Light and Shadows

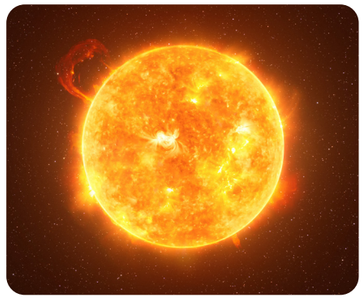
Light

Light is a form of energy that travels in straight lines. The Sun is the main natural source of light on Earth. Darkness, like at night time, is the absence of light. Light from the Sun is vital for life on Earth. Plants need light to grow and survive. Light from the Sun creates daytime and provides heat that is essential for all living things. Without the Sun's light, no plants or animals could live on Earth.

Light sources

A light source is something that produces light. Light sources can be natural or artificial. The Sun and a firefly are examples of natural light sources. A light bulb and candle are examples of artificial light sources.

natural light sources



Sun



firefly

artificial light sources



light bulb



candle

Reflectors

A reflector is an object that reflects light from a light source. Light is not produced by a reflector. The light from a light source hits and then bounces off a reflector's surface. When this happens, the reflector appears to be lit up. Water is an example of a reflector.



Water reflects light.

Reflectors can be natural or artificial. Animals' eyes and the Moon are examples of natural reflectors. Reflective clothing or a bike reflector are examples of artificial reflectors.

Reflectors are useful in everyday life. For example, reflective clothing is worn for safety so people, such as work workers or cyclists, can be seen in the dark.

natural reflectors



animals' eyes



Moon

artificial reflectors



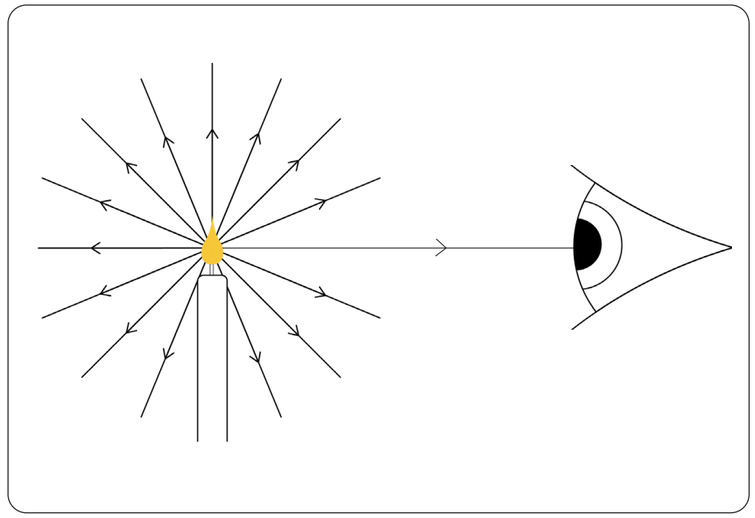
reflective clothing



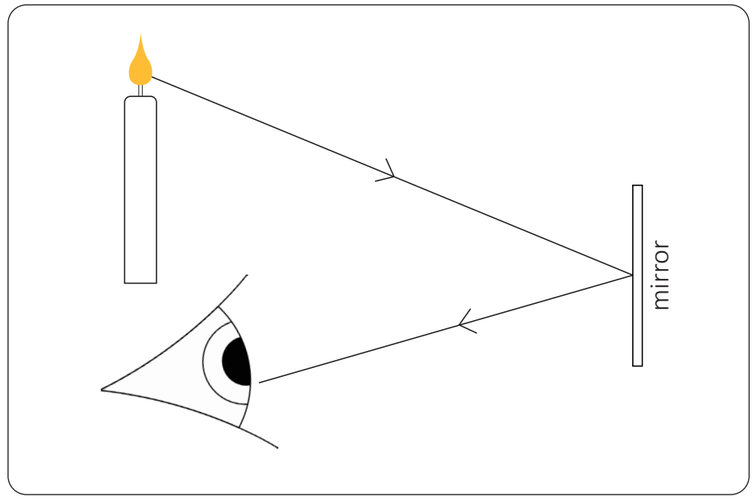
bike reflector

Seeing light

Without light, we cannot see. We can see a light source because light travels from the light source into our eye.



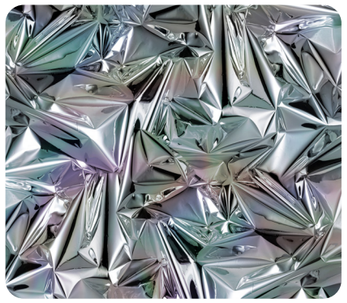
We can see reflectors because light travels from a light source to the reflector. It then bounces off the surface of the reflector and travels to our eyes.



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Reflective and non-reflective materials

Some materials are reflective, such as metals or smooth plastics, because they reflect light. Reflective materials are shiny and smooth and are usually light in colour. When they reflect light from a light source, reflective materials can appear lit up or show a reflected image.



Foil is a reflective material.

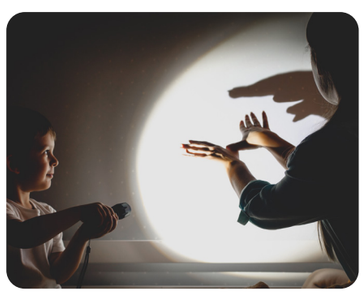
Some materials are non-reflective, such as rough fabric or stone, because they do not reflect light. Non-reflective materials are rough, dull, and usually dark in colour. They do not appear lit up or show a reflected image.



Stone is a non-reflective material.

Shadows

A shadow is an area of darkness. A shadow is made when an object blocks the passage of light from a light source. An object's shadow always forms on the side opposite the light source. The shape of a shadow is the same as the object that created it because light travels in straight lines.





Sun safety

The Sun gives out harmful light rays called ultraviolet (UV) light that damage our skin and eyes. UV light is invisible. It ages our skin, causes sunburn and increases the risk of skin cancer. There are five ways people can protect themselves from UV light.



apply sun cream



wear loose, close-weave clothing



wear a wide-brimmed hat



wear sunglasses that block UV light



find good quality shade

Shadows and opaque, transparent and translucent objects

Opaque objects, such as wooden or stone blocks, cast dark shadows. Translucent objects, such as frosted glass or tracing paper, cast light, blurry shadows. Transparent objects, such as glass or water, cast very light shadows.



opaque object



translucent object



transparent object

Changes in shadows

Shadows change shape and size when a light source moves. For example, when a light source is high above an object, the shadow is short and when a light source is low down, the shadow is long.



Glossary

artificial	Made by humans.
natural	Existing in nature and not made by humans.
opaque	A material that does not allow light to pass through and cannot be seen through.
ray	A narrow beam of light.
reflect	To bounce off a surface.
translucent	A material that allows some light to pass through and can be seen through, but objects appear blurry.
transparent	A material that allows light to pass through and can be seen through.

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