



Key Vocabulary	
Light	the natural agent that stimulates sight and makes things visible.
Reflection	the throwing back by a body or surface of light, heat or sound without absorbing it.
Ray	a beam of light given off by a light source
Prism	when light passes through a different object and its direction changes.
Periscope	An apparatus consisting of a tube of attached to a set of mirrors or prisms through which an observer can see things that are otherwise out of sight.
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.
Spectrum	a band of colours, as seen in rainbows, produced by separation of the components of light by their different degrees of refraction.
Light Source	something that provides light, whether it be a natural or artificial source of light (e.g. the sun, a torch).
Opaque	an object which does not allow light to pass through (e.g. wood).
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).
Transparent	an object which allows light to pass through it so that objects behind it can be easily seen (glass).
Shadow	a dark area or shape produced by a body coming between rays of light and a surface.

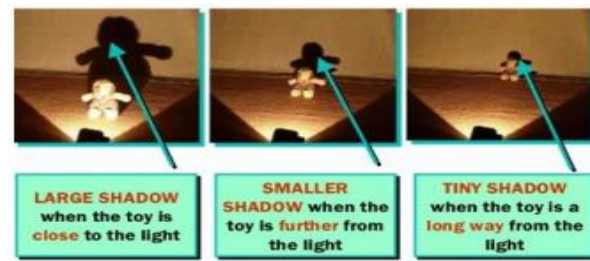
### What is light and how does it behave?

Light is a form of energy made up of photons, which allows us to see things. Light travels very quickly and appears to travel in straight lines (rays) but when passing through transparent materials such as water and glass, light bends or turns – known as **refraction**.



### Shadows

Because light travels in straight lines, when there is an opaque object blocking the light, a shadow is formed. □ These shadows have the same shape as the objects that cast them. The size of a shadow changes as the light source moves.

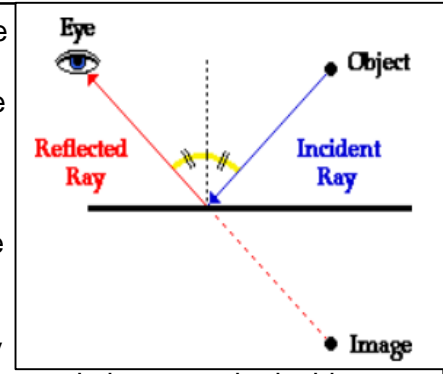


**Focused Scientist – Sir Isaac Newton**  
 Sir Isaac Newton (1643-1727) studied Science and philosophy at the University of Cambridge. Among other things he discovered when light travels through a prism it is refracted and this proves that white light is made up of the colours of the rainbow.



### The Law of Reflection

In the diagram, the ray of light approaching the mirror is known as the **incident ray** (labelled **I** in the diagram). The ray of light that leaves the mirror is known as the **reflected ray** (labelled **R** in the diagram). At the point of incidence where the ray strikes the mirror, a line can be drawn perpendicular to the surface of the mirror. This line is known as a **normal line** (labelled **N** in the diagram). The normal line divides the angle between the incident ray and the reflected ray into two equal angles. The angle between the incident ray and the normal is known as the **angle of incidence**. The angle between the reflected ray and the normal is known as the **angle of reflection**.



### How We See Things

**We see things because...**

- they are a light source, sending light into our eyes, or
- light is reflected from a light source off them and into our eyes.

When the light enters our eyes, we see the object!

For example, we see The Sun because it is a light source, sending light into our eyes. However, the Moon is not luminous (does not produce its own light). We see it because light from The Sun reflects off it into our eyes. After light reflects off objects, it continues to travel in a straight line, but in a new direction

