



## Science Skills Progression

### To understand light and seeing

<b>Essential characteristics of scientists</b>	<ul style="list-style-type: none"><li>•The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings.</li><li>•Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations.</li><li>•Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings.</li><li>•High levels of originality, imagination or innovation in the application of skills.</li><li>•The ability to undertake practical work in a variety of contexts, including fieldwork.</li><li>•A passion for science and its application in past, present and future technologies.</li></ul>	
	Key Knowledge	Key Vocabulary
<b>EYFS 30-50</b>	Talks about why things happen and how things work.	
<b>EYFS ELG</b>	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.	
<b>EYFS ELG+</b>	They are familiar with basic scientific concepts such as floating, sinking, experimentation.	
<b>Y3/4</b>	<b>Y3 learning challenge - How far can you throw your shadow?</b> <b>Science Bug - Y3 Light and shadows</b> <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 size of shadows change.</li></ul>	<ul style="list-style-type: none"><li>• opaque</li><li>• transparent</li><li>• translucent</li><li>• warning</li><li>• source</li><li>• electric</li><li>• reflection</li></ul>
<b>Y5/6</b>	<b>Y6 learning challenge - How can you light up your life?</b> <b>Science Bug - Y6 Light and sound</b> <ul style="list-style-type: none"><li>• Understand 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 eyes.</li></ul>	<ul style="list-style-type: none"><li>• shadow</li><li>• refraction</li></ul>



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	<ul style="list-style-type: none"><li>• Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes.</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></ul>	
<b>Y7</b>	<ul style="list-style-type: none"><li>• Electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge.</li><li>• Potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current.</li><li>• Differences in resistance between conducting and insulating components (quantitative).</li><li>• Static electricity</li></ul>	