

## PHYSICS - 'What can I see and how can I see it?'

### What is a light source?

**Light sources** include the sun, light bulbs and stars.

**Reflectors** (such as the moon, cat's eyes and mirrors) do not actually produce light; they **reflect** it from another source.



### How do we see?

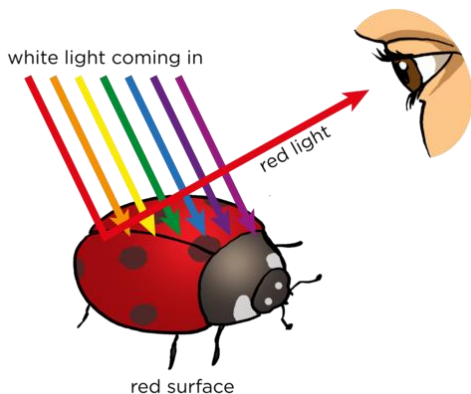
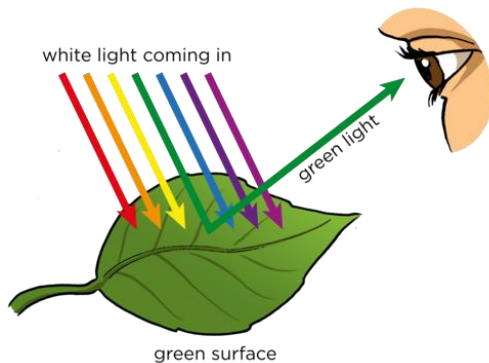
Light waves come in lots of different colours such as red, green and yellow.

You can see some of these colours in a rainbow.

But how do we see objects?

1. Light from a source hits an **opaque** object.
2. Some colours are **absorbed** by the object.
3. One colour is **reflected** from the object.
4. Your eyes see the **colour** that is reflected.

**SUPERFACT:** You see object upside down, but your brain flips it the right way.

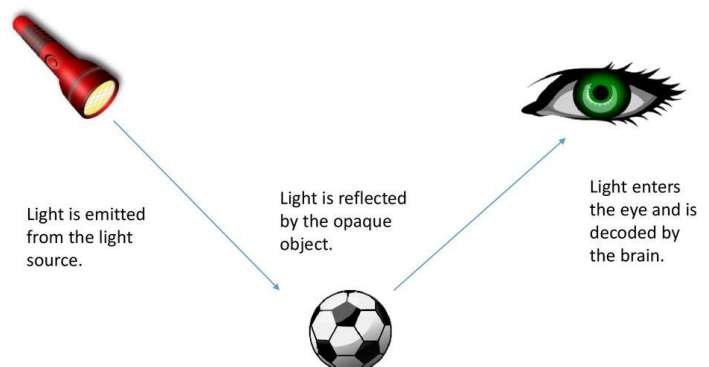


### How Do We See Opaque Objects?

#### Why do we need light?

**Light** from the sun is our most important source of energy.

- Light warms us up
- Light keeps us healthy
- Light helps us see things



## How can shadows change?

<b>short shadow</b>	The light source is <b>high</b> above the object.
<b>long shadow</b>	The light source is <b>low</b> to the ground and the object.
<b>small shadow</b>	The light source <b>moves away</b> from the object.
<b>big shadow</b>	The light source <b>moves close</b> to the object.

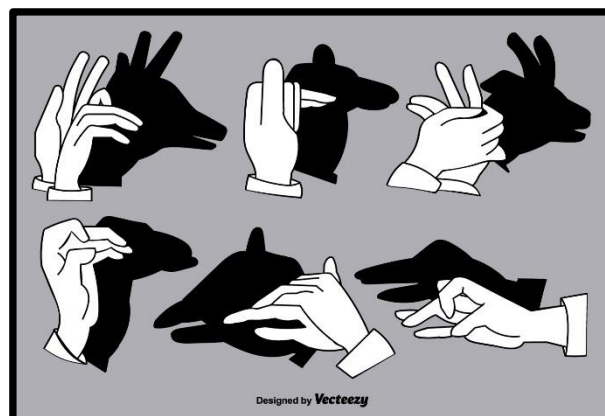


## How is a shadow made?

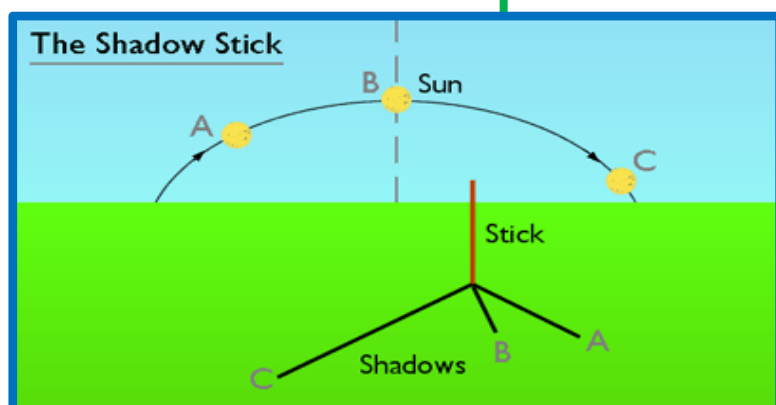
A shadow is created when an opaque object is placed in front of a light source and stops the light from passing through it.

It creates a dark area or shape on a surface. Light can only travel in a straight line.

**A shadow is formed when something blocks light.**



## Why do shadows move through the day?



When we are outside on a sunny day we can see how our **shadows change** throughout the day. **When the sun is low on the horizon the shadows are long.** When the **sun is high** in the sky the **shadows are much shorter.**

## Key vocabulary

Spelling	Definition
light	the invisible waves that make things visible
light source	an object that gives off its own light
opaque	an object that does not allow light to pass through it
transparent	an object that allows light to pass through it
absorb	take in or soak up energy (like light)
reflect	throw back (heat, light or sound)
eye	a spherical organ of sight in the head of humans and animals
shadow	a dark shape produced by an opaque object blocking rays of light