Year 6

Science – Light

Key Vocabulary

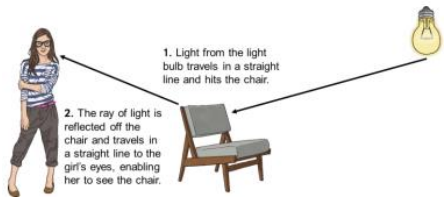
eyes	Globular organs of sight in the head of humans and vertebrate animals
filter	Pass through a device to remove unwanted material (liquid, gas, light or sound)
light	The natural agent that stimulates sight and makes things visible
Light source	Something that provides light, whether it be a natural or artifical source of light (e.g. the sun, a torch)
periscope	An apparatus consisting of a tube of attached to a set of mirrors or prisms through which an observer can see things that are otherwise out of sight
prism	A prism is a three-dimensional shape with identical ends, called bases, and flat sides called faces. A prism allows us to see the visible spectrum
opaque	An opaque material does not let light through. It does not reflect light
rainbow	An arch of colours visible in the sky, caused by the refraction and dispersion of the sun's light by rain or other water droplets in the atmosphere
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 substance to another with the bending caused by the difference in density between two substances
shadow	A dark area or shape produced by a body coming between rays of light and a surface
spectrum	A band of colours, as seen in rainbows, produced by separation of the components of light by their different degrees of refraction
translucent	A translucent material lets light pass through, but objects on the other side can't be seen clearly
transparent	Transparent materials allow you to see clearly through them

Are you a Milecastle Megamind?

How do we see?

Design an investigation to prove the refraction happens.

Why are shadows the same shape as the object forming the shadow?



Key Learning

Light is a form of energy that enables us to see all the things around us. The main source of light on the earth is the sun. Light also comes from other sources such as fire, stars and man-made light sources such as light bulbs and torches. Thanks to light, we see life in glorious colour: our eyes see different wavelengths of light as different colours. These colours are called the visible spectrum. Although light looks white, it is actually made up of all the colours of the rainbow!

Light also powers the technology around us: laser beams make CD and DVD players and printers possible, microscopes and telescopes use lenses to bend light (refraction), cameras record light as it reflects off objects and fibre-optic cables and lasers allow us to communicate at incredible speed.

Light waves travel at a different speed when they go through other transparent materials, such as water or glass. This causes the rays of light to change direction and bend. This is known as refraction. Refraction creates illusions. Because light bends when it travels between air and water or glass, objects seen through these materials look bent or distorted.

Some materials absorb light – this means the energy from light is transferred to the material instead of passing through it. For example, darkly coloured materials absorb light and as a result they become warmer. Materials which absorb light are known as opaque. Shadows form behind opaque objects. Other materials allow light to pass through – this is known as transmission: Transparent objects, e.g. glass, allow all light to pass through therefore you can see a clear image through them. Translucent objects, e.g. tracing paper, allow some light to pass through and therefore you cannot see a clear image through them.