

Year 6 - Light

SCIENCE

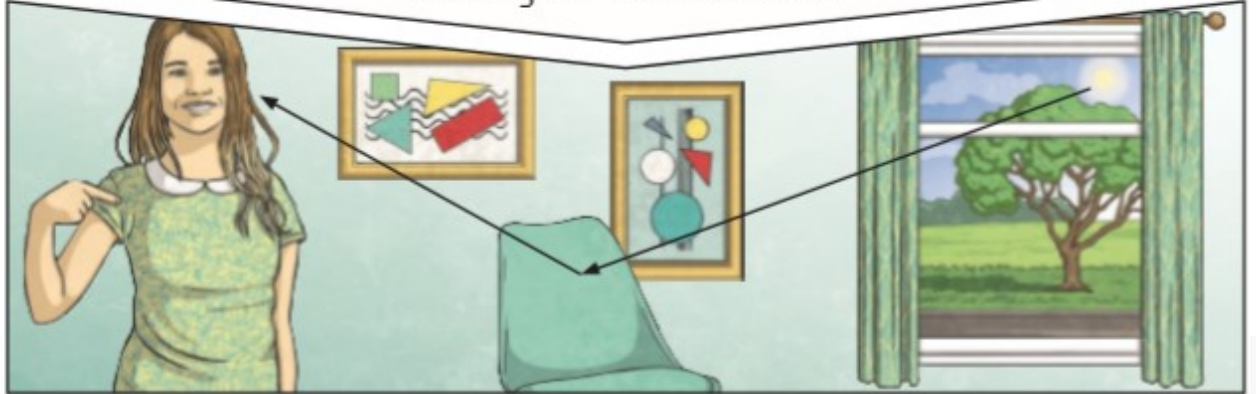


Key Knowledge

Key vocabulary	
Eyes	Globular organs of sight in the head of humans and vertebrate animals
Filter	Pass through a device to remove unwanted material (liquid, gas, light or sound)
Light	The natural agent that stimulates sight and makes things visible
Light Source	Something that provides light, whether it be a natural or artificial source of light (e.g. the sun, a torch)
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
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
Reflection	The throwing back by a body or surface of light, heat or sound without absorbing it
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
Shadow	A dark area or shape produced by a body coming between rays of light and a surface
Spectrum	A band of colours, as seen in rainbows, produced by separation of the components of light by their different degrees of refraction

We need **light** to be able to see things. **Light** waves travel out from sources of **light** in straight lines. These lines are often called rays or beams of **light**.

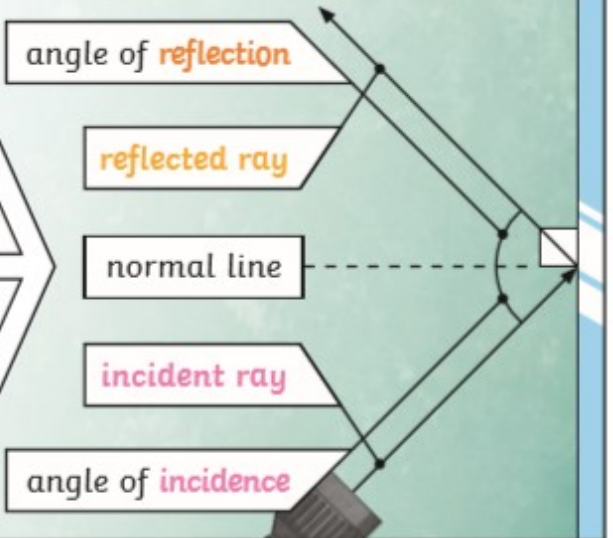
Light from the sun travels in a straight line and hits the chair. The **light** ray is then **reflected** off the chair and travels in a straight line to the girl's eye, enabling her to see the chair.



The **law of reflection** states that the angle of **incidence** is equal to the angle of **reflection**. Whenever **light** is **reflected** from a surface, it obeys this law.

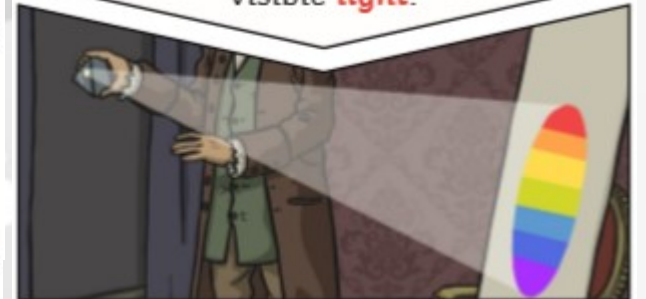
The angle of **reflection** is the angle between the normal line and the **reflected ray** of **light**.

The angle of **incidence** is the angle between the normal line and the **incident ray** of **light**.

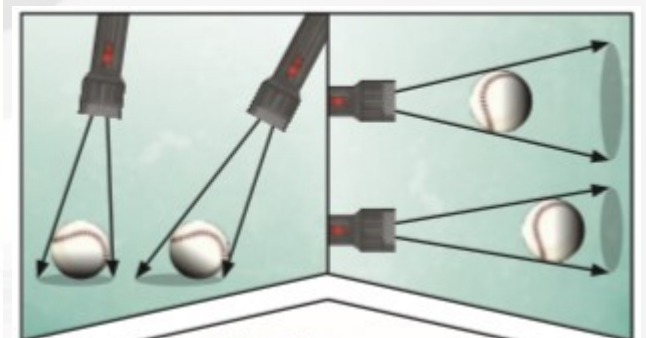


The spoon in this water looks as if it is bent. This is because **light** bends when it moves from air to water. When **light** bends in this way, it is called **refraction**.

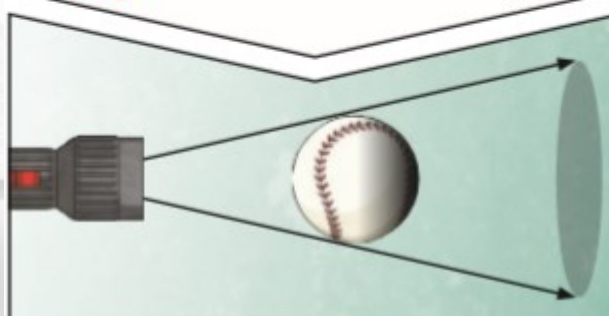
Isaac Newton shone a **light** through a transparent **prism**, separating out **light** into the colours of the rainbow (red, orange, yellow, green, blue, indigo and violet) - the colours of the **spectrum**. All the colours together merge and make visible **light**.



A **shadow** is always the same shape as the object that casts it. This is because when an **opaque** object is in the path of **light** travelling from a **light source**, it will block the **light** rays that hit it, while the rest of the **light** can continue travelling.



Shadows can also be elongated or shortened depending on the angle of the **light source**. A **shadow** is also larger when the object is closer to the **light source**. This is because it blocks more of the **light**.



Light travels as a wave. But unlike waves of water or sound waves, it does not need a medium to travel through. This means **light** can travel through a vacuum - a completely airless space.

