



### Key People/Scientists



**Justus Von Liebig  
(1803-1873)**

A German scientist who invented the first modern mirror. In 1835 he perfected the technique of using metallic silver to the back of a pane of glass.

### Misconceptions/Key facts

**Misconception:** Light is not needed to see; it is possible to see in the dark.

**Fact:** Light is necessary for vision. It is impossible to see in total darkness.

**Misconception:** Only smooth, shiny objects like mirrors reflect light; dull and rough objects do not reflect light.

**Fact:** Dull objects do reflect light, otherwise we would not be able to see them. Smooth surfaces produce regular reflection while rough surfaces produce scattered, diffused or irregular reflection.

**Misconception:** Light travels from the source to both the observer and the object, but there is no link between the two.

**Fact:** Light travels from the source to the object; the object reflects the light from the source into the eyes of the observer; the receptor cells in the observer's retinas detect the light and send the signals to the brain.

### Key Questions

<b>How does light travel?</b>	Light is a beam of energy that travels in straight line from a source. There are different sources of light, such as a candle or the sun.
<b>How are shadows formed?</b>	Shadows are created when an opaque object blocks the light. The light cannot go through or around the object, so a shadow is created behind the object.
<b>What happens when light hits a mirror?</b>	When light falls on a mirror, the direction of light changes. This change in direction of light is called reflection.
<b>Why don't we look directly at the sun?</b>	Our eyes are super sensitive to the sun's harmful rays. Staring directly at the sun can be very harmful to your eyes and cause permanent damage.
<b>Why does the moon appear to shine at night?</b>	Although the moon appears to shine brightly in the night sky, it does not produce its own light. We see the moon because it reflects light from the sun.

### Diagrams/Visual Aids

**How does light travel?**

• Light rays travel in straight lines from the light source.  
 • When it hits an opaque object, some light is absorbed and the rest reflects off.  
 • If the object is transparent, light rays pass through it easily.  
 • If the object is translucent, some light can pass through, but the rest of the light will be reflected.

### Key Vocabulary

<b>artificial light</b>	A source of light that is man-made. E.g. A torch.
<b>dark</b>	Dark is the absence of light.
<b>light</b>	A beam of energy that travels in a straight line.
<b>natural light</b>	A source of light that is not man made. E.g. Sunlight.
<b>reflection</b>	When light bounces off an object.
<b>shadow</b>	A shadow is formed when an opaque object blocks light.
<b>star</b>	A huge glowing ball of gases. The closest star to the earth is the sun.
<b>surface</b>	The outer layer of an object.