

Year 3 – Light and Shadow (Light)											
Links made with other subjects	Structures DT – greenhouses (transparent etc)										
The BIG Question	What is the dark?										
The BIG Outcome	Short explanation or diagram explaining how we see using light and a sentence about the dark										
Science objectives (link to NC)	<ul style="list-style-type: none">- 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 a solid object- find patterns in the way that the size of shadows change										
Prior knowledge What prior knowledge is needed for children to be successful in this unit?	<i>Children already know:</i> EYFS – Understanding the world - 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 Yr 1 - Senses (Y1 - Animals, including humans)										
Future learning Consider the conceptual knowledge within a subject that pupils need for future learning not just the recall of facts but the importance of concepts	This unit gives prior knowledge to: Yr 6 - Light and Sight (Light)										
Science strands	<div>Related Enquiry Questions</div> <table><tr><td>Classifying</td></tr><tr><td>Based on the children’s own criteria:<ul style="list-style-type: none">- classify light sources (leading to man-made/natural)-classify materials (leading to reflective/non-reflective, transparent/translucent/opaque).</td></tr><tr><td>Observing over time</td></tr><tr><td>Not relevant (NB Do not look at how shadows in the playground change throughout the day as Year 5 do.)</td></tr><tr><td>Pattern Seeking</td></tr><tr><td>Investigate what happens when conditions are changed e.g. more/less light/water, change in temperature, nutrients (Baby Bio vs other brands).</td></tr><tr><td>Comparative testing</td></tr><tr><td><ul style="list-style-type: none">-Test materials for reflectiveness.-Test materials for transparency.-Investigate shadows (size of shadows, shape of shadows).</td></tr><tr><td>Researching</td></tr><tr><td>Not relevant</td></tr></table>	Classifying	Based on the children’s own criteria: <ul style="list-style-type: none">- classify light sources (leading to man-made/natural)-classify materials (leading to reflective/non-reflective, transparent/translucent/opaque).	Observing over time	Not relevant (NB Do not look at how shadows in the playground change throughout the day as Year 5 do.)	Pattern Seeking	Investigate what happens when conditions are changed e.g. more/less light/water, change in temperature, nutrients (Baby Bio vs other brands).	Comparative testing	<ul style="list-style-type: none">-Test materials for reflectiveness.-Test materials for transparency.-Investigate shadows (size of shadows, shape of shadows).	Researching	Not relevant
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Vocabulary/ Glossary	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous										
Knowledge (see italics for knowledge to remember)	<i>The knowledge that children will learn and remember:</i> 1. <i>We see objects because our eyes can sense light.</i>										

Science Scheme of Work

	<ol style="list-style-type: none"> 2. <i>Dark is the absence of light.</i> 3. <i>We cannot see anything in complete darkness.</i> 4. <i>Some objects, for example, the sun, light bulbs and candles are sources of light.</i> 5. <i>Objects are easier to see if there is more light.</i> 6. <i>Some surfaces reflect light.</i> 7. <i>Objects are easier to see when there is less light if they are reflective.</i> 8. <i>The light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or sunhats in bright light.</i> 9. <i>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.</i> 10. <i>The size of the shadow depends on the position of the source, object and surface.</i>
SEND expectations	<ol style="list-style-type: none"> 1. We see objects because our eyes can sense light. 2. Dark is the absence of light. 3. We cannot see anything in complete darkness. 4. Some objects, for example, the sun, light bulbs and candles are sources of light. 5. Objects are easier to see if there is more light. 6. Some surfaces reflect light. 7. The light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or sunhats in bright light. 8. 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.
Common Misconceptions	<p>Some children may think:</p> <ul style="list-style-type: none"> - we can still see even where there is an absence of any light - our eyes 'get used to' the dark - the moon and reflective surfaces are light sources - a transparent object is a light source - shadows contain details of the object, such as facial features on their own shadow - shadows result from objects giving off darkness.