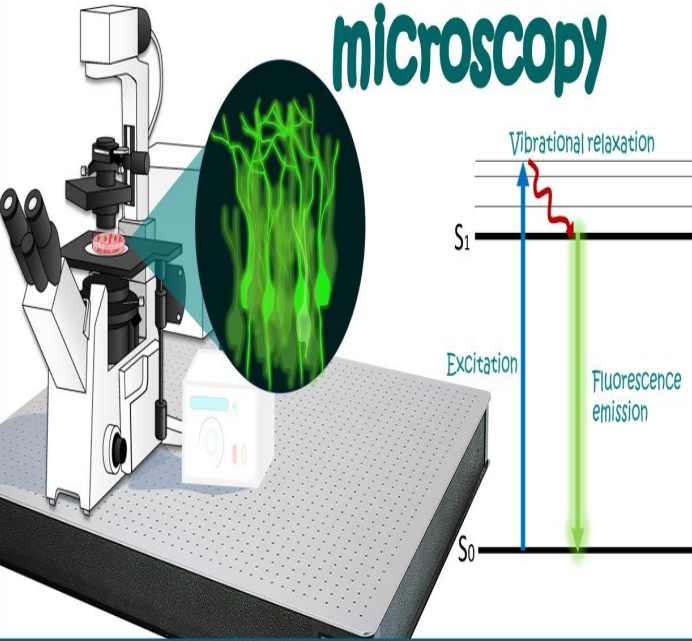


Types of Microscope

The phase-contrast microscope was developed to improve contrast differences between cells and the surrounding medium, making it possible to see living cells without staining them; with bright-field microscopes, killed and stained preparations must be used.

Types of Microscope

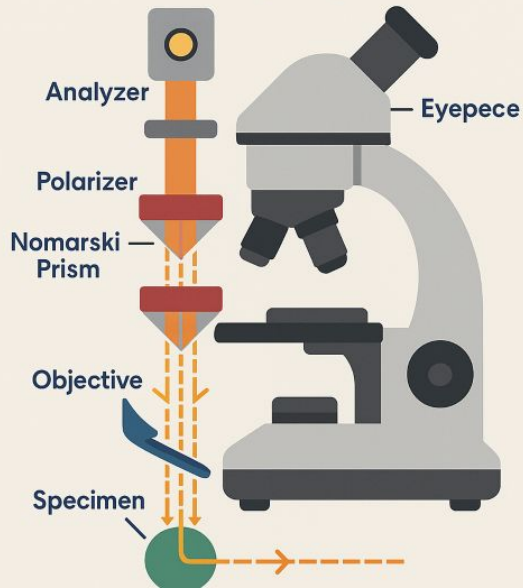
Fluorescence microscopy



Fluorescence microscopy is widely used in clinical diagnostic microbiology. For example, the fluorochrome auramine O, which glows yellow when exposed to ultraviolet light, is strongly absorbed by the cell envelope of *Mycobacterium tuberculosis*, the bacterium that causes tuberculosis. When the dye is applied to a specimen suspected of containing *M. tuberculosis* and exposed to ultraviolet light, the bacterium can be detected by the appearance of bright yellow organisms against a dark background.

Types of Microscope

DIFFERENTIAL INTERFERENCE CONTRAST (DIC) MICROSCOPE



Differential Interference Contrast Microscope (DIC)

Structures, such as spores, vacuoles, and granules, appear three dimensional. DIC microscopy is particularly useful for observing unstained cells because of its ability to generate images that reveal internal cell structures that are less apparent by .bright field techniques

Types of Microscope



The Electron Microscope There are two types of electron microscopes in general use: The transmission electron microscope (TEM), which has many features in common with the light 15 microscope; and the scanning electron microscope (SEM). is particularly useful for providing three dimensional images of the surface of microscopic objects. Scanning Probe Microscopes A new class of microscopes, called scanning probe microscopes, measures surface features by moving a sharp .probe over the object's surface