

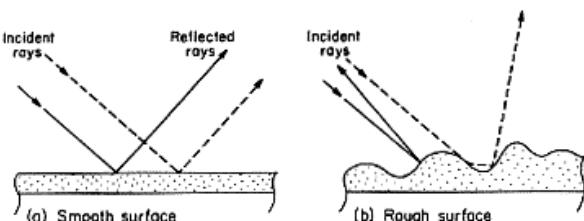
What is light and how can it be used?

Key Vocabulary

[This is in addition to that shown on Year 3 knowledge organiser]

Absorb	To take in energy and keep it.
Emits	To emit light means to produce it.
Light source	An object that emits its own light energy.
Prism	A piece of glass cut with precise face sizes and angles, allowing it to split white light.
Properties	The nature of a material/ object.
Reflect	To bounce back off a surface.
Refract	The bending of light as it passes from one substance to another (caused by the difference in density).
Transmit	To allow to pass through.
White light	Sunlight that contains all the colors of the visible spectrum in roughly equal amounts.

What creates a clear reflection?



A smooth, shiny surface creates a clear reflection.

Key Knowledge

*Light is a form of energy that is part of the electro-magnetic spectrum.

*Light energy - in the form of light rays - always travels in straight lines.

*For us to see an object, light must travel from a light source, reflect off an object and enter our eyes.

*When light rays hits an object, they can either be reflected, transmitted or absorbed.

How the light rays behave will depend on the properties of the material hit:

Transparent materials transmit light.

Dull, opaque materials absorb light.

Shiny, opaque materials reflect light.

Translucent materials transmit less light than transparent materials - some of the light energy is also reflected or absorbed.

*The size and shape of shadows are affected by the distance between the light source and object creating the shadow AND the angle of the light source to the object.

*So that we can see, our eyes and brain work together.

*Light travels at different speeds through different materials and this can affect how we see things.

White light is made up of different coloured light.

You can see these colours when white is split, e.g. when it travels through a prism.

*The colour of an object depends on the colour of light the objects reflects.

Key scientist

Sir Isaac Newton (1643 – 1727)



Working Scientifically



Research what parts of the body are required for us to see.
What are the different parts of the eye and how do they help us see?

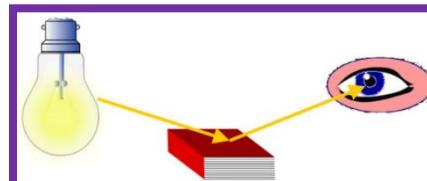


Which materials transmit the most light?
Which materials reflect/ absorb the most light?



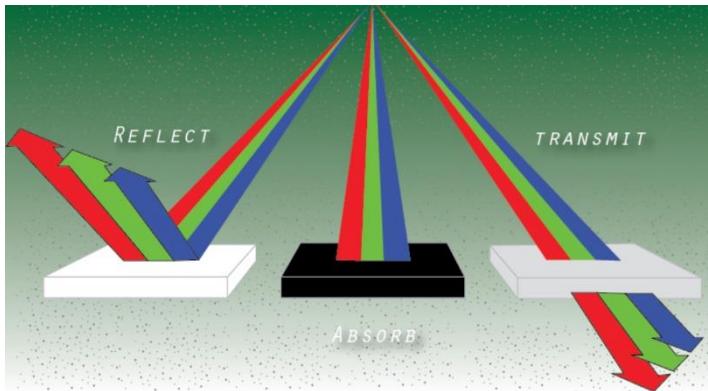
How does the angle of the light source in relation to the object affect the length of the shadow created.

How do we see an object?



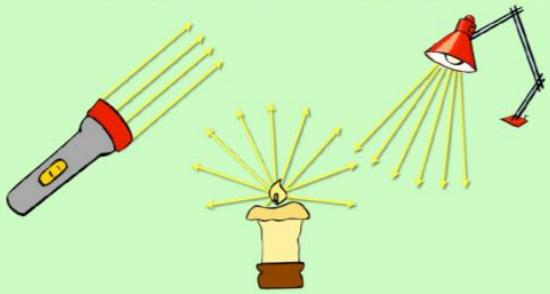
Light rays are emitted by a light source, hit the object and are reflected off it before entering the eye.

How does light behave when it hits objects with different properties?

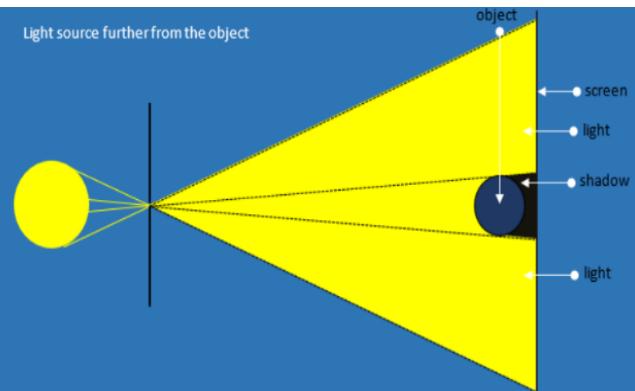


How do shadows form and behave?

Light travels from a **SOURCE** and it always travels in a straight line. Light cannot bend or turn around corners.

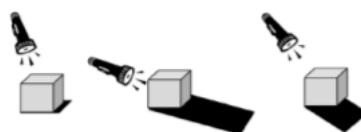


If an object blocks the light's path, it will form a shadow. It does not bend around the object.

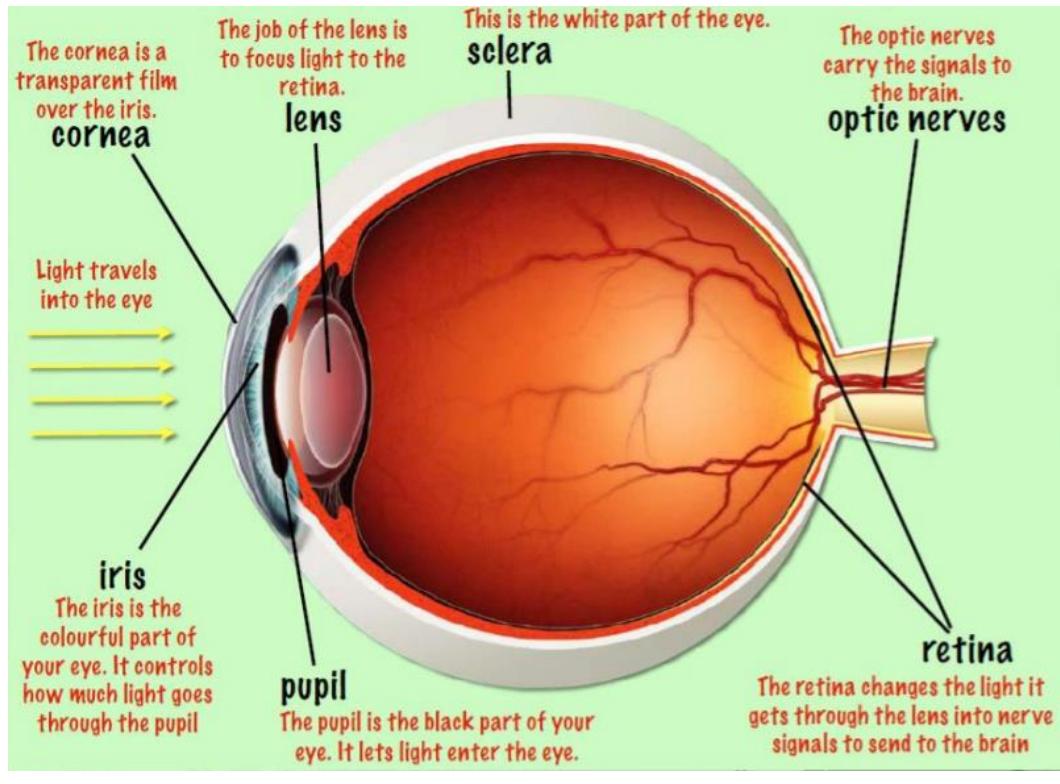


A shadow's shape will be the same as the object which has blocked the light.

The size of the shadow changes as the light source moves, the further away from the light source the smaller the shadow is and the closer the light source is to the object the bigger the shadow. The angle of the light source also makes a difference to the size of the shadow.



What parts is the eye made up of and what is the purpose of each?



How do we see colour?

