

Science Year 6 Unit: Light

Vocabulary

Light	A form of energy that travels in a wave from a source.
light source	An object that makes its own 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.
law of reflection	The law states that the angle of the incident ray is equal to the angle of the reflected ray
refraction	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.
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	objects that let light travel through them
translucent	objects that let some light through, but you can't see through them properly.
opaque	objects that do not let any light pass through them.

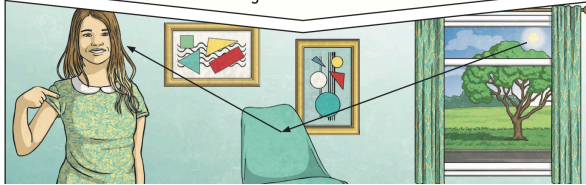
By the end of this Unit I will be able to ..

- Describe how light enables us to see.
- Understand reflection as light bouncing off a surface.
- Identify some effects of refraction.
- Identify the visible spectrum.
- Explore colours using light.
- Recognise that Isaac Newton discovered information about light and colour.
- Explain that objects block light to form shadows.

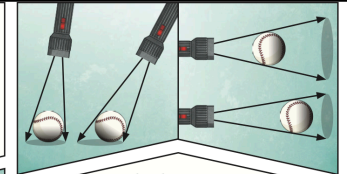
Key Knowledge

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.

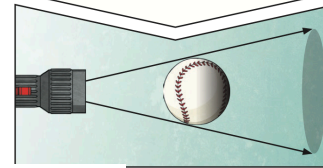
Light from the sun travels in a straight line and hits the chair. The light ray is then reflected off the chair and travels in a straight line to the girl's eye, enabling her to see the chair.



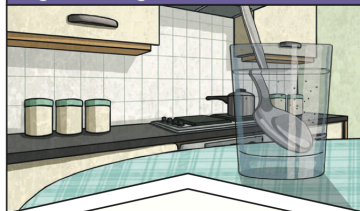
A shadow is always the same shape as the object that casts it. This is because when an opaque object is in the path of light travelling from a light source, it will block the light rays that hit it, while the rest of the light can continue travelling.



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.

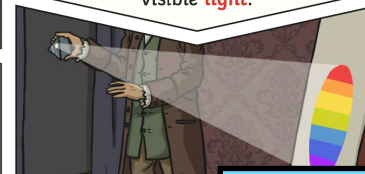


Key Knowledge

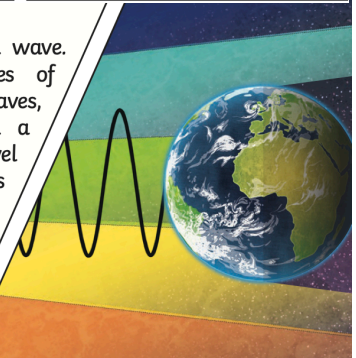


The spoon in this water looks as if it is bent. This is because light bends when it moves from air to water. When light bends in this way, it is called refraction.

Isaac Newton 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.



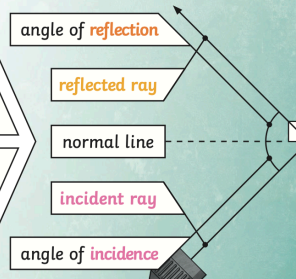
Light travels as a wave. But unlike waves of water or sound waves, it does not need a medium to travel through. This means light can travel through a vacuum - a completely airless space.



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.

The angle of reflection is the angle between the normal line and the reflected ray light.

The angle of incidence is the angle between the normal line and the incident ray of light.



Prior Learning about Light

Recognise that you need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change.