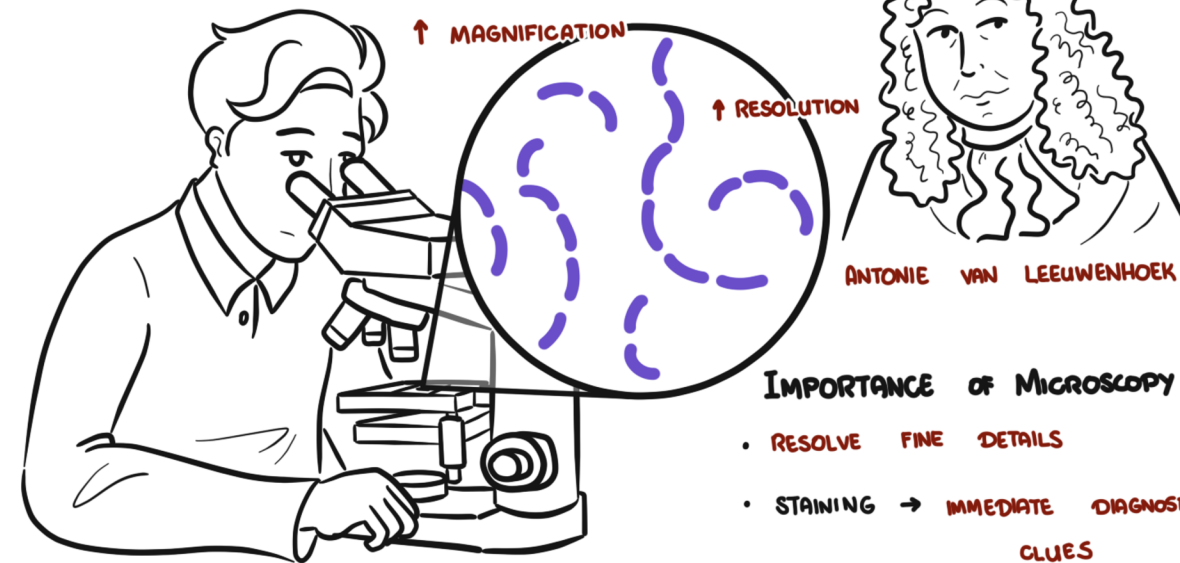


MICROSCOPY



IMPORTANCE OF MICROSCOPY

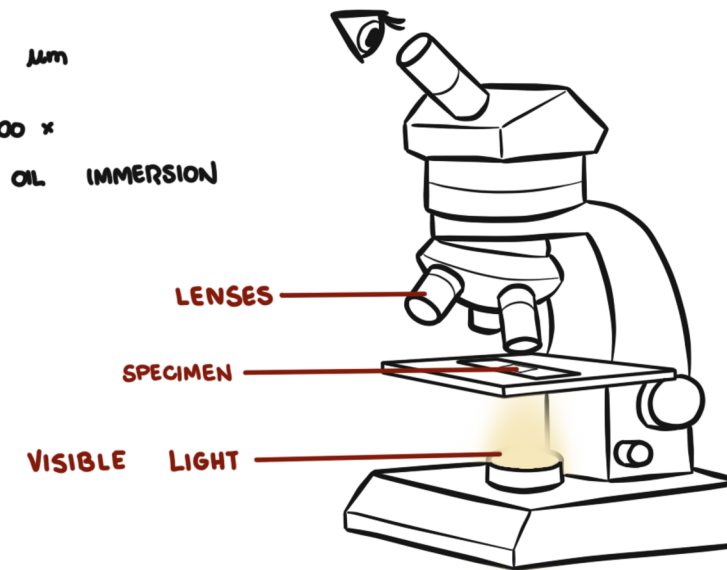
- RESOLVE FINE DETAILS
- STAINING → IMMEDIATE DIAGNOSTIC CLUES

LIGHT MICROSCOPY

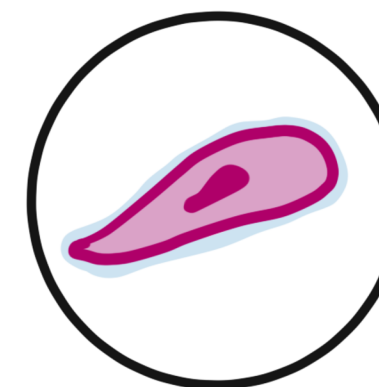
MAX RESOLUTION: $\sim 0.2 \mu\text{m}$

MAGNIFICATION: UP TO $\sim 1000\times$
WITH OIL IMMERSION

BEST FOR :
OVERALL SHAPE ,
ARRANGEMENT , AND
STAINING PATTERNS
OF BACTERIA

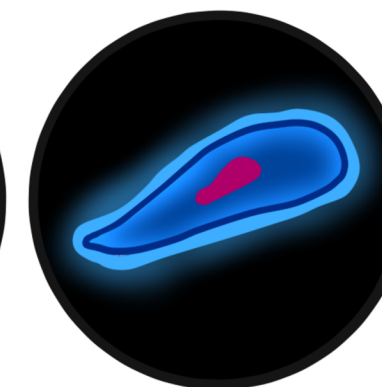


TYPES OF LIGHT MICROSCOPY



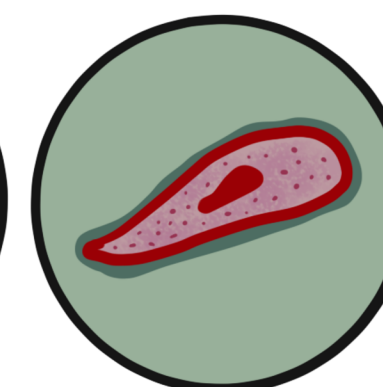
BRIGHT FIELD

- MOST COMMON
- REQUIRES STAINING



DARK FIELD

- USEFUL FOR THIN ,
DELICATE ORGANISMS



PHASE CONTRAST

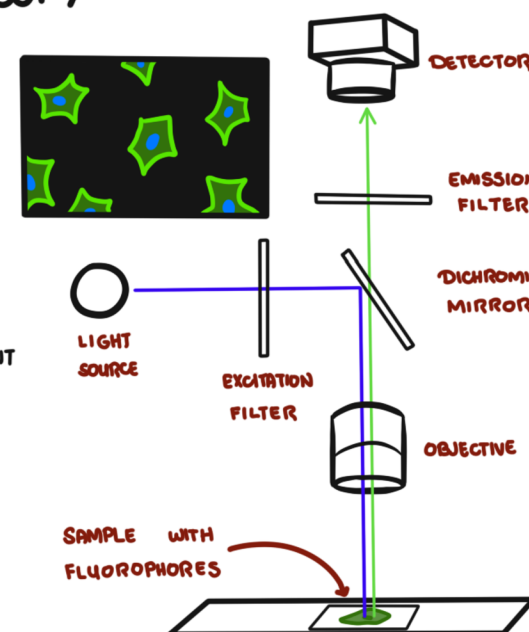
- MAKES INTERNAL DETAILS
OF LIVING , UNSTAINED CELLS
MORE VISIBLE

FLUORESCENCE MICROSCOPY

MAGNIFICATION / RESOLUTION :
SIMILAR TO LIGHT MICROSCOPES ,
BUT WITH ↑ SPECIFICITY

CLINICAL USES :

- DIRECT DETECTION OF MYCOBACTERIUM TUBERCULOSIS IN SPUTUM USING FLUORESCENT DYES
- RAPID DIAGNOSIS OF INFECTIONS USING FLUORESCENT ANTIBODY TESTS



ELECTRON MICROSCOPY

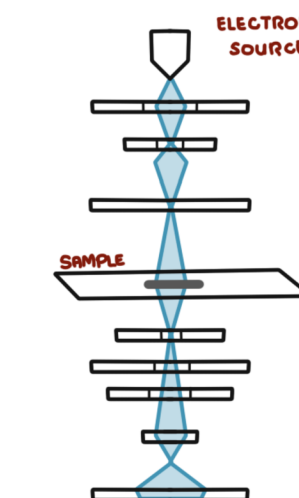
- USES ELECTRON BEAMS (NOT LIGHT)

MAGNIFICATION :

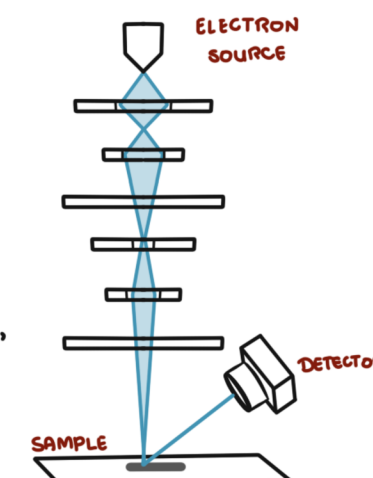
UP TO $1\,000\,000\times$

BEST FOR :

- VIRUSES ,
- DETAILED BACTERIAL STRUCTURES ,
- ULTRASTRUCTURE OF CELLS



TRANSMISSION EM



SCANNING EM

Armando H. Faigl