



## Light – Year 3

<b>Essential Knowledge (End Points):</b>	<ul style="list-style-type: none"> <li>• Recognise that we need light in order to see things, and that dark is the absence of light.</li> <li>• Name sources of light.</li> <li>• Recognise and identify opaque, transparent and translucent materials.</li> <li>• Describe the relationship between the position of a light source and the size/shape of a shadow.</li> </ul>		
<b>Summary</b>	<p>We need light to be able to see things. Dark is the absence of light. We cannot see anything in complete darkness. Some objects, for example- the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light. Light travels in a straight line. When light hits an object, it is reflected. If the reflected light hits our eyes, we can see the object. Some surfaces reflect light- the best surfaces for reflecting light are smooth, shiny and flat. Objects are easier to see when there is less light if they are reflective.</p> <p>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. The size of the shadow depends on the position of the source, object and surface. They should look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change.</p> <p><i>Note:</i> pupils should be warned that it is not safe to look directly at the sun, even when wearing dark glasses.</p>	<b>Vocabulary:</b>	<ul style="list-style-type: none"> <li>• <b>Light</b> – A form of energy that travels in a wave from a source.</li> <li>• <b>Light source</b> – An object that makes its own light.</li> <li>• <b>Dark</b> – The absence of light.</li> <li>• <b>Reflection</b> – The process where light hits the surface of an object and bounces back into our eyes.</li> <li>• <b>Reflect</b> – To bounce off.</li> <li>• <b>Reflective</b> – Reflects light well.</li> <li>• <b>Ray</b> – Waves of light are called light rays. They can also be called beams.</li> <li>• <b>Shadow</b> – An area of darkness where light has been blocked.</li> <li>• <b>Translucent</b> – Lets some light through.</li> <li>• <b>Transparent</b> – Lets light travel through easily.</li> <li>• <b>Opaque</b> – Does not let any light pass through.</li> <li>• <b>Pupil</b> – The black part of the eye which lets light in.</li> <li>• <b>Retina</b> – A layer at the very back of the eye. The retina takes the light the eye receives and changes it into nerve signals to send to the brain.</li> </ul>
<b>Prior learning/Understanding</b>	<p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)</p> <p>Describe the simple physical properties of a variety of everyday materials. (Y1 - Materials)</p>	<b>Working Scientifically Skills coverage:</b>	<p>Pupils might work scientifically by:</p> <ul style="list-style-type: none"> <li>• Looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.</li> <li>• Setting up simple practical enquiries, comparative and fair tests to investigate opaque, translucent and transparent materials.</li> <li>• Asking relevant questions and using different types of scientific enquiries to answer them.</li> </ul>
<b>Future learning/Understanding</b>	<p>Recognise that light appears to travel in straight lines. (Y6 - Light)</p>		

	<p>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. (Y6 - Light)</p> <p>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. (Y6 - Light)</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. (Y6 - Light)</p>		<ul style="list-style-type: none"> <li>Using equipment to make careful observations e.g. torches.</li> </ul>
<b>Suggested Activities/STEM Lab Opportunities</b>	<ul style="list-style-type: none"> <li>Creating shadow puppets using suitable materials.</li> <li>Investigating opaque, translucent and transparent materials.</li> </ul>	<b>Assessment tasks</b>	<p>Carrying out an investigation and recording the results. 'Big Question' e.g. What would happen if there was no light? Teacher assessment.</p> <p>Pupils should be able to:</p> <ul style="list-style-type: none"> <li>Describe how we see objects in light and can describe dark as the absence of light.</li> <li>Define transparent, translucent and opaque.</li> <li>Describe how shadows are formed.</li> </ul>
<b>Key Local Links:</b>	N/A	<b>Common Misconceptions:</b>	<p>Some children may think:</p> <ul style="list-style-type: none"> <li>We can still see even where there is an absence of any light.</li> <li>Our eyes 'get used to' the dark.</li> <li>The moon and reflective surfaces are light sources.</li> <li>A transparent object is a light source.</li> <li>Shadows contain details of the object, such as facial features on their own shadow.</li> <li>Shadows result from objects giving off darkness.</li> </ul>



## Component Statements

**Recognise that we need light in order to see things, and that dark is the absence of light.**

Children will:

- understand that light is a form of energy that moves in straight lines.
- know that light reflects off surfaces, and that reflected light enters our eyes, allowing us to see.

**Name sources of light.**

Children will:

- identify different light sources, such as the sun, moon, lamps, and candles.
- recognise that light from the sun can be dangerous and that there are ways to protect their eyes.

**Recognise and identify opaque, transparent and translucent materials.**

Children will:

- know that some materials allow light to pass through (transparent)
- know that some materials partially block light (translucent)
- know that some materials do not allow any light to pass through at all (opaque).
- identify opaque, transparent and translucent materials.
- investigate opaque, transparent and translucent materials.

**Describe the relationship between the position of a light source and the size/shape of a shadow.**

Children will:

- recognise that shadows are formed when the light from a light source is blocked by an opaque object.
- be able to explain that light travels in a straight line from a light source and if an object passes in front of it, the light can be blocked.
- be able to create a shadow.
- find patterns in the way that the size of shadows change.