

Science Knowledge Organiser – Term 1 - Light

Important Facts

- Light travels in straight lines. Objects are seen because they give out or reflect light into the eye.
- We see things because the light travels from light sources to our eyes or from light sources to objects and then to our eyes.
- Shadows have the same shape as the objects that cast them.
- When light from an object is reflected by a surface, it changes direction. It bounces off the surface at the same angle as it hits it.
- Smooth, shiny surfaces such as mirrors and polished metals reflect light well.
- Dull and dark surfaces such as dark fabrics do not reflect light well.
- Inside the eye is a lens which focuses the light onto a surface (the retina) at the back of the eyeball.
- The retina is made up of special cells which detect light and send messages to our brain, allowing us to see.
- Your pupil widens in dim light and is smaller in bright light.
- A light source is something that provides light, whether it be a natural or artificial source of light (e.g., the sun, a torch)

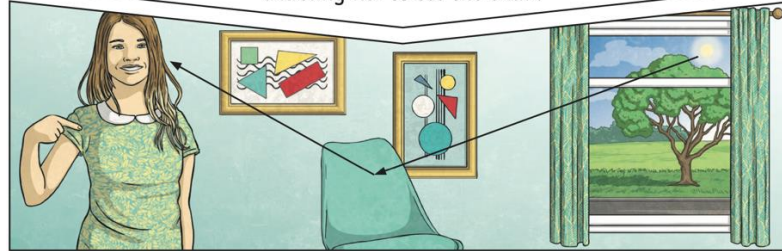
Light sources can be both natural and man-made.

Light only travels in straight lines.

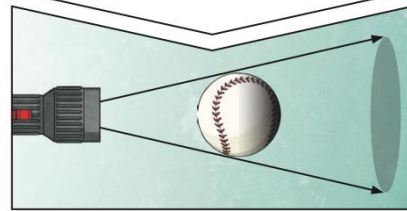
Key Knowledge

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**.

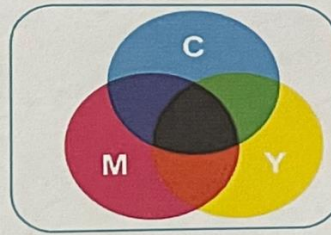
Light from the sun travels in a straight line and hits the chair. The **light** ray is then **reflected** off the chair and travels in a straight line to the girl's eye, enabling her to see the chair.



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.



Light filters can be used to mix or change the colour of the light.



What will I know by the end of this unit?

- I can recognise that light appears to travel in straight lines.
- I can 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.
- I can explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.
- I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Vocabulary

Transparent	An object or material that allows light to pass through easily.
Opaque	An object or material which doesn't allow light through.
Translucent	An object or material which allows some light to pass and scatters light rays.
Light	A form of energy that travels in a wave from a source.
Light source	An object that makes its own light.
Shadow	An area of darkness where light has been blocked.
Refraction	This is when light bends when it travels from one medium to another. E.g. light bends when it moves from air into water.
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 of reflection states that the angle of incidence ray is equal to the angle of the reflected ray.