

# Knowledge Organiser - Year 6 - Science: Light



**Light - Light is a form of energy (electromagnetic radiation). Only part of the spectrum, of a certain wavelength, can be detected by the human eye.**

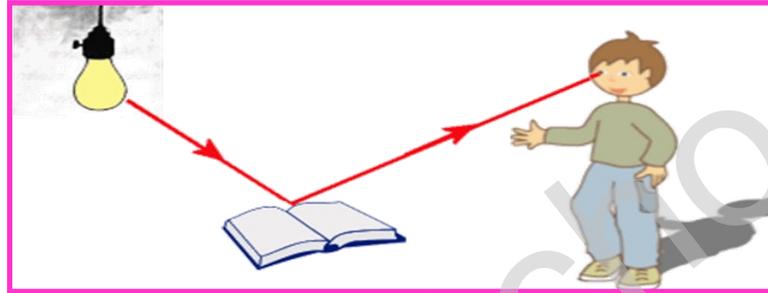
## Key Vocabulary

<b>Eyes</b>	Globular organs of sight in the head of humans and vertebrate animals. They have multiple parts, including the cornea, pupil, iris, lens and retina.
<b>Light source</b>	Something that provides light, whether it be a natural or artificial source of light (e.g. the sun, a torch).
<b>Opaque</b>	Not able to be seen through; not transparent.
<b>Periscope</b>	An apparatus consisting of a tube that is attached to a set of mirrors or prisms through which an observer can see things that are otherwise out of sight.
<b>Rainbow</b>	An arch of colours visible in the sky, caused by the refraction and dispersion of the sun's light by rain or other water droplets in the atmosphere.
<b>Reflection</b>	The throwing back by a body or surface of light without absorbing it.
<b>Refraction</b>	The bending of light as it passes from one substance to another with the bending caused by the difference in density between two substances.
<b>Shadow</b>	A dark area or shape produced by a body coming between rays of light and a surface. It has an Umbra and penumbra.
<b>Spectrum</b>	A band of colours, as seen in rainbows, produced by separation of the components of light by their different degrees of refraction.
<b>Transparent</b>	Allowing light to pass through so that objects behind can be distinctly seen.
<b>Translucent</b>	Allowing some light, but not detailed shapes, to pass through; semi-transparent.

## Working Scientifically

Explore ideas and raise different kinds of questions; select and plan the most appropriate type of scientific enquiry to use to answer scientific questions; Recognise when and how to set up comparative and fair tests and explain which variables need to be controlled and why. They should make their own decisions about what observations to make, what measurements to use and whether to repeat them; choose the most appropriate equipment to make measurements and explain how to use it accurately. They should decide how to record data from a choice of familiar approaches; They should use their results to identify when further tests and observations might be needed; They should use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas.

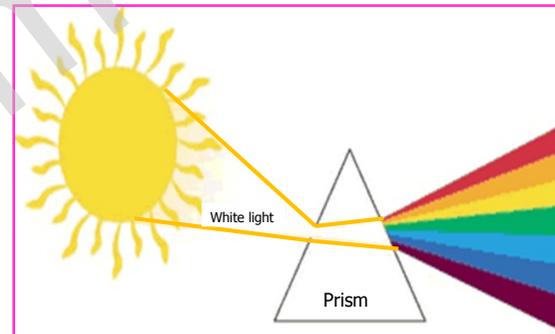
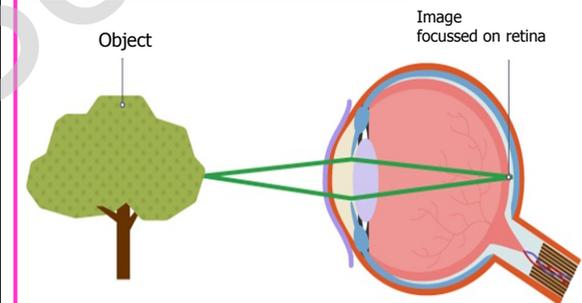
## Key Question: How does light travel?



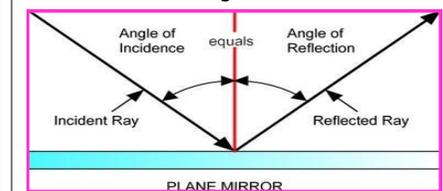
Light travels in straight lines and bounces off opaque objects.

But, what is behind the boy? Why is it there? Can we change its size? We will be investigating shadows to explain why they have the same shape as the objects that cast them.

We are going to learn how your eye uses light to see objects and creates an image for the brain to interpret. The lens focuses light through the clear gel that fills the back of the eye and supports the retina. The retina receives the image that the cornea focuses through the eye's internal lens and transforms this image into electrical impulses that are carried by the optic nerve to the brain. The pupil is a hole through which the light passes.



When thinking about how light behaves, you need to know what happens at a reflective surface and then you can use mirrors to send light around a corner, even though we know that light only travels in straight lines. Periscopes use this technique to see around corners or above things.



White light may not be as white as you think it is! It contains other colours too! How do bees see the world? They can see ultra-violet light.

Light travels at slower speeds in liquids and solids leading to refraction (a change of direction).

Light travels at 299,792 km every second in air. That is around 1000 times faster than the speed of sound and roughly 10,000 times faster than the speed on urban roads. Light takes 1.255 seconds to get from the Earth to the moon. But remember—the moon is not a light source.

## Translucent, Transparent & Opaque

