




## Scientific Skills Progression

\*Note: It is expected that children and adults should use the vocabulary from previous year groups as they progress and where appropriate.

By the end of ...	<p style="text-align: center;"><b>LIGHT</b></p> 	Year group taught in
Key Stage 2	<ul style="list-style-type: none"> <li>• Recognise that they need light in order to see things and that dark is the absence of light</li> <li>• Notice that light is reflected from surfaces</li> <li>• Recognise that light from the Sun can be dangerous and that there are ways to protect their eyes</li> <li>• Recognise that shadows are formed when the light from a light source is blocked by a solid object</li> <li>• Find patterns in the way that the sizes of shadows change.</li> </ul> <p><b>Vocabulary children should use:</b> light, light source, names of light sources e.g. torch, dark/darkness, reflect, reflective, mirror, shadow, block, direct/direction, transparent, opaque, translucent</p>	Year 3
Key Stage 2	<ul style="list-style-type: none"> <li>• Recognise that light appears to travel in straight lines</li> <li>• 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</li> <li>• 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</li> <li>• Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> </ul> <p><b>Vocabulary children should use:</b> Light, light source, names of light source e.g. torch, dark/darkness, reflect, reflective, mirror, straight, bend, shadow, block, absorb, direct/direction, transparent, opaque, translucent</p> <p><b>Vocabulary adults should use:</b> refraction</p>	Year 6
Key Stage 3	<p><b>Light waves</b></p> <ul style="list-style-type: none"> <li>• <i>Investigate</i> the similarities and differences between light waves and waves in matter</li> <li>• <i>Recognise that for</i> light waves travelling through a vacuum; <i>they travel at the speed of light</i></li> <li>• <i>Investigate</i> the transmission of light through materials: absorption, diffuse scattering <small>and</small> specular reflection at a surface</li> <li>• <i>Make</i> use of a ray model to explain:               <ul style="list-style-type: none"> <li>○ imaging in mirrors,</li> <li>○ the pinhole camera,</li> <li>○ the refraction of light and action of convex lens in focusing (qualitative);</li> </ul> </li> </ul>	Year 7, 8 or 9



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	<ul style="list-style-type: none"> <li>○ the human eye</li> <li>● <i>Recognise that</i> light transfers energy from source to absorber leading to chemical and electrical effects; photo-sensitive material in the retina and in cameras</li> <li>● <i>Investigate</i> colours and the different frequencies of light:             <ul style="list-style-type: none"> <li>○ white light and prisms (qualitative only);</li> <li>○ differential colour effects in absorption and diffuse reflection.</li> </ul> </li> </ul>	
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