

# Science: Light I Year Six I Term 2



## Light Facts

Isaac Newton made the discovery that light was made up of a spectrum of colours.	The light we see from the sun actually left the sun ten minutes before we see it!	The speed of light is incredibly fast! It could travel from Earth to the Moon in 1.255 seconds!
Plants convert light energy into their 'food' using a process called photosynthesis	The study of the behaviour and properties of light is called optics(a branch of physics)	If you could travel at the speed of light, you would be able to go around the world 7.5 times per second!

## Key Concepts

<b>How light travels</b>	<p>Light rays travel from the light source.</p> <p>Light reflects off object.</p> <p>Light from object travels into the eye.</p> <p>Pupil</p> <p>Iris</p>	Light travels in straight lines from a light source, so has a specific direction. Light waves travel without any matter or material to carry its energy (unlike sound waves).
<b>How shadows are formed</b>	<p>Source of light</p> <p>Object</p> <p>Screen (eg a wall)</p> <p>Shadow formed on the screen</p>	Since light travels in straight lines, when an opaque object (one that blocks light) gets in its path, a dark area will be formed behind it, following the same shape/outline of the object.
<b>How light is reflected</b>	<p>reflected ray</p> <p>incident ray</p>	Light from a light source 'bounces off' objects and changes direction. All objects reflect light: smooth and shiny surfaces reflect all rays of light at the same angle, whereas rough or dull surfaces scatter the light rays.
<b>How light is refracted</b>	<p>White Light</p> <p>Glass Prism</p> <p>Red</p> <p>Orange</p> <p>Yellow</p> <p>Green</p> <p>Blue</p> <p>indigo</p> <p>Violet</p>	Light rays 'bend' as they pass from one transparent medium to another. The speed of the light travelling is slowed down, making some objects appear larger in water (for example). Light 'splits' due to different colours within it being slowed down at different rates.
<b>How do we see?</b>	<p>Muscles to move eye</p> <p>Lens</p> <p>Pupil</p> <p>Iris</p> <p>Cornea</p> <p>Muscles to adjust lens</p> <p>Blind spot</p> <p>Optic nerve to brain</p> <p>Retina</p> <p>Fovea</p>	Light rays travel towards our eyes after being reflected by all the objects around us. The reflected light travels into our pupils (controlled by the iris), through a lens and onto the retina at the back of the eye. The retina then sends the information to our brain.

Vocabulary	
<b>Transparent</b>	An object or material that allows light to pass through it. Objects behind a transparent material can be distinctly seen.
<b>Translucent</b>	An object or material that partially allows light to pass through it. Light can be seen through a translucent material, but objects cannot usually be distinctly seen.
<b>Opaque</b>	An object or material that does not allow any light to pass through it.
<b>Shadow</b>	A dark area/shape produced by an object blocking the light from a light source travelling to another surface.
<b>Reflect</b>	Light rays 'bounce-off' objects so that the objects can be seen.
<b>Mirror</b>	A surface which completely reflects the light directed towards it – these usually create a clear 'mirror image'.
<b>Light Source</b>	The object/place where light energy is produced (the sun is our biggest light source).
<b>Refraction</b>	The 'bending' of light as it passes through an object or material – glass lenses 'bend' light.
<b>Spectrum</b>	A 'rainbow' of colours created by the refraction of light through glass/water.
<b>Iris</b>	The coloured part of the front of the eye which controls the amount of light entering the eye by changing the size of the pupil
<b>Pupil</b>	The opening in the centre of the front of the eye. It appears to be black, but is a transparent opening in the centre of the iris.