



Essential Question - Is having Light always an advantage?

What I should already know : This unit builds on the light unit covered in Year 3. The children have previously learnt how to recognise that they need light in order to see things and that dark is the absence of light. They have also learnt how to notice that light is reflected from surfaces. The children learnt that light from the sun can be dangerous and that there are ways to protect their eyes. They should also be able to recognise that shadows are formed when the light from a light source is blocked by an opaque object and find patterns in the way that the size of shadows change.

Enquiry Questions

How does light travel?

Do all surfaces reflect light?

How do shadows change?

How do we see?

Can we make a rainbow and are they always arc shaped?

Key Vocabulary

Absorbed - Sometimes, not all of the light is reflected by an object. Some of it is absorbed. Absorption is when the object soaks up some of the light waves. The absorbed light cannot be seen by the human eye.

Block - to stop something from passing through

Bounce - to reflect back or up after hitting a surface

Dark is the absence of light. (everyday): Almost no light.

Direction - the path along which something moves, lies, or points

Disperse - distribute or spread over a wide area.

Image: An image is a picture of how you see objects when light from them reaches your eyes.

Light: Light is the form of energy that makes it possible for us to see things with our eyes.

Light ray: A light ray is a straight line showing the direction of travel of light.

Light source: A light source emits (gives out) light. It can be natural or man-made.

Mirror - a smooth surface that reflects an image of whatever is in front of it

Opaque: Opaque materials/objects block all light.

Optical phenomena- any observable events that result from the interaction of light and matter.

Ray diagram: A ray diagram is a drawing showing the straight-line paths that light travels in from a light source to the eye, often reflecting off objects on the way.

Reflect: Light reflects when it 'bounces back' off a surface or object. All objects reflect some light otherwise we couldn't see them.

Refraction - the change in the direction of a wave passing from one medium to another.

Scatter: If a light ray scatters it changes direction to a different random direction.

Shadow - a dark image that is formed when an object blocks light

Shiny - having a smooth glossy surface.

Spectrum -a band of several colours: violet, indigo, blue, green, yellow, orange and red. A spectrum can be seen if the Sun's light is passed through a prism and allowed to gather on a white screen.

Sunlight - light from the sun

Straight lines: A straight line continues in the same direction and does not curve.

Surface - the top layer of something

Torch - a portable battery-powered electric lamp.

Transparent: Transparent materials look clear, as all light passes through them.

Translucent: Translucent materials block some of the light and scatter the rest. This makes the images appear blurred.

Scientific Skills

Skills and Knowledge (Light)

Pupils will:

L1) recognise that light appears to travel in straight lines..

L2) use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye

L3) explain that we see things because light travels from light sources to objects and then to our eyes

L4) use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

(Working Scientifically) Year 6

WS1) plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.

WS2) identify scientific evidence that has been used to support or refute ideas or arguments. .

WS3) take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where possible.

WS6) u use test results to make predictions to set up further comparative and fair tests.

WS7) record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables and bar and line graphs.

WS8) gather & record data to help answer questions
WS9) report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree and trust in results, in oral and written forms such as displays and other presentations.

Pupils should read and spell scientific vocabulary correctly.

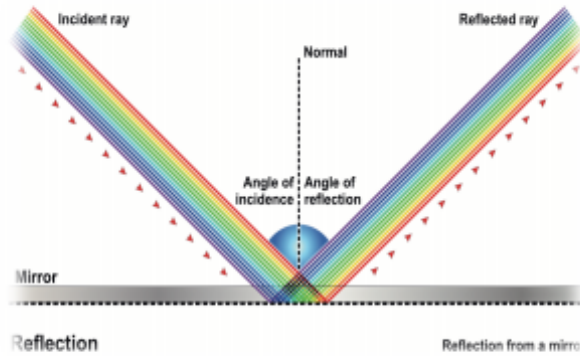
Refraction through a prism.

Significant People



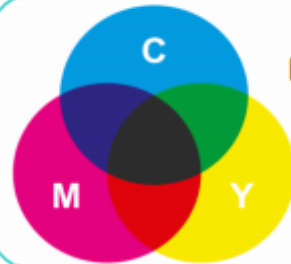
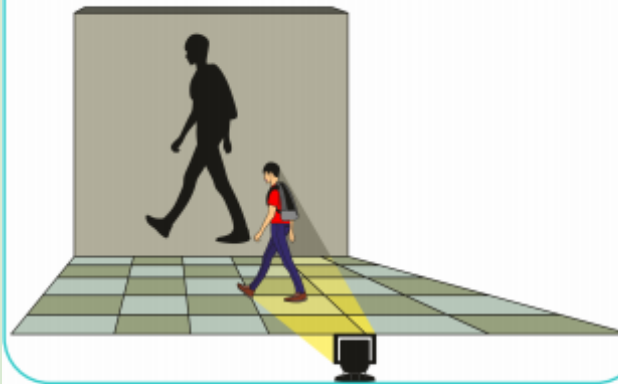
Sir Isaac Newton - (25 December 1642 – 20 March 1726/27) discovered that sunlight falling upon a prism could split into its component colours. This process is known as dispersion. Newton named the component colours: red, orange, yellow, green, blue, indigo and violet.

Angles of Incidence and Reflection

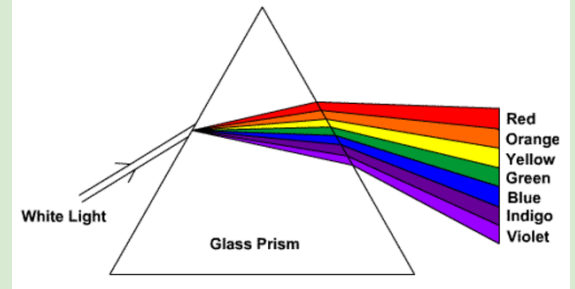


How a shadow forms

Shadow is a dark area formed when an object blocks light from the light source



Light filters can be used to mix or change the colour of the light.



How we see...

