

As distance between increases interference pattern spacing decreases

As wavelength increases spacing in interference pattern increases

Interference

Light

Double Slit

Discriminate among orientations of the wave

Polarization

Height vs 0 Amplitude

Length of 1 wave Wavelength

Period

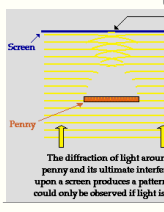
Frequency

Velocity of Propagation

Properties

Wave motion around something

the wave fills all space



Diffraction

Light

$n = c/v$

$n_1 \sin(\theta_1) = n_2 \sin(\theta_2)$

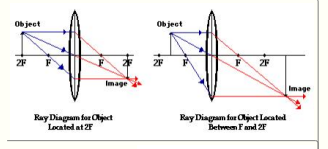
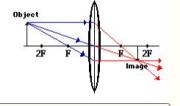
Violet bends more than red

Light bends toward the more dense/lower material

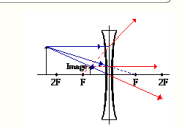
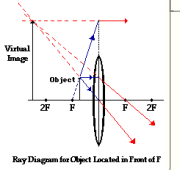
$\sin(\theta_c) = \frac{n_2}{n_1}$

occurs when theta2 is 90 Critical angle

Refraction

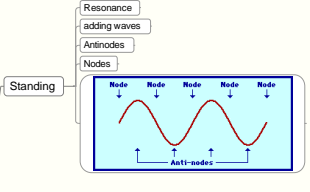


Converging



Diverging

Lenses



Longitudinal and Transverse

Sound Longitudinal

Light Transverse

Rarefaction

$v_{solids} > v_{liquids} > v_{gases}$

Shock Waves

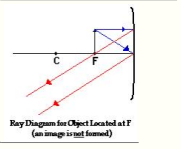
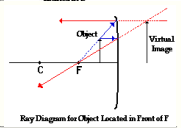
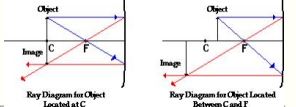
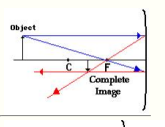
Always moving at the speed of sound

Speed of Sound

Always moving faster than the speed of sound

Speed of sound is relative to density of material the more dense the faster it goes. It is related to the young's modulus of the substance. A stronger spring vibrates faster.

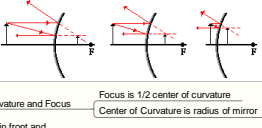
Pulse



Concave

Mirrors

Convex



Reflection

diffuse

Regular

Center of curvature and Focus

Focus is 1/2 center of curvature

Center of Curvature is radius of mirror

image forms in front and behind mirror depending if outside and inside focus respectively

See also total internal

Waves