

LC Physics – Key Definitions

The laws of reflection



The angle of incidence equals the angle of reflection.

The incident ray, the normal at the point of incidence, and the reflected ray are all in the same plane.

Laws of refraction



The incident ray, the normal at the point of incidence, and the refracted ray are all in the same plane.

For any pair of media, the sin of i , the angle of incidence, is proportional to the sin of r , the angle of refraction.

Real image



Formed by the actual intersection of light rays. It can be formed on a screen.

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Virtual image



Formed by the apparent intersection of light rays. It cannot be formed on a screen.

Refractive index



The refractive index of a medium is the ratio of the sine of the angle of incidence to the sine of the angle of refraction when light travels from a vacuum into that medium.

Critical angle



The angle for incidence for which the corresponding angle of refraction is 90° .

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Total internal reflection



Occurs when the angle of incidence in a dense material is greater than the critical angle. Light is reflected at the meeting of the two materials.

Wave



Means of transferring energy through a medium, without any net movement of that medium.

Transverse wave



In a transverse wave, the movement of the particles is perpendicular to the movement of the wave.

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Longitudinal
wave



The movement of the particles is parallel to the movement of the wave.

Diffraction



The ability of a wave to spread out after meeting an obstacle or passing through a small gap.

Interference



Occurs when two waves meet. When this happens, the total displacement will be equal to the algebraic sum of the individual displacement.

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Coherent waves



Two or more waves that have the same frequency and wavelength, and that are in phase or maintain a constant phase difference.

Polarisation



The restriction of a wave to vibrations in one plane.

Standing wave



A standing wave is produced when two waves of the same frequency and wavelength meet, moving in opposite directions.

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Harmonics



Multiples of the natural frequency of vibrations of a body.

Resonance



The transfer of energy between two bodies of the same natural frequency.

Intensity of sound



The intensity of sound at a point is defined as the rate at which energy is crossing a unit area perpendicular to the direction of which the sound is travelling. Sound is measured in Bels or deciBels (dB).

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The threshold of hearing

REVISE
WISE

The lowest sound intensity to which to which an average human ear can respond. Its value is taken as 10^{-12}

Wm^{-2} , at 1 KHz.

Frequency limits of audibility

REVISE
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The highest and lowest frequency sound waves that the average human ear can hear.

Doppler effect

REVISE
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The apparent change in the frequency of a wave due to the relative motion of the source of the wave or an observer is known as the Doppler effect.