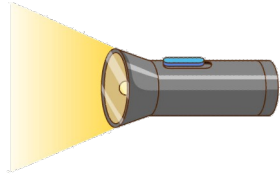


# Phase 2 – Light

## What is Light?

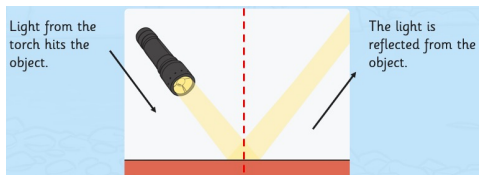
Lots of things in the world are light sources. A **light source** makes light. The Sun and other stars, fires, torches and lamps all make their own light, and so are examples of light sources.

**Dark** is the absence of light. If there is no light source creating light, it will be dark.



## Reflective Surfaces

Light travels in a straight line. When light hits an object, it is reflected (bounces off). If the reflected light hits our eyes, we can see the object.



Some surfaces and materials reflect light well. Other materials do not reflect light well. Reflective surfaces and materials can be very useful:

- Reflective strips on coats or bags mean you can be seen at night. They are also useful for fire-fighters or builders who may work in a dark and dangerous environment.
- 'Cat's Eyes' help drivers see the road by reflecting light from headlamps.
- Mirrors let us see ourselves, and are also useful in cars, to allow drivers to see behind them.
- Retroreflectors are used for road signs so that drivers can see the signs from their car.

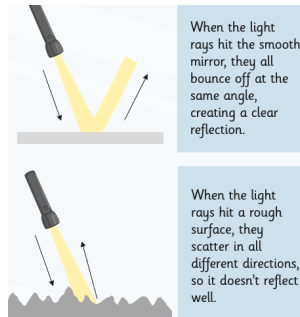
## Shadows

Opaque objects do not let any light through. They completely block the light and stop it travelling any further. These objects create shadows. Shadows are areas of darkness where light has been blocked.



## Mirrors

The most familiar type of mirror is a plain mirror, which has a flat surface. Plain mirrors are commonly made of a flat, polished piece of glass with a shiny metal backing, such as silver or aluminium. The light reflected by a mirror preserves most of the characteristics of the original light, so it creates a clear image. An image in a mirror appears to be reversed.



When the light rays hit the smooth mirror, they all bounce off at the same angle, creating a clear reflection.

When the light rays hit a rough surface, they scatter in all different directions, so it doesn't reflect well.

## The Sun

The sun emits rays of light. We can't see all the types of light that come from the sun. **The visible spectrum** is the name for the light that we can see and is made up of the colours of the rainbow. Another type of light that the sun emits is called UV light. UV light is invisible to humans, but we can see and feel its effects. Some UV rays are blocked by the ozone layer, but most of the UV light from the sun reaches us on earth. The amount of UV light that reaches us depends on different things. It is stronger at midday and in the summer. If there are no clouds there is more UV light. It also gets stronger nearer to the equator. The location can make a difference too - water, sand and snow all reflect UV light, making it stronger. UV light causes sun burn, wrinkles and skin cancer, damages the eyes and can change the colour of some materials.

## Key Vocabulary



**ABSENCE:** Lack of something or something not being there.



**DARK:** The absence of light.



**EMIT:** To produce something (e.g. light/sound).



**INVISIBLE:** Something that cannot be seen.



**LIGHT SOURCE:** Something that makes light.



**OPAQUE:** A material you cannot see through.



**REFLECT:** When light bounces off a surface.



**TRANSPARENT:** A material you can see through.