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Light Microscopy

- The use of any kind of microscope that uses visible light to observe specimens
- Types of **light microscopy**
 - Compound light microscopy
 - Darkfield microscopy
 - Phase-contrast microscopy
 - Differential interference contrast microscopy
 - Fluorescence microscopy
 - Confocal microscopy



Compound Light Microscopy

- In a **compound microscope**, the image from the objective lens is magnified again by the ocular lens
- **Total magnification** = objective lens \times ocular lens

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Compound Light Microscopy

- **Resolution** is the ability of the lenses to distinguish two points
- A microscope with a resolving power of 0.4 nm can distinguish between two points ≥ 0.4 nm
- Shorter wavelengths of light provide greater resolution

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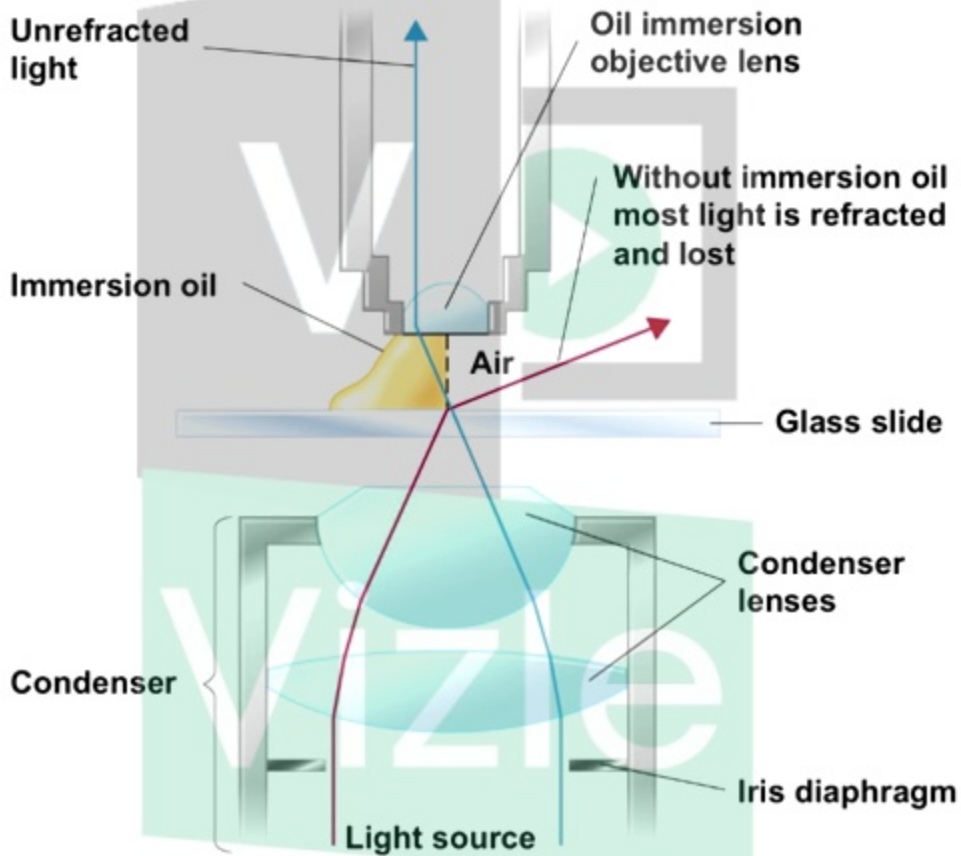
Compound Light Microscopy

- The **refractive index** is a measure of the light-bending ability of a medium
- The light may bend in air so much that it misses the small high-magnification lens
- Immersion oil is used to keep light from bending

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3.3 Refraction in the compound microscope using an oil immersion objective lens.





Brightfield Illumination

- Dark objects are visible against a bright background
- Light reflected off the specimen does not enter the objective lens



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Differential Interference Contrast Microscopy

- Accentuates diffraction of the light that passes through a specimen; uses two beams of light

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