

Optics (light) Vocabulary (for teacher reference)

This list can be modified for use with students, based on developmental readiness. Some suggestions are made for appropriate target grades.

General optics

magnify (gr. 1-3) – to make something look bigger

lens (gr. 1-3) – a transparent device used to focus light

focus (gr. 1-3) – when light passing through a lens comes to a point or when objects viewed through a lens are sharply defined

transparent (gr. 1-3) – when light completely passes through an object

translucent (gr. 1-3) - when light partially passes through an object

opaque (gr. 1-3) – when light cannot pass through an object

converge (gr. 4/5) – when light comes together after leaving the source

diverge (gr. 4/5) – when light spreads out from the source

spectrum (gr. 4/5) – the range of energy made by electromagnetism which includes all the colors of visible light, x-rays, ultraviolet, infrared and radio energy.

‘ROYGBIV’ (gr. 1-3) - this is a mnemonic for the main bands of visible light: red, orange, yellow, green, blue, indigo, violet – in order of their appearance (like in a rainbow)

frequency (gr. 4/5) – how many times waves (crests) go by per unit of time, usually seconds

trough – the lowest part of a wave

crest – the highest part of a wave

wavelength (gr. 4/5) – the distance between two consecutive wave crests or wave troughs

fluorescence (gr. 4/5) – this is the light given off by atoms whose electrons are excited by electricity

polarized light (gr. 4/5) – this is light which has been filtered so all the waves are lined up nice and neatly

UV (ultraviolet) light (gr. 4/5) – this is light beyond the violet range we can see (hence, it is invisible to humans). It is very high energy, and some forms can damage cells in our skin.

IR (infrared) light (gr. 4/5) – this is the light beyond the red range we can see (hence, it is invisible to humans). Its energy can vibrate atoms and molecules and warm them up.

telescope (gr. 1-3) - a device using lenses which magnifies distant objects.

microscope (gr. 1-3) – a device using lenses which magnifies very tiny objects.

shadow – a shadow is an area of relative darkness formed when the path of light is blocked by an opaque substance.