

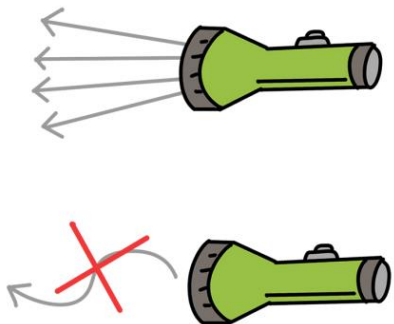
# Physics – Light

## Prior Learning - Year 3 Learning : Seasons and Light

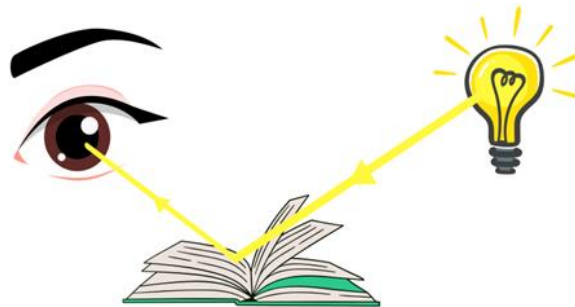
- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by an opaque object
- find patterns in the way that the size of shadows change.

## Year 6 Learning: Light

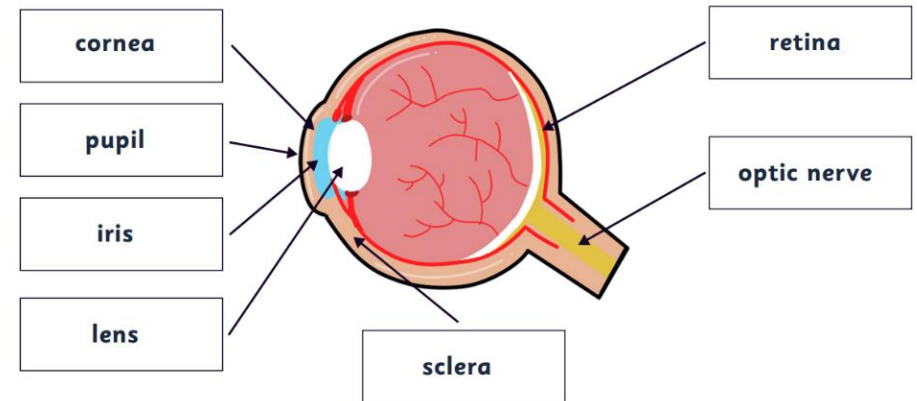
- recognise that light appears to travel in straight lines
- use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye
- explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.



Light travels in rays; it travels in straight lines.



We can see things because light is reflected. Some materials reflect light better than others.



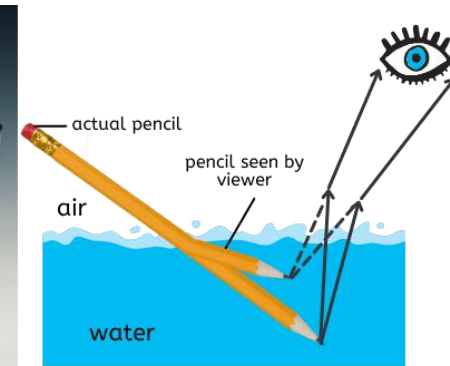
The light travels into the eye through the cornea and the pupil. It travels through the lens, which focuses it on the back of the eye. It refracts the light, which projects an upside-down image onto the retina. Photoreceptors (sensors) in the retina translate the image into electric impulses, which travel along the optic nerve and into the brain. The brain makes sense of the signals and tells us what we can see.

<b>light source</b>	Light comes from different sources called light sources; our main natural light source is the sun.
<b>waves</b>	Light is a type of electromagnetic radiation that can be detected by the eye. It travels as a transverse wave.
<b>refraction</b>	When light changes direction (or seems to bend) when it moves from one material to another.
<b>pupil</b>	The dark opening in the middle of your eye, it allows light to enter.
<b>retina</b>	The inside lining of the back of the eye that changes light waves into electrical signals, which are sent to the brain to be interpreted.
<b>iris</b>	The coloured part of the eye.
<b>lens</b>	It changes shape getting thicker or thinner, it can adjust how much light is let in, focusing it as it beams it onto the retina.
<b>optic nerve</b>	The optic nerve is hidden in the back of the eye. It connects to the brain and carries important electrical signals.
<b>Sclera</b>	White part of the eye, which provides support for the eye and helps it keep its shape, as it's very fibrous.
<b>Cornea</b>	It is transparent, allowing light to pass through and enter the iris. Corneas are convex shapes (it curves outwards and the middle is thicker than the edges).



A shadow is a dark area or shape caused by a solid object blocking the rays of light from a light source. Opaque objects make the darkest shadows.

The distance an object is from the light source, determines the size of the shadow: the closer it is, the larger the shadow, the further away it is, the smaller the shadow.



The sun's rays have shone down on us for 4.603 billion years.

I wonder how many generations and living things have benefitted from its light?