

St. Mary's Catholic Primary School



Subject: Science

Topic: Light

Year: 6

Strand: Physics

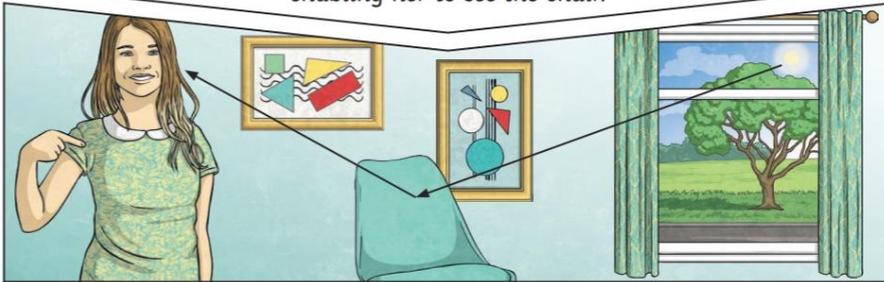
What should I already know?

We need light to be able to see things. Light travels in a straight line. When light hits an object, it is reflected (bounces off). If the reflected light hits our eyes, we can see the object. Some surfaces and materials reflect light well, others do not.

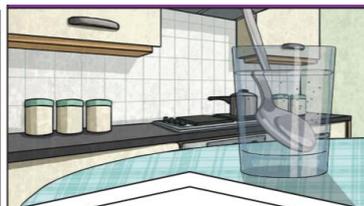
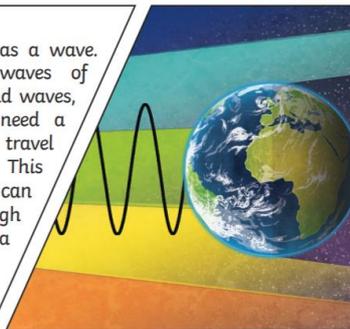
What am I going to learn?

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.



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.

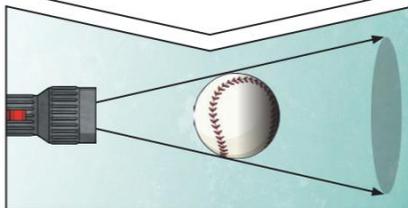


The spoon in this water looks as if it is bent. This is because **light** bends when it moves from air to water. When **light** bends in this way, it is called **refraction**.

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**.



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.



Vocabulary

Light: a form of energy that travels in a wave from a source.

Light source: an object that makes its own light.

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: describes objects that do not let any light pass through them.

Refraction: this is when light bends as it passes from one medium to another. E.g. light bends when it moves from air into water.

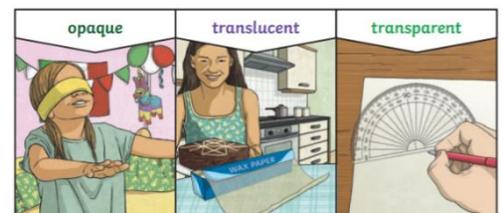
Visible spectrum: light that is visible to the human eye. It is made up of a colour spectrum.

Prism: a prism is a solid 3D shape with flat sides. The two ends are an equal shape and size. A transparent prism separates out visible light into the colours of the spectrum.

Shadow: an area of darkness where light has been blocked.

Transparent: describes objects that let light travel through them easily.

Translucent: describes objects that let some light through, but scatters the light so we can't see through them properly.



Investigations

Year 6 will be making shadow puppets using opaque materials. We will use these puppets to investigate if the distance of the puppet to the light source affects the size of the shadow.