Science

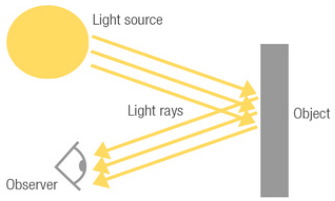
Topic: Light
Year 6

What I should already know

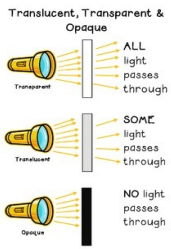
- We need light in order to see things and that dark is the absence of light.
- Light is reflected from surfaces
- Light from the sun can be dangerous and that there are ways to protect our skin and eyes.
- Shadows are formed when the light from a light source is blocked by an opaque or translucent object
- There are patterns in the way that the size of shadows change.

How we see things

- Light travels in straight lines.
- Objects are seen because light travels from a light source to our eyes or from light sources to objects and then our eyes.



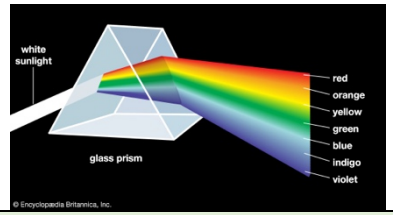
- Objects are seen because they give out light or they reflect it into our eyes.
- We are able to see because light from an object can move through space and reach our eyes.
- Once light reaches our eyes, signals are sent to our brain, and our brain deciphers the information in order to detect the appearance, location and movement of the objects we are looking at.



- When light from a light source is blocked by an opaque or translucent object, a shadow is formed.
- Shadows form shapes similar to the object due to the light travelling in straight lines. The size of the shadow depends on the angle/position of the light source in relation to the object.

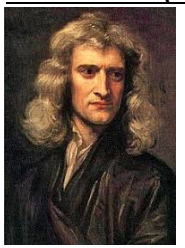
Prisms

- Sunlight is a mixture of many colours together. Light from the sun looks white to our eyes. All of the colours are in white light, they are just all mixed up.
- To see all the colours separately, you can use a prism. A prism is a piece of glass or plastic in the shape of a triangle. The colours of the rainbow in order are: red, orange, yellow, green, blue, indigo, and violet.
- When white light goes through a prism, the light bends due to the phenomenon called refraction. Refraction is the process of bending light as light goes from one medium (like air) to another medium (like water or glass).



Key Individuals

Isaac Newton (4 January 1643 - 31 March 1727)



Famous for various scientific and mathematical contributions to our understanding of the world, including the three laws of motion, law of gravity, calculus and light.

Newton was interested in light and colour. He experimented in a dark room with light and prisms and discovered that light could be split into lots of different colours – a rainbow. He also discovered that something appears to be a certain colour because of the amount of light that it absorbs and/or reflect.

Vocabulary

Light	The natural agent that stimulates sight and makes things visible
Light Source	Something that provides light
Opaque	Not capable of having light pass through
Prism	A solid 3D shape with flat sides. The two ends are an equal shape and size. A transparent prism separates out visible light into all the colours of the spectrum.
Reflection	The throwing back by a body or surface of light, heat or sound without absorbing it
Refraction	The throwing back by a body or surface of light, heat or sound without absorbing it
Shadow	A dark area or shape produced by an opague body coming between light and a surface
Spectrum	A band of colours, as seen in rainbows, produced by separation of parts of light
Translucent	allowing light, but not detailed shapes, to pass through
Transparent	allowing light to pass through so that objects behind can be distinctly seen