Science Focus: Light	Year Group: 6	Summer Term 1

Key Knowledge:

Light is a wave that travels in straight lines. Light is released from a number of sources. We see things when light enters our eyes. The pupils in our eyes change size to let more light in when it's dark and to let less light in when it is bright and this is important because too much light can damage our eyes. Not all objects give off light and so we see some objects because light reflects off their surfaces and into our eyes.

Light can travel long distances incredibly quickly. It takes 8 minutes and 20 seconds for light to reach us from the sun.

Objects can be categorised based upon how easily they allow light to pass through them. If light can pass through fully without any change in direction, an object is said to be translucent. If no light can pass through an object it is said to be opaque. Finally an object is translucent if light can pass through it but is scattered and results in a blurry image. Light itself can be provided by a variety of different objects including: candles, torches, mobile phones etc.

Opaque objects cast a shadow. The closer the light source is to an object, the larger the shadow because a greater spread of light waves are blocked.

Possible Experiments:

- Investigating whether materials are translucent, transparent or opaque.
- Investigating changes in shadow length and size during the day.

Key Vocabulary:

Light source – an object that gives off light.

Shadow – a dark area or shape produced by a body blocking light rays.

Refraction – the bending of light as it passes through one medium to another

Translucent – light can pass through this object, but the light scatters resulting in blurry image.

Opaque – an object that does not allow light to pass through.

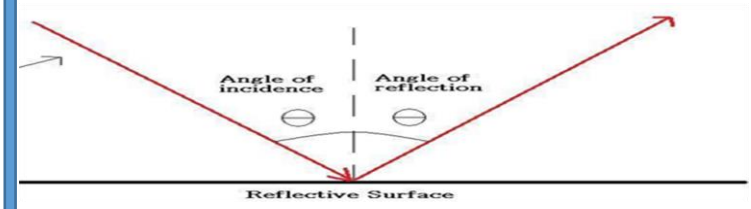
White light – apparently colourless light which actually contains all the colours of the spectrum.

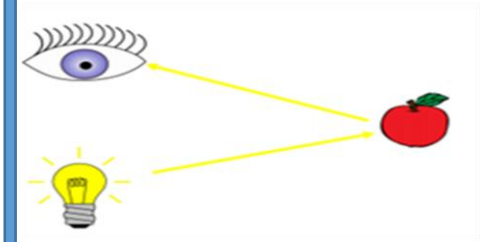
Reflection – a change in the direction of light, back where it came from.

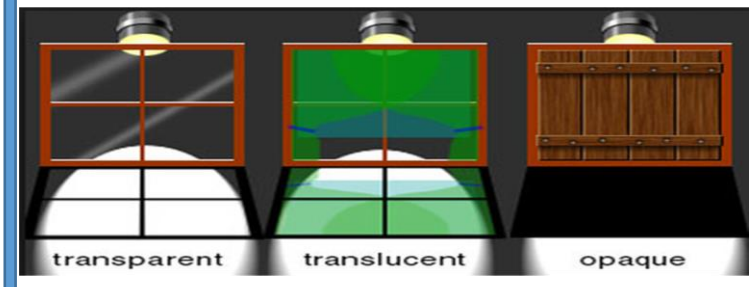
Medium – the object through which light is travelling.

Transparent – an object that allows light to pass through it fully.

Diagrams and Symbols:







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Key Knowledge:

Whenever you look into a mirror, you see your own reflection and this is because the light waves rebound from the surface of the mirror and into your eyes. Reflection is when a light wave bounces off the surface of a material. Light waves reflect off some materials better than others. Mirrors are brilliant at reflecting light.

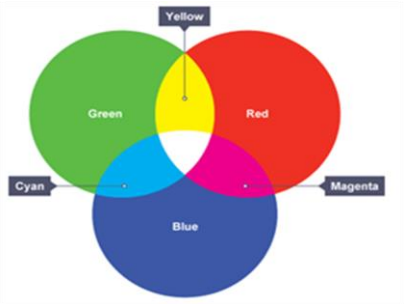
Mirrors reflect light back at the same angle it hits the mirror. Scientists call this the 'law of reflection' and say 'the angle of incidence equals the angle of reflection'.

The world around us is full of a variety of different colours. However, light appears white. White light is made up of a variety of different colours. It can be split up into a spectrum of these colours using a prism. The colours present in white light can be remembered by the mnemonic: Richard Of York Gave Battle In Vain (red, orange, yellow, green, blue, indigo and violet).

Possible Experiments:

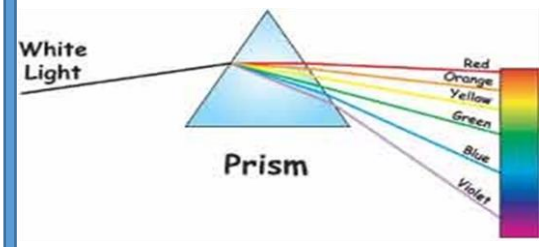
- Investigating changes in shadow change due to the positioning of the light source.
- Investigating how to see the colours in white light.

Key Vocabulary:



Primary colour – any of a group of colours from which others can be made by mixing.

Secondary colour – these are made by mixing primary colours together.



Diagrams and Symbols: