

What should I already know?

I know that you need light to see things, that dark is the absence of light and that light is reflected from some surfaces.

I recognise that light from the sun can be dangerous and there are ways to protect my eyes.

I know that shadows are formed when light from a light source is blocked by an opaque object.

I can find patterns in the way that the size of shadows change.

Enquiry Question

How does the distance from a light source affect the size of the shadow?

Vocabulary

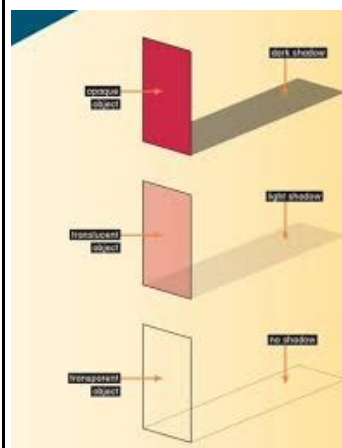
Light source	object that produces light
Reflection	when light bounces off an object
Ray diagram	a diagram that shows how light travels
Refraction	the changing of direction of light when it passes from one medium to another.
Medium	any substance which can allow sound or light to pass through it
Periscope	an instrument that uses mirrors to make objects visible around barriers
Shadow	a dark area caused by an object blocking a source of light
Solar eclipse	when the Moon passes between the Earth and the Sun and blocks the sunlight from reaching the Earth. This casts a shadow of the Moon on the Earth

We see things because...

a. there is a light source sending light into our eyes, or b. light is reflected from a light source off a surface and into our eyes. When the light enters our eyes, we see the object! We see the Sun because it is a light source, sending light into our eyes. The Moon does not produce its own light. We see it because light from the Sun reflects off it into our eyes. After light reflects off objects, it continues to travel in a straight

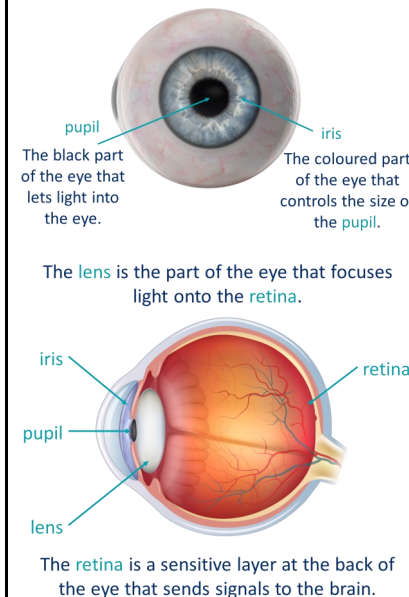
How light travels

Light originates from light sources. Light sources can be natural (the sun, the stars) or manmade (street light, TV). Light travels in a straight line from light sources. We can see light travelling in straight lines when we shine a torch in a dark room, or when a ray of light comes through a window. When an object passes in front of a ray of light the light can be blocked, creating a shadow the



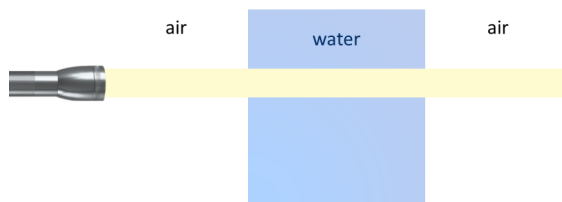
How we see

Our eyes have a small window at the front called a pupil, through which light can enter. The pupil looks as though it is black because it is dark inside our eyes. Shortest distance between two points. light rays Straight path of light. When it is dark, our pupils get larger, in order to let more light in so that we can see better. In bright lights, our pupils get smaller.



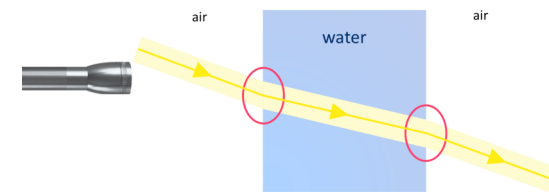
Refraction

When light travels through different mediums, the speed of light will change.



The speed of light slows down.

If you change the angle that the light meets the water at. We call this refraction



Light changes direction when it travels from one medium into another medium.