

Key Knowledge:

What is a light source?

- A **light source** is something that gives off **light** by burning, electricity or chemical reactions.
- Burning **light sources** include the Sun, flames from a fire and stars.
- We must never look directly at the Sun as the **light** produced is very bright and can be harmful to our eyes.
- Electric **lights** include lamps, car headlights and streetlights.

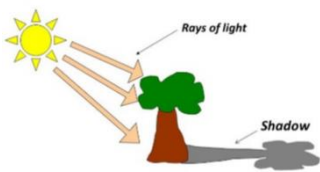
What is not a light source?

- The Moon is not a **source of light** even though we can see it in the **dark**.
- This is because the Sun's **light reflects** on the surface of the Moon making it appear as though the Moon emits **light**.

Why do we need light?

- We need **light** so that we are able to see in the **dark**.
- This is because **dark** is the absence of **light**.
- The Sun and stars always give us **light** but we can only see the stars when it is **dark**.
- At night we cannot see the Sun's **light** as the Earth rotates and our part of the Earth is not lit up by the Sun.
- When we are driving, we need car headlights or streetlights to help us.

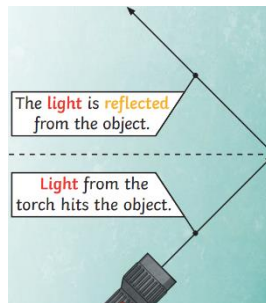
How does light travel?



- **Light** travels in straight lines.
- When an opaque object blocks the light, a dark shadow is formed.

How do we see?

- When **light** hits an object it is **reflected**. When the **reflected light** hits our eyes, we can see the object.
- Our **pupils** control the amount of **light** entering our eyes. If too much **light** enters, then it can damage the retina.
- Some surfaces and materials **reflect** well.
- Other materials do not **reflect** well. **Reflective** surfaces and materials can be very useful such as a hi-vis jacket and cat's eyes.



Possible Experiments:

- The brightness of torches - can you put torches in order from brightest to dimmest? What would make it a fair test?
- Why do lights seem brighter in the dark?
- Explore which objects form shadows when light is shone on them.
- How can you change the size of shadows?
- What happens when light is reflected from different surfaces? What happens when light is reflected from a mirror? What happens when the angle of the mirror (or light source changes?)

Key Vocabulary:

- Light source** - An object that makes its own light.
- Shadow** - An area of darkness where light has been blocked.
- Dark** - Dark is the absence of light.
- Reflection** - The process where light hits the surface of an object and bounces back into our eyes.
- Reflect** - To bounce off.
- Pupil** - The black part of the eye, which lets light in.
- Light** - A form of energy that travels in a wave from a source.
- Opaque** - Describes objects that do not let any light pass through them.
- Translucent** - Describes objects that let some light through.
- Transparent** - Describes objects that lets light travel through them. It means you can see through the object.
- Reflective** - A word to describe something which reflects light well.
- Ray** - Waves of light are called light rays. They can also be called beams.

Diagrams and Symbols:

Examples of Light Sources:



Eye diagram:

