

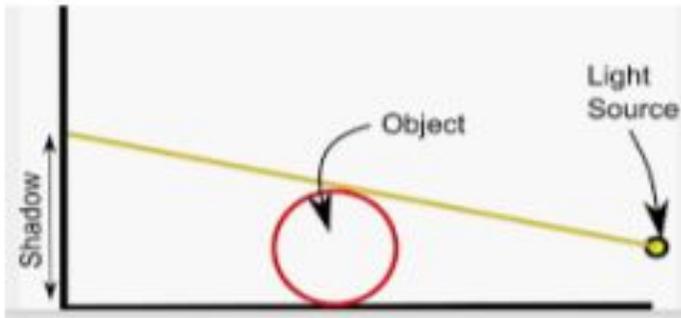
Light

Significant Scientist

Sir Isaac Newton



Sir Isaac Newton (1643-1727) studied Science and philosophy at the University of Cambridge. Among other things he discovered when light travels through a prism it is refracted and this proves that white light is made up of the colours of the rainbow.



Working Scientifically Skills

Plan

Measure

Fair test

Report data – scientific diagrams, labels, bar graphs and line graphs.

Present – conclusions, casual relationships, explanations.

Enquiry Skills

- Observation over time
- Pattern seeking
- Research
- Fair testing

Key Knowledge

Light is a form of energy made up of photons, which allows us to see things. We can see things because light is reflected.

Light travels very quickly, in waves and in straight lines.

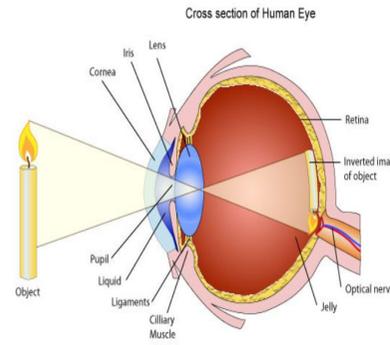
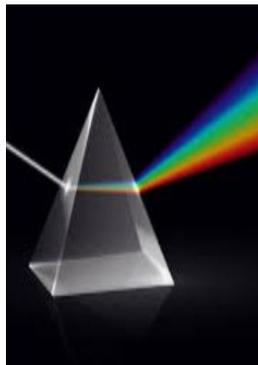
Light behaves differently depending on what it comes in to contact with. Light usually travels in straight lines (rays) but when passing through transparent materials such as water and glass, light bends or turns – known as refraction. This is because different materials have different qualities and cause the wavelength of light to change.

Opaque—objects reflect all light and make clear dark shadows. Transparent—objects allow light to pass through and so do not create much shadow. Translucent—objects scatter light and can create faint shadows.

We see through our eyes, which are organs that take in light and images and turn them into impulses that our brain can understand. Light rays bounce off objects and into our eyes, allowing us to see.

The amount of light reflected from an object depends on the surface and the colour of the object (smooth, shiny and light colours reflect light best).

Light is made of many different colours (white light), known as the spectrum. When light hits an object, some of the colours are absorbed by the object and some are reflected. This enables us to see objects in different colours.



Key Vocabulary

prism	A glass (transparent) object that separates white light into a spectrum of colours.
refraction	The bending of light as it passes from one substance to another with the bending caused by the difference in density between two substances.
reflection	The throwing back by a body or surface of light, heat or sound without absorbing it.
spectrum	A band of colours, as seen in rainbows, produced by separation of the components of light by their different degrees of refraction.
rainbow	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.
translucent	An object which allows some light to pass through it. It may be possible to see some unclear images through the object (tissue paper).
opaque	An object which does not allow light to pass through e.g. wood.
transparent	An object which allows light to pass through it so that objects behind it can be easily seen e.g. glass.

