



What should I already know?

- We need light to be able to see things.
- Dark is the absence of light.
- Light is reflected from surfaces – shiny surfaces reflect the most light.
- Shadows are formed when the light from a light source is blocked by an opaque object.
- Light from the sun can be dangerous and there are ways to protect our eyes.
- There are patterns in the way that the size of shadows change.
- The sun is a natural light source; the moon does not produce light.

Science

As scientists, we learn about the importance of science in the world around us. Through our curiosity and enthusiasm we can discover what needs to be changed and have the skills to do something about it.

Technical vocabulary

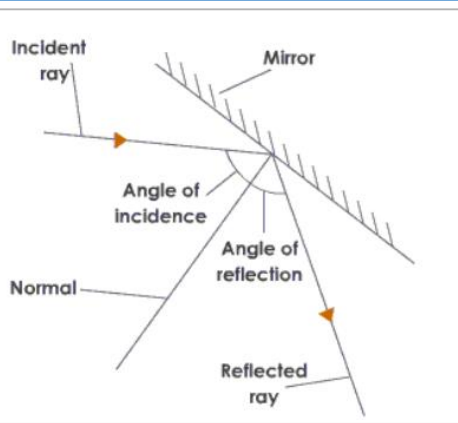
light	A form of energy that travels in a wave from a source.
light source	An object that makes its own light.
ray	Waves of light are called light rays. They can also be called beams.
reflection	Reflection is when light bounces off a surface, changing the direction of a ray of light.
incident ray	A ray of light that hits a surface
reflected ray	A ray of light that has bounced back after hitting a surface
the law of reflection	The law states that the angle of the incident ray is equal to the angle of the reflected ray
opaque	If an object is opaque, you can't see through it.
emit	To emit light means to produce it
shadows	A dark shape on a surface that is made when something stands between a light and the surface
translucent	Some light can pass through it
transparent	You can see through it
refraction	This is when light bends as it passes from one medium to another.
visible spectrum	Light that is visible to the human eye. It is made up of a colour spectrum.

Light

- Light travels in a straight line.
- Objects are seen because they emit light or reflect light to our eyes.
- Reflection is when light bounces off a surface – this changes the direction in which the light travels.
- Smooth, shiny surfaces such as mirrors and polished metals reflect light well. Dull and dark surfaces such as dark fabrics do not reflect light well.

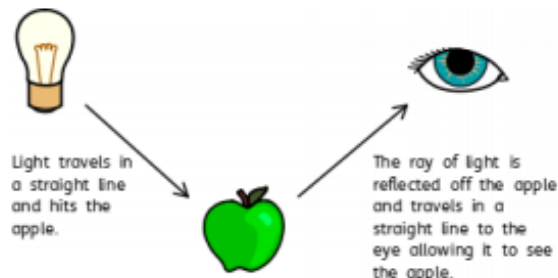
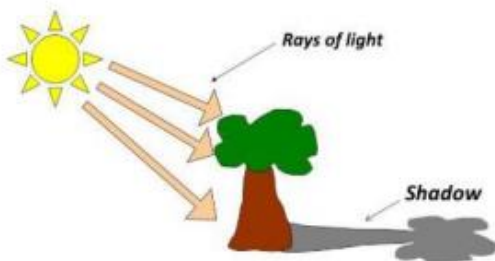
The law of reflection

The law of reflection states that the angle of incidence is equal to the angle of reflection. Whenever light is reflected from a surface, it obeys this law.



Shadows

- Because light travels in straight lines, when there is an opaque object blocking the light, a shadow is formed.
- These shadows have the same shape as the objects that cast them.
- The size of the shadow changes as the light source moves.
- The angle of the light source also makes a difference to the size of the shadow.



Refraction

Refraction occurs when light moves from air to water.



Isaac Newton shone a light through a transparent prism, separating light into the colours of the rainbow (red, orange, yellow, green, blue, indigo and violet) – the colours of the spectrum. All the colours together merge and make visible light.