

# Year 3: Light

## What should I already know?

I know the seasons of the year and about different types of weather. I can find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses

**Science - science is a subject where you ask questions about how the world works and find out the answers**

National Curriculum Objectives:

Recognise that they need light in order to see things and that dark is the absence of light

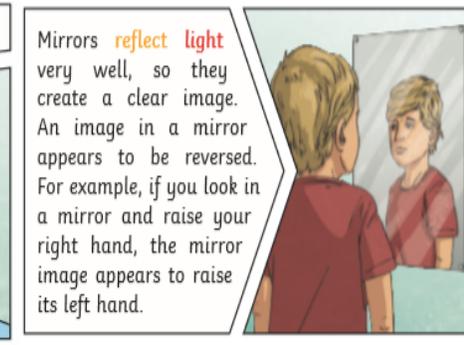
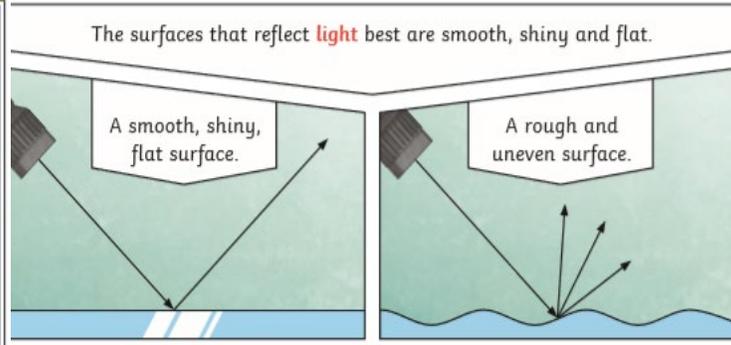
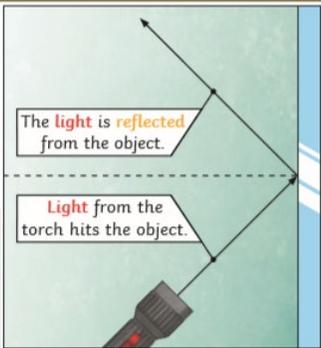
Notice that light is reflected from surfaces

Recognise that light from the sun can be dangerous & ways to protect their eyes

Recognise that shadows are formed when the light from a light source is blocked by an opaque object

## Powerful knowledge

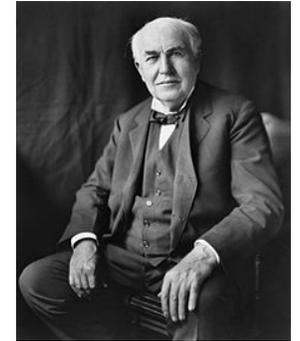
We need **light** to be able to see things. **Light** travels in a straight line. When **light** hits an object, it is **reflected** (bounces off). If the **reflected light** hits our eyes, we can see the object. Some surfaces and materials **reflect light** well. Other materials do not **reflect light** well. **Reflective** surfaces and materials can be very useful...



Our main light source is the sun!



## Significant People



**Thomas Edison**  
1847 - 1931

Thomas was an American inventor.

He invented the first electric light bulb in 1879.

"We will make electricity so cheap that only the rich will burn candles."



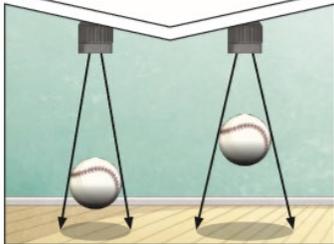
Interesting facts -

A ray of light travels very fast. The speed of light in space is approximately 300 million metres per second.

# Glossary/Key Questions

<b>Light</b>	A form of energy that travels as a wave from a source
<b>Light source</b>	An object that makes its own light
<b>Reflection</b>	When light hits the surface of an object and bounces back into your eyes
<b>How does light travel?</b>	Light travels in straight lines.
<b>What is a shadow?</b>	When an object blocks light, it makes a dark space called a shadow.
<b>Why does light bounce off objects?</b>	Light travels in straight lines and cannot bend around objects. When it hits an object it is reflected.
<b>What is opaque?</b>	Opaque is the word used to describe objects that light does not travel through.
<b>What is translucent?</b>	Translucent is the word used to describe objects that let some light travel through.
<b>What is transparent?</b>	Transparent is the word used to describe objects that let all light travel through.

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



When the **light** source is directly above the object, the shadow will be directly underneath.



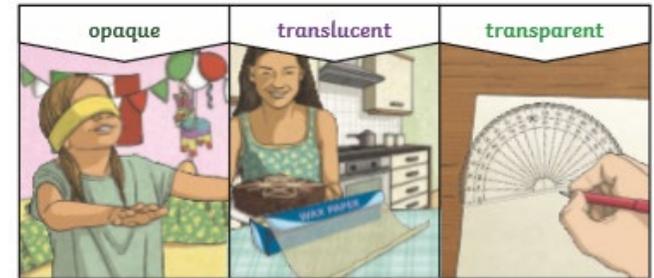
When a **light** source is to one side of an object, the shadow will appear on the opposite side. The shadow will also be longer.



## LIGHT SOURCES



A mirror is not a light source. It reflects light so doesn't create it.



## Science Year 3 - Light

### National Curriculum Objectives:

- 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 & 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.

### Prior Objectives:

- Name the seasons and know about the type of weather in each season
- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
- Find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
 Skill - Explore  Knowledge - The dark exists when there is no light.	 Skill - Investigate  Knowledge - We can see the moon because light from the sun reflects off it	 Skill - Label  Knowledge - Reflection occurs when light bounces off an object.	 Skill - Explain  Knowledge - Understand how to stay safe in the sun	 Skill - Investigate  Knowledge - Shadows are made by blocking light.	 Skill - Observe  Knowledge - The closer an object is to the light source, the larger the shadow.
<p><u>WALT: Recognise the need for light.</u></p> <p>WILF:            - Use a torch.            - Shine a torch on a mirror.            - Create a pattern.</p> <p>Discuss different light sources. Can you name some things that give out light? How does light help us to see? What is dark?            Chn are to group objects that are a light source and those that are not. The moon is not a light source because it does not make its own light.</p> <p><b>Recording:</b> Investigation: poke holes into a cardboard box &amp; observe what happens when you shine a torch over it in a dark classroom. (Pictures)</p>	<p><u>WALT: Investigate which surfaces reflect the most light.</u></p> <p>WILF:            - Describe different materials            - Explain why reflective clothing is important.            - Name the materials.</p> <p>We can see the moon because light from the sun reflects off it (bounces off it) back to the earth.            Create a reflective jacket for a police officer.            Look for materials that are reflective.</p> <p><b>Recording:</b> Chn write the different materials they can use on sticky notes.</p>	<p><u>WALT: Reflect light using mirrors.</u></p> <p>WILF:            - Use a torch            - Use mirrors            - Reflect light using a mirror.</p> <p>What is a mirror?            What is reflection?            Use the torch a mirror to reflect light on the ceiling or another object.</p> <p><b>Recording:</b>            Draw a diagram of how light reflects.            Use a mirror to write a short reversed message to their partner. They should then swap messages and try to decipher them with their mirrors.</p>	<p><u>WALT: Explain how to stay safe in the sun.</u></p> <p>WILF:            - Identify why the sun is good.            - Identify why the sun is bad.            - Write how to stay safe in the sun.</p> <p>Have you ever been told not to look at the sun? How can the sun be a hero?            How can the sun be a villain?</p> <p>Teach the children why the sun is dangerous and what we can do to protect ourselves.</p> <p><b>Recording:</b>            Children create a poster for KS1 on how to stay safe in the sun.</p>	<p><u>WALT: Investigate which materials block light.</u></p> <p>WILF:            - Use a torch and shine light at some materials.            - Sort different materials into correct groups.</p> <p>What is a shadow?            How are they made?            Which objects are the best to make a shadow?</p> <p>Introduce transparent, translucent and opaque.</p> <p><b>Recording:</b>            Find objects around the class to group into the categories. Record finding in a table.</p>	<p><u>WALT: Find patterns in the way that the size of shadows change.</u></p> <p>WILF:            - Predict what happens when light is blocked.            - Create a shadow.            - Make shadows of different sizes.</p> <p>Children investigate how they can make their shadows bigger and smaller.</p> <p>Work with a partner to measure how small you can make your shadow and measure how big you can make a shadow.</p> <p><b>Recording:</b> Draw a diagram showing the biggest/smallest shadow that is made.</p>

**Assessment:** Use the vocabulary mat to assess the children's prior knowledge and use the mats again to assess what the children have learnt.

**Key Vocabulary:** Light source, dark, reflect, ray, mirror, bounce, visible, beam, sun, glare, travel, straight, opaque, shadow, block, transparent, translucent.



light



light source



dark



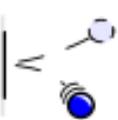
reflect



ray



mirror

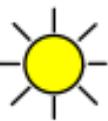


bounce

visible



beam



sun



travel



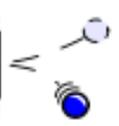
straight



opaque



shadow



bounce



transparent



translucent



torch



eye