



Light

Year 6

Knowing More, Remembering More

Remembering previous learning

What is a light source? An object that gives out light.

What is light needed for? Light is needed to see. Without light, we cannot see anything.

Why is the sun important? The sun is a light source. Without it, living things would not be able to live and grow on Earth.

Name two ways that we protect our eyes from the sun. Do not look directly at the sun and wear sunglasses in bright light.

How does light travel? Light travels in straight lines from its source.

How do we see? Light travels from its source, to the object and is reflected into our eyes.

What is a shadow? Shadows are formed when the light from an object is blocked by an object.

What does opaque mean? Opaque materials do not let light pass through them; they block it.

What does translucent mean? Translucent materials allow some light to pass through them but do not form clear shadows.

What does transparent mean? Transparent materials allow light to pass through them easily.

The closer an object to a light source, the larger the shadow it produces.

In this unit children will:

- Recognise that light appears to travel in straight lines.
- Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.
- Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.
- Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Working Scientifically:

- 6.3 Make predictions based on scientific knowledge.
- 6.5 Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- 6.9 Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- 6.10 Report and present findings from enquiries, including conclusions, causal relationships and explanations, with a degree of trust in results, in oral and written forms such as displays and other presentations.
- 6.12 Use scientific evidence to answer questions.
- 6.13 Make conclusions based on scientific evidence and from their own testing and findings.

Key Vocabulary:

- light source
- retina
- iris
- pupil
- lens
- reflection
- ray diagram
- angle
- periscope
- shadow
- opaque
- translucent
- transparent
- solar eclipse
- independent variable
- controlled variable
- dependent variable
- conclusion
- evaluate
- refraction
- medium
- rainbow
- prism
- coloured filter
- spectrum of light

Key Scientists:



Classic

Isaac Newton (1643 - 1727)

Demonstrated that clear white light was composed of seven visible colours.



Classic

Ibn al-Haytham (965-1040)

Discovered white light is made up of different colours.

Key Learning Steps:

1. How we see
2. Light and straight lines
3. Shadow formation
4. Plan - shadow experiment
5. Investigate - shadow experiment
6. Evaluate - shadow experiment
7. Refraction
8. Explore light

Knowing More, Remembering More

Knowing more in Y6

How can we see objects? Humans can see objects because a light source produces light. Light reflects from an object to the eye. Light passes through the pupil to the retina.

What is a reflection? A reflection is where light rays bounce off an object.

What are shadows like? The shape of a shadow is determined by the shape of the object that blocks the light. Shadows are always dark because they are areas from which light has been blocked.

What is refraction? When light passes from one medium to another, it can change direction.

For example, a pencil looks bent when it is put into water, because light travels at a different speed in water than it does in air.

What colours make up white light? A mixture of colours make white light.

What is a rainbow? A rainbow is a spectrum of light formed when sunlight passes through, and is refracted by, raindrops.

