

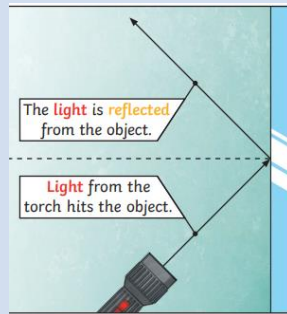
National Curriculum Science - Knowledge

Key Learning

Vocabulary

- recognise that they need light in order to see things and that dark is the absence of light
- notice that light is reflected from surfaces
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- recognise that shadows are formed when the light from a light source is blocked by an opaque object
- find patterns in the way that the size of shadows change

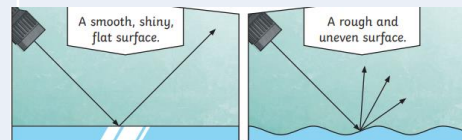
We need light to be able to see things and darkness is the absence of light. Things that produce light are called light sources. Light travels in straight lines and when it hits an object it is reflected back. If some of that light reaches our eyes then we can see the object it bounced off.



Reflective surfaces and materials can be very useful



Mirrors reflect light very well so they create a clear image. An image in the mirror appears to be reversed.



Surfaces that reflect light well are smooth, shiny and flat.

Light from the sun can be dangerous and can damage your retinas in your eyes. Never look directly at the sun.



- Light** – A form of energy that travels in a wave from the source
- Dark** – The absence of light.
- Reflection**- When light bounces back from an object into your eyes
- Light source** – An object that makes its own light
- Opaque** – A solid object that doesn't let any light pass through
- Translucent** – When some of light can travel through, but it scatters so not able to see clearly.
- Transparent** – Lets light travel through freely so you can see through it.
- Shadow** – An area of darkness where light has been blocked.

National Curriculum Science – working scientifically

- Asking relevant questions and using different types of scientific enquiries to answer them
- Setting up simple practical enquiries, comparative and fair tests
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Key Learning continued...

A shadow is caused when light is blocked by an opaque object. A shadow is larger when it is closer to the light source as it blocks more of the light.



The size of the shadow depends on the position of the source, object and surface. Shadows can be useful when telling the time



Scientific investigations

Which materials are reflective?

- Observation
- Setting up a fair test

How do shadows change when the distance between the light source and the object changes?

- Make systematic observations
- Set up a practical investigation
- Record results

Sequence of learning – Light

- 1 **What is light?** Study light sources and what it is like when there is no light source (dark). Sort objects into light sources and not light sources.
- 2 **Which materials are reflective?** – What is a reflective surface and why are they important/useful? Investigate which materials reflect light – design a book bag to be seen using the results of their tests.
- 3 **What is a Mirror?** - Reflective properties of mirrored surfaces – how can this be useful? Play mirror games including a mirror maze. What do you notice about images in a mirror?
- 4 **How do you stay safe in the sun?** Find out about UV light and the dangers of the sun to our eyes. How can we protect our eyes from damage by the sun? Design your own eye sun protection
- 5 **Making shadows** - Shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. Explore which material would make the best curtains.
- 6 **How Do Shadows Change When the Distance Between the Light Source and the Object Changes?** Plan an investigation to answer the question.