

# The Knowledge

Supporting the National Curriculum



Knowing More

Remembering More

Learning More

# Light



**ARDLEIGH GREEN**  
JUNIOR SCHOOL

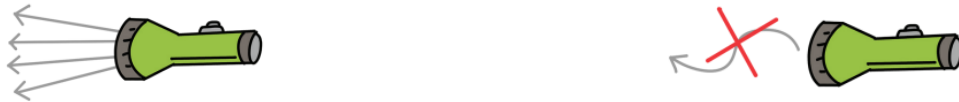
Year 6  
Science

# Key Information

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



Light travels very fast in **straight lines called light rays**. Even though light travels in straight lines, it travels in **different directions**. Light rays from a torch travel in different directions but always in straight lines.



The light rays from a light source **reflect** off the object we are looking at. The light travels in a straight line and enters the eye through our **pupil**.



# Shadows

**Opaque** objects **block** the light rays so they can only travel around the edges of the object in straight lines. That is why a shadow is the **same shape as the object**.

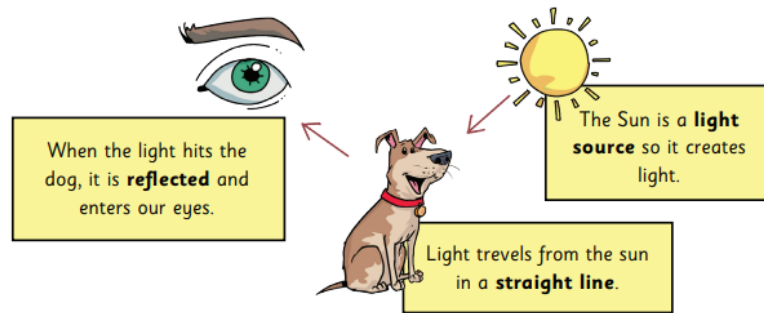
The **closer** an object is to the light source, the **bigger** the shadow.

The **further away** the object is from the shadow, the **smaller** the shadow.



# Reflection

We can see things because light is **reflected**. Some materials reflect light better than others. Light travels in straight lines. When light from an object is reflected by a surface, it changes direction. **Smooth, shiny surfaces** such as mirrors and polished metals **reflect light well**. Dull and dark surfaces such as dark fabrics do not reflect light well.



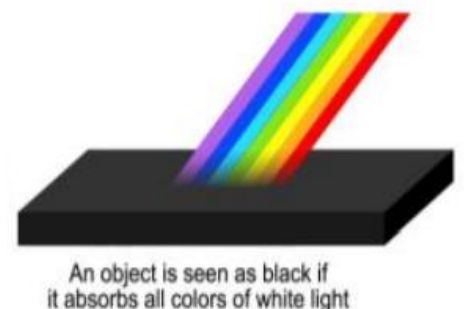
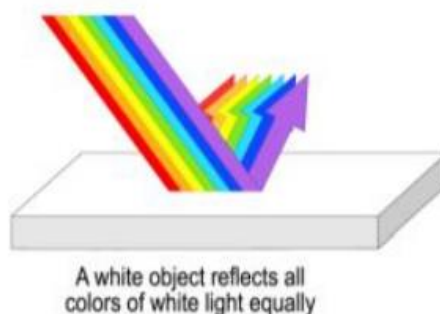
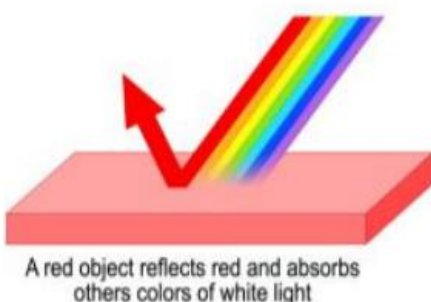
When light hits an object, it is **reflected** (bounces off) and enters our eyes. This is how we see the object. We need light sources to be able to see; otherwise, there is no light to reflect off surfaces and into our eyes. This is why we cannot see in the dark.

# Light Phenomena

## Refraction

Water and bent shiny surfaces cause light rays to be reflected at different angles, meaning the reflection of the image is distorted.

White light is made up of the colours of the rainbow. When light is refracted through a transparent object, a rainbow is formed.



# Key Vocabulary

**light** – a form of **energy**

**light source** – an object that provides its **own light**

**reflection** – when light shines on a surface and **bounces** back

**refraction** – when light **changes direction** when going through the boundary of a state of matter

**variable** – any one of the elements of an experiment which could be **changed**

**angle** – the **space** between two intersecting **lines**

**mirror** – a surface that **reflects** a clear image

**opaque** – materials which **do not** allow light to travel through

**translucent** – can see through **partially**, but not in detail

**transparent** – materials which **allow all light** to travel through

**sunshade** – a device giving **protection** from the sun

**rotate** – to **turn** an object around a centre point

**optical** – relating to the science of **optics**

**spectrum** – a band of several **colours**

## Test Yourself

- How does light travel?
- How is light reflected?
- What materials are best at reflecting light?
- How does reflection help us see?
- How do shadows change?
- How do we create a shadow and what determines its shape?
- What amazing phenomena can light do?