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Microscopy

organelle-nbo
viruses, atoms

10,000X - 100,000X
dead specimen ↑ resolution

living specimen

light microscopes

- brightfield
  - background bright
  - poor contrast
  - staining
    - ↑ contrast
    - kills them
    - dead
- darkfield
  - background dark
  - ↑ contrast w/o staining
  - living cells
    - small & colorless
    - causative syphilis
- phase contrast
  - background grey
  - ↑ contrast w/o stain
  - living cells
    - internal/external structure
    - cilia, flagella
    - nucleus

2000X magnification

electron microscopes

- TEM
  - internal structure
  - NO 3D
- SEM
  - external structure
  - 3D

dead organisms