



Light

Key knowledge/facts

- Light travels in a **straight** line.
- Light travels **faster** than sound.
- A **light year** is a unit of measurement for distance. It is the distance light can travel in a year.
- The size and shape of a shadow changes based on the **distance** and **angle** compared to the light source.
- Darkness is caused by the **absence of light**.
- The moon does **not** emit its own light – it **reflects** the sun.
- Ultraviolet (UV) light is a type of radiation which you can't see but can be dangerous. UV rays can come from the sun.

Tier 2 Vocabulary

Opaque - An object which **does not allow** light to pass through it (e.g. wood).

Translucent - An object which **allows some** light to pass through it. It may be possible to see some unclear images through the object (e.g. tissue paper).

Transparent - An object which **allows** light to pass through it so that objects behind it can be easily seen (e.g. glass).

Rainbow - An arch of colour caused by the refraction of light on water droplets in the air, usually rain (**Red, Orange, Yellow, Green, Blue, Indigo, Violet**).

Shadow - A dark area or shape caused by the blockage of light.

Tier 3 Vocabulary

Light source - an object that produces its own light (e.g. sun, fire).

Reflection - When a light hits a surface and 'bounces' off.

Refraction - When light passes through a different object and its direction changes.

Spectrum - A range of colours caused when white light is refracted. A rainbow shows a spectrum of colours.

Left: Light travelling and reflecting off a smooth surface

Right: Light travelling and reflecting off a rough surface

Translucent, Transparent & Opaque

ALL light passes through

SOME light passes through

NO light passes through

LARGE SHADOW when the toy is close to the light

SMALLER SHADOW when the toy is further from the light

TINY SHADOW when the toy is a long way from the light

As the **light source** moves **higher** in relation to the **object**, the **shadow** gets **shorter**. As the **light source** moves **lower**, the **shadow** gets **longer**.

White light

Prism

When white light passes through a glass prism, it is refracted. The light changes direction and is then dispersed (spread out) as it exits the prism. Depending on the shape of the prism and the angle of the light, we can often see the spectrum of colours.