

## Science Y6 Summer 1 – Light and Shadows

In this unit of work the children will investigate how light travels in straight lines. They will draw diagrams to show how light travels and what happens when it is reflected from a mirror. They will research how mirrors are used in different contexts e.g. rear view mirrors on a dangerous bend, and explain how they work. They will also investigate the relationship between light sources and shadows.

### In this unit children will:

- 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.
- Explain that we see things because light travels from the light source to our eyes or from sources to objects and then to our eyes.
- Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects around them.
- Research how mirrors are used in different contexts.
- Draw diagrams – to show how we see; how light travels; why objects look bent in water.

### Prior Learning

**Y3-** Light is reflected from surfaces. Shadows are formed when the light is blocked by an opaque object. Shadows change size.

### Cross Curricular Links

### Key Vocabulary

**Angle** – The direction from which you look at something.

**Dark** – The absence of light.

**Dim** – Light that is not bright.

**Electricity** – A form of energy that can be carried by wires and is used for heating and lighting, and to provide power for machines.

**Emits** – To emit a sound or light means to produce it.

**Light** – A brightness that leads you to see things.

**Opaque** – If an object is opaque you cannot see through it.

**Reflects** – Sent back from the surface and not pass through. Dull surfaces don't reflect well.

**Shadows** – A dark shape on a surface that is made when something stands between a light and the surface.

**Source** – Where something comes from.

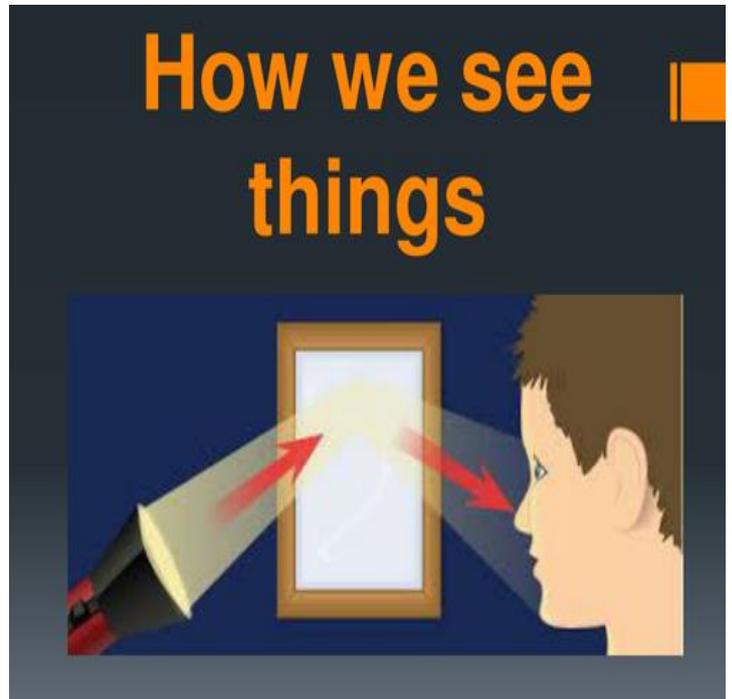
**Surface** – The flat top part of something or the outside of it.

**Translucent** – If a material is translucent, some light can pass through it.

**Transparent** – An object you can see through

## Key Knowledge

- Light travels in a straight line.
- When you place a torch on a table in a dark room, the beam travels in a straight line.
- That light reflecting off an object reflects off it at the same angle it shines onto it.
- Reflection is when light bounces off a surface; this changes the direction in which the light travels.
- We see when light is reflected off a surface and it enters our eyes.
- Objects are seen because they give light into the eye.
- 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.
- You get a large shadow when an object is close to the light.
- You get a small shadow when the object is further from the light.
- You get a tiny shadow when the object is a long way from the light.



- We see by light travelling in a straight line hitting the object. The ray of light is reflected off the object and travels in a straight line to the eye allowing it to see the object.

## Key Questions

- When light bounces off a surface what does it do?
- How are shadows formed?
- What word best describes an object that does not allow light to travel through it?
- How do we see an object?
- A shadow takes the shape of the light source - true or false?