

# Light Knowledge Planner: How does the way that light travels help us to see?

## What should I already know?

- I need light in order to see and that dark is the absence of light.
- Light is reflected from surfaces
- Light from the sun can be dangerous and that there are ways to protect the eyes.
- Shadows are formed when the light from a light source is blocked by a solid object.

## Being a Scientist

To work scientifically, we must ensure we carry out fair tests.

We will:

- Identify variables
- Know which variables to control to create a fair test
- Make decisions about what and how to observe, and how to record observations



To work scientifically, we must recognise which sources are reliable for research.

We will:

- Choose sources carefully and separate opinion from facts
- Recognise which secondary sources are most useful to our research and ideas.

## What will I investigate?

- What happens when **light** is **reflected** off different **surfaces**?
- Can you change the shape or size of **shadows**?
- Can you make different coloured **shadows**?
- Why do **lights** seem **brighter** in the **dark**?
- Can you make a periscope to see around corners?



## Key Vocabulary

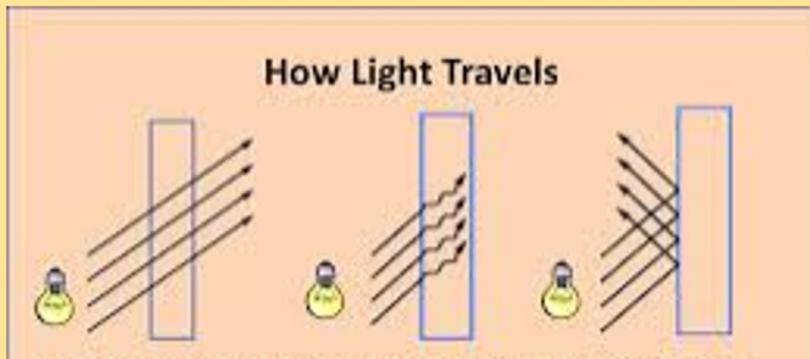
Light	A <b>brightness</b> which lets you see things
Light rays	Beam of <b>light emitted</b> from a <b>light source</b>
Light source	Where the <b>light</b> comes from
Opaque	An object or substance that you cannot see through
Reflection	When <b>light</b> is sent back from a <b>surface</b> and doesn't pass through it
Refract	Change in direction of a <b>light ray</b> . This happens when <b>light</b> travels through different mediums
Shadow	A <b>dark</b> shape on a <b>surface</b> when something stands between the <b>light</b> and the <b>surface</b>
Straight lines	<b>Light</b> appears to travel in <b>straight lines</b> from a <b>light source</b> to an object
Transparent	<b>Transparent</b> materials let all light through

## How light travels

- Light travel in **straight lines** from a **light source**.
- **Light** cannot pass through an **opaque object** - some is **absorbed** and the rest is **reflected**
- **Light** can pass through a **transparent object**.
- Some **light** passes through **translucent objects**, but the rest is **reflected**.
- **Mirrors** can be used to bend **light**.

**Light** travels in **straight lines** to objects and our eyes. Objects are seen because they **emit light** or **reflect light** into our eye.

Because **light** travels in **straight lines**, it means that a **shadow** will have the same shape as the object that cast them.

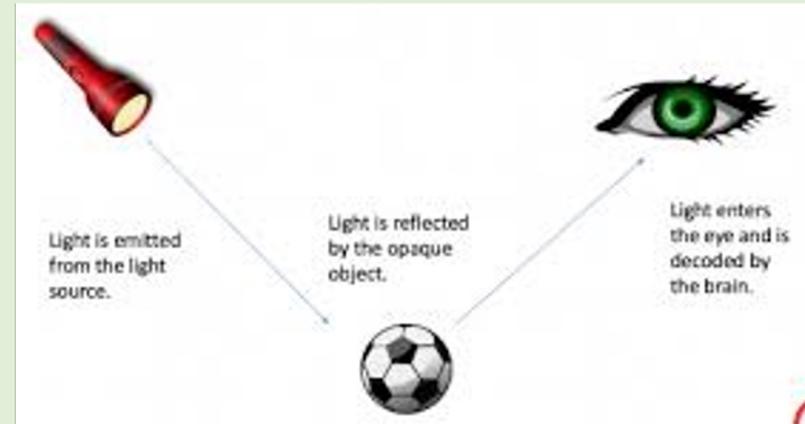


## How we see things

Light either travels in a straight line to our eye from a light source, or it is reflected into our eye from an object.

Light is emitted from the light source, which is then reflected from the opaque object and then enters our eye.

**IMPORTANT:** Light does not enter our eye and then reflect to the object.



## **Shadows**

A shadow is the dark shape made when something blocks light from a light source like the sun, a flashlight, or campfire.

## **Light Sources**

