

Things you need to know about light

What is a light **source**?

Something that makes its own light

Common sources of light

The sun



The stars



Flames



Electric lights



Some animals (fireflies and glow worms make their own light)



Things you may think are light sources but aren't

*The moon
A mirror
Shiny objects*

How does light travel?

*In straight lines
It travels very, very fast – 300,000km per second. That's like travelling around the world over 7 times in a second!*

Light

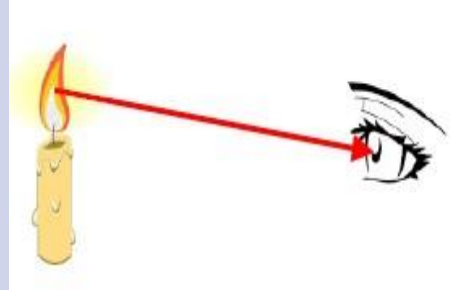
We need light to be able to see things

Darkness is the absence of a source of light.

Light travels in a straight line

How we see things

We see things when light from a light source enters our eyes through the pupil



Pupil

Light travels from the light source and into the eye



The light travels from the light source, bounces off the object and into the eye

Key Vocab

Opaque

Opaque materials do not let any light through. They block the light. E.g. wood

Source

A thing from which something starts

Shadow

A dark area which is formed when light from a light source is blocked by an opaque object

Transparent

Transparent materials let light through them in straight lines, so that you can see clearly through them (e.g. glass)

Translucent

Translucent materials let some light through, but they scatter the light in all directions so you cannot see clearly through them (e.g. tissue paper)

The Sun



If too much light comes through the pupil, it can damage the eye.

It causes pain, so that you instantly close your eyes, or turn away from a bright light.

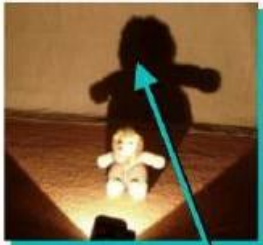
It is very important that you never look directly at the sun, as the light can damage your eyes very quickly.

It's never safe to look directly at the sun, even when wearing sun glasses

Bright lights indoors can also damage your eyes, so you should never look at them, or shine lights into anyone's eyes.

Shadows

A **shadow** is formed when an object does not allow the light to pass through it.



LARGE SHADOW
when the toy is
close to the light



SMALLER SHADOW
when the toy is **further** from the light

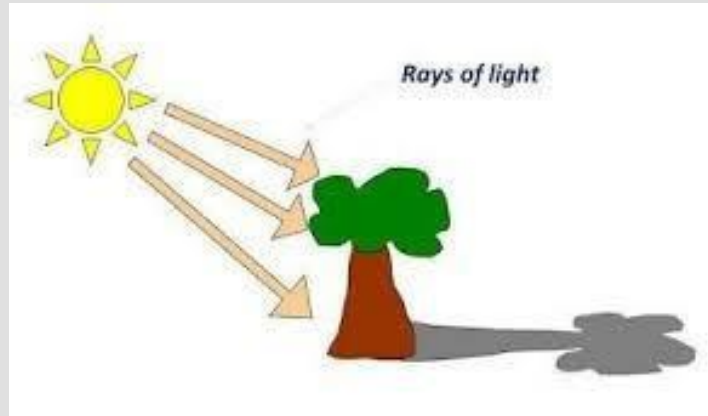


TINY SHADOW
when the toy is a
long way from the light



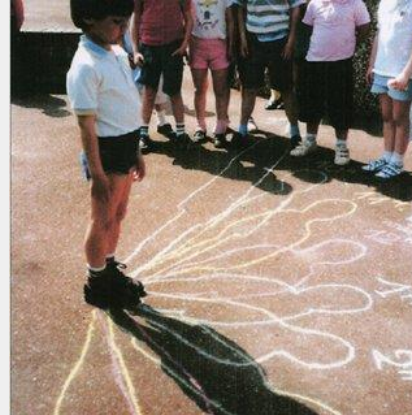
How a shadow is made

Shadows are made when there is an object blocking the light from hitting the surface. This means that the shadow will always be on the opposite side of an object to the sun or light.



The object needs to be an **opaque** object. If it is **transparent** then the light will pass through it, whereas a solid object will block it. Some light passes through **translucent** objects. Although some light is blocked, some gets through and so a shadow is formed. These shadows are not as dark.

Shadows made by the sun change as the earth moves



The position of the Sun affects the position and length of the shadows created.