



# Science - Light



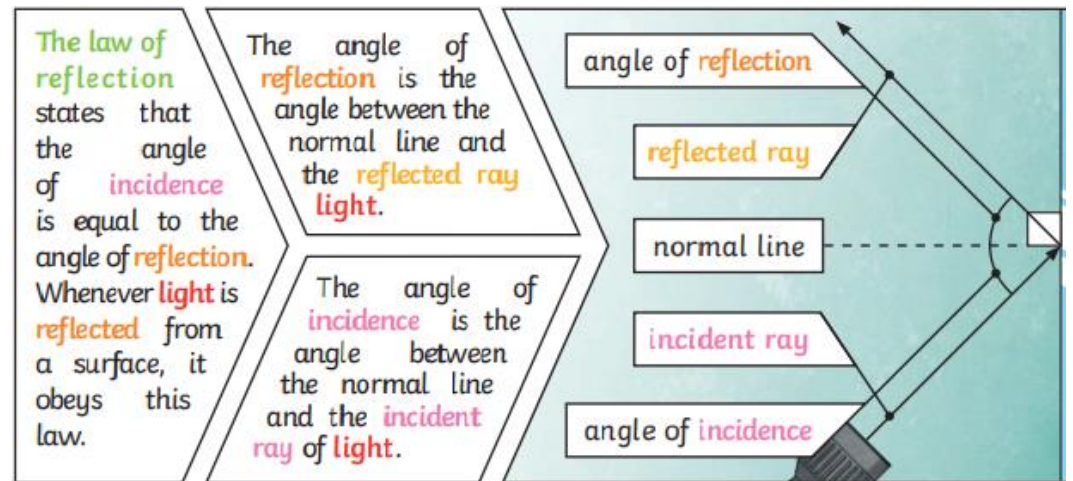
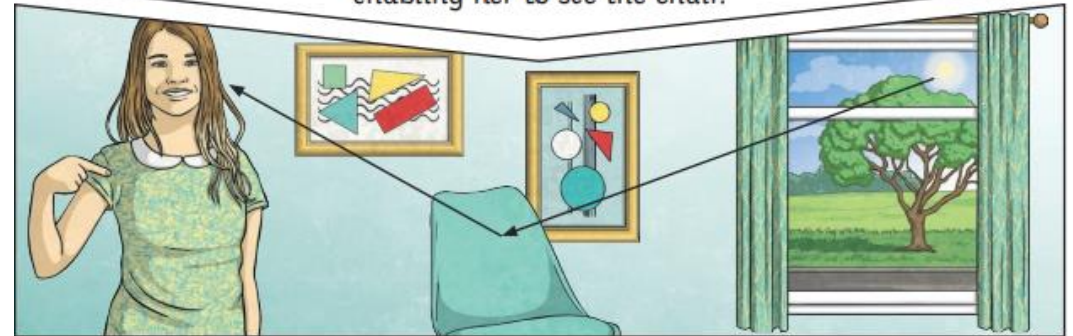
## Key Vocabulary

Light	A form of energy that travels in a wave from a source
Light Source	An object that makes its own light.
Reflection	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 Refraction	The law states that the angle of the incident ray is equal to the angle of the reflected ray.
Refraction	Light bending as it passes one medium to another. E.g. air into water.
Visible Spectrum	Light that is visible to the human eye. It is made up of a colour spectrum.
Prism	A solid 3D shape with flat sides. The two ends are an equal shape and size.
Shadow	An area of darkness where light has been blocked.
Transparent	Describes objects that let light travel through them easily, meaning you can see through them easily.
Translucent	Describes objects that things let some light through, but scatters the light so we can't see through them properly.

## Key Knowledge

We need **light** to be able to see things. **Light** waves travel out from sources of **light** in straight lines. These lines are often called rays or beams of **light**.

**Light** from the sun travels in a straight line and hits the chair. The **light** ray is then **reflected** off the chair and travels in a straight line to the girl's eye, enabling her to see the chair.

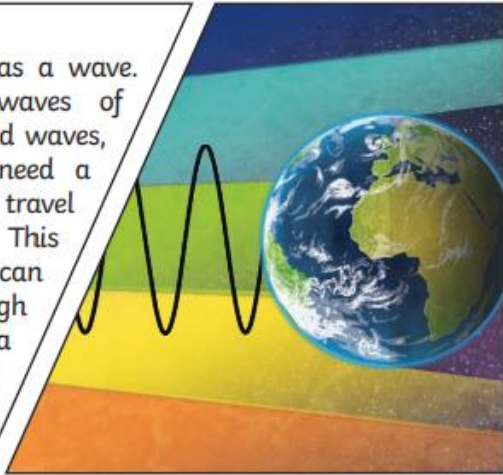


Opaque

Describes objects that do not let any light pass through them.

## How does light travel?

**Light** travels as a wave. But unlike waves of water or sound waves, it does not need a medium to travel through. This means **light** can travel through a vacuum - a completely airless space.



## Refraction



The spoon in this water looks as if it is bent. This is because **light** bends when it moves from air to water. When **light** bends in this way, it is called **refraction**.

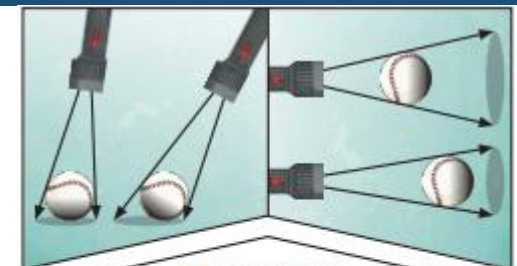
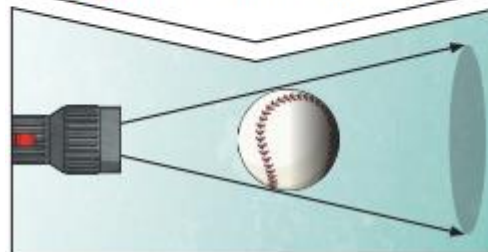
## Isaac Newton

Isaac Newton shone a **light** through a transparent **prism**, separating out **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**.



## Shadows

A **shadow** is always the same shape as the object that casts it. This is because when an **opaque** object is in the path of **light** travelling from a **light source**, it will block the **light** rays that hit it, while the rest of the **light** can continue travelling.



**Shadows** can also be elongated or shortened depending on the angle of the **light source**. A **shadow** is also larger when the object is closer to the **light source**. This is because it blocks more of the **light**.