

What should I already know?

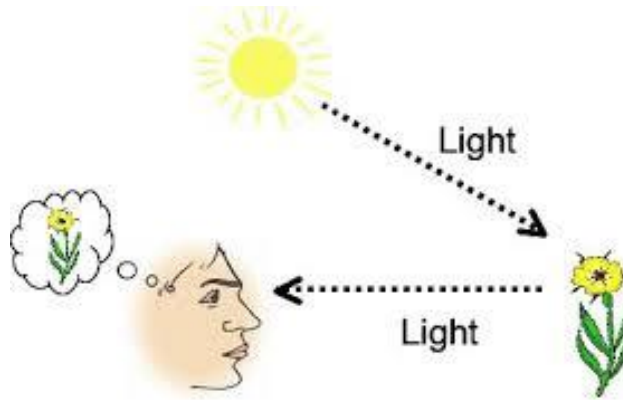
Light is a form of energy. We need light to see things and darkness is the absence of light. Light travels in straight lines and is reflected when it travels from a light source and then 'bounces' off an object. Everything that we can see is either a light source or something that is reflecting light from a light source into our eyes. The Sun is a light source, but the Moon is not and is merely reflecting light from the Sun. Many light sources give off light and heat. Opaque objects block light creating shadows and light passes through transparent objects. Opacity/transparency and reflectiveness are properties of a material. When objects move towards a light source, the size of the shadow increases.

Key Scientist

Isaac Newton shone a light through a transparent prism and separated light into the colours of the rainbow.



Diagrams



Vocabulary

Shadow

A dark area or shape produced by a body coming between rays of light and a surface.

Reflects

Sent back from the surface and does not pass through it.

Spectrum

A band of colours, as seen in rainbows, produced by separation of the components of light by their different degrees of refraction.

Translucent

If a material is translucent, some light can pass through 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.

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.

Angle of incidence

The angle at which the light enters is called the angle of incidence.

The Big Picture	By the end of our project we will know that
<p data-bbox="118 145 185 177"><u>Physics</u></p> <p data-bbox="118 188 954 225">P1: The universe follows unbreakable rules that are all about forces, matter and energy.</p> <p data-bbox="118 236 1402 312">P2: Forces are different kinds of pushes and pulls that act on all the matter that is in the universe. Matter is all the stuff, or mass, in the universe.</p> <p data-bbox="118 323 1402 400">P3: Energy, which cannot be created or destroyed, comes in many different forms and tends to move away from objects that have lots of it.</p>	<p data-bbox="1444 140 2130 277">Translucent objects allow some light to pass through, but some of the light changes direction as it passes through the object; this means that something seen through a translucent object is not clearly defined.</p> <p data-bbox="1444 284 2130 421">When light passes from one medium to another (e.g. from air to water), it changes direction; this is called refraction. This happens because light travels at different speeds in different media.</p> <p data-bbox="1444 427 2130 638">White light comprises all the colours of light and when refracted by two surfaces in a prism will spread out so that all of its constituent colours can be seen. This array of colours is called a spectrum. It happens because the different colours that constitutes white light travel at different speeds.</p> <p data-bbox="1444 644 2130 708">Be able to show, using a diagram, why the shape of a shadow will match the shape of an object.</p> <p data-bbox="1444 715 2130 852">When light reflects off an object, the angle of incidence is equal to the angle of reflection. A periscope takes advantage of the predictable angles of incidence and reflection to allow an image to be shown to a viewer.</p>