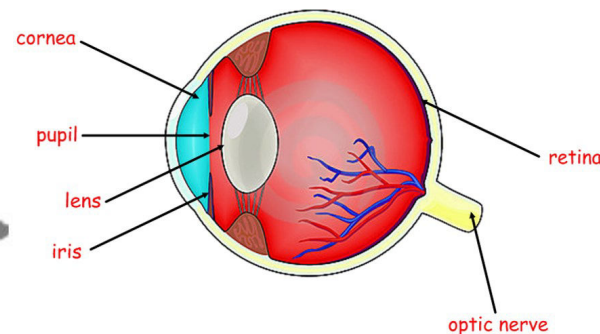
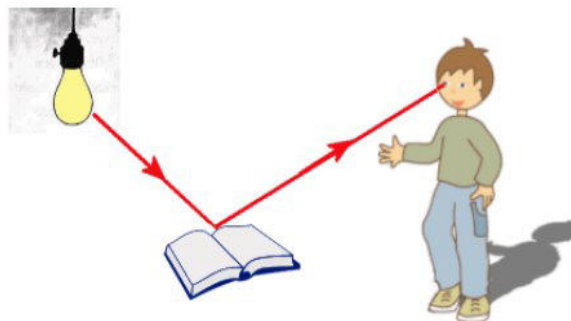




Shadows form when an opaque object blocks the rays of light that hit it from travelling as they do not bend and cannot travel any further. Shadows can be elongated or shortened by changing the angle of the light source; shadows can be made bigger by moving the object closer to the light source.

Why do we need light to help us see?

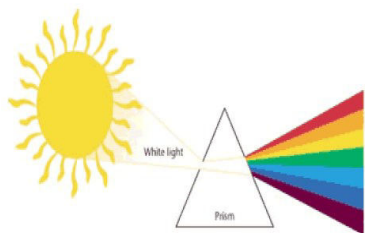


Light from a light source travels in a straight line, bounces off objects and into our eyes through the pupil. The brain then decodes the image it receives.

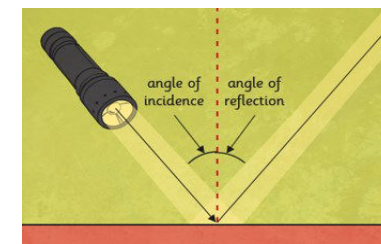
Depending on the amount of light, the iris changes the size of the pupil to let more or less light in.

If there is no light at all (pitch-black) then there is no light to reflect and we can't see anything.

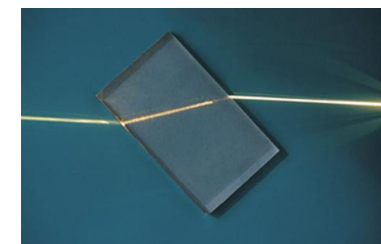
At night, you can still see a bit in the dark because the moon is reflecting light from the sun.



Sir Isaac Newton discovered that white light is made up of the seven colours of the rainbow. When light hits a surface, some of it is absorbed and some of it is reflected. For example: a lemon reflects yellow light, all the other colours are absorbed and are therefore not seen by our eyes.



When light from an object is reflected by a surface, it changes direction. It bounces off the surface at the same angle as it hits it. When rays of light reflect, they obey the law of reflection: the angle of incidence always equals the angle of reflection.



Light waves travel at a different speed when they go through different transparent materials, such as water or glass. This causes the rays of light to change direction and bend. This is known as refraction and can create illusions (causing objects seen through these materials to look bent or distorted).

Light	A form of energy that travels in a wave
Light ray	The straight line path followed by narrow beams of light
Light source	An object that makes its own light (e.g. the sun, a candle, a torch)
Shadow	An area of darkness where light has been blocked.
Transparent	Describes objects that let light travel through them easily
Translucent	Describes objects that let some light through but scatters it
Opaque	Describes objects that do not let any light pass through them
Reflection	When light bounces off a surface, changing the direction of a ray of light
Refraction	When light bends as it passes from one medium to another (e.g. water to air)