

Science Knowledge Organiser Y5/6 – Light

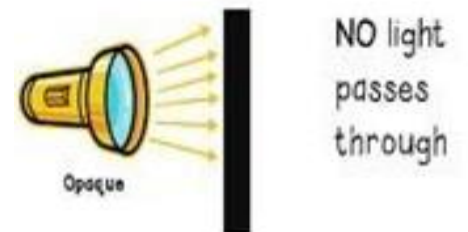
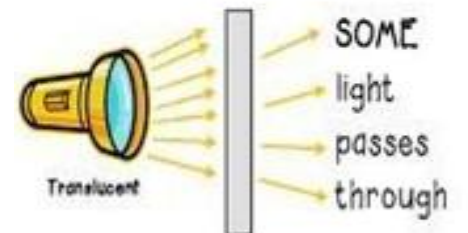
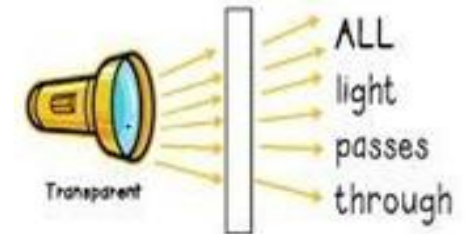


Key Vocabulary	
Eye	A globular organ of sight in the head of humans and vertebrate animals
Light	The natural agent that stimulates sight and makes things visible
Light source	Something that provides light, whether it be a natural or artificial source of light (e.g. the sun, a torch)
Opaque	Describes objects that do not let any light pass through them
Pupil	The opening of the iris determining how much light is let into the eye
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 medium to another e.g. light bends when it moves from air into water
Retina	The nerve layer lining the back of the eye that senses light and sends messages to the brain about what we see
Shadow	An area of darkness where light has been blocked
Spectrum	A band of colours, as seen in rainbows, produced by separation of the components of light by their different degrees of refraction
Prism	A solid 3D shape with two ends of equal shape and size. A transparent prism separates out visible light into all the colours of the spectrum
Translucent	Describes objects that let some light through, but scatters the light so we can't see through them properly
Transparent	Describes objects that let light travel through them easily, meaning you can see through the object



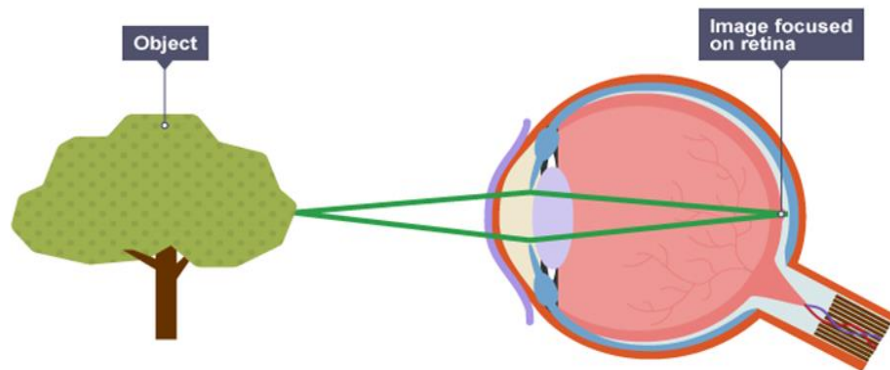
A **shadow** is always the same shape as the object that casts it. This is because when an **opaque** object is in the path of the **light** travelling from a **light source**, it will block the light rays that hit it, while the rest of the light can continue travelling. Shadows can also be elongated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

Translucent, Transparent & Opaque



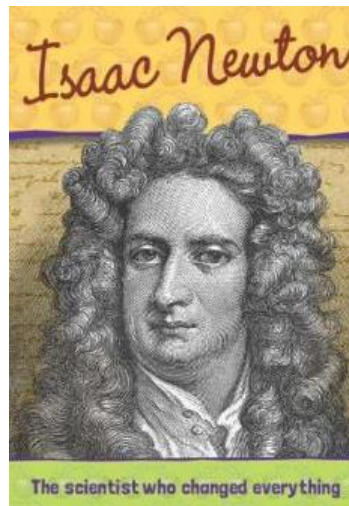
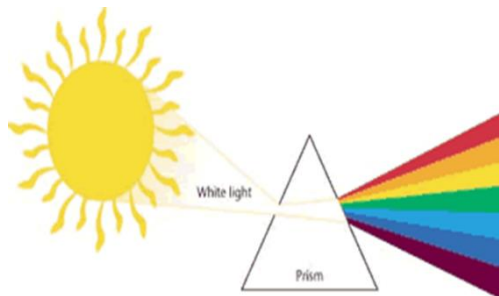
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We need light to be able to see things. Light waves travel out from sources of light in straight lines. These lines are often called rays or beams of light. Light from the sun travels in a straight line and hits an object. The light ray is then reflected off the object and travels in a straight line to the eyes enabling the object to be seen.



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. When it is dark, our pupils become larger in order to let more light in so that we can see better. In bright lights, our pupils become smaller. At the back of our eye is a sensitive sheet of nerves called a **retina**. The retina can detect light when it enters through the pupil and send messages to the brain about what we can see.

Sir Isaac Newton shone a light through a transparent prism, separating out light into the colours of the rainbow – the colours of the spectrum. All the colours together merge and make visible light.



Assessment

- To explain that light travels in straight lines from light sources to our eyes, and from light sources to objects and then to our eyes
- To understand how mirrors reflect light, and how they can help us see objects
- To investigate how refraction changes the direction in which light travels
- To explore how a prism changes a ray of light to show the spectrum
- To investigate how light enables us to see colours
- To explain why shadows have the same shape as the object that casts them
- To recognise that Isaac Newton discovered information about light and colour