






Science Knowledge and Skills Overview – Year Three Light and Dark

National Curriculum Objectives	Sticky Knowledge	Key Questions
<ul style="list-style-type: none"> Pupils should be taught to recognise that they need light in order to see things and that dark is the absence of light. Pupils should notice that light is reflected from surfaces. Pupils should be able to recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Pupils should be able to recognise that shadows are formed when the light from a light source is blocked by a solid object. Pupils should find patterns in the way that the size of shadows change. 	<ul style="list-style-type: none"> Dark is the absence of light. We need light so that we can see things. The sun and other stars, fires, torches and lamps all make their own light and so are examples of sources of light. Our main source of light on Earth comes from the sun, a ray of light travels very fast Darkness is made by blocking light from the sun or some other source of light. Blocking light from a light source forms shadows. The closer the light source, the larger the shadow. Opaque objects create the darkest shadows. Reflection is when a ray of light hits a surface and bounces off for example a mirror. Similarly the moon is not a source of light; it reflects the light of the sun. It is dangerous to look directly at the sun, even if wearing sunglasses. 	<p>What colour would be the best to make a safety jacket? How does the colour of a material affect how reflective it is? How does the thickness of a material affect how much light can pass through it? How many pieces of tracing paper are as translucent as a single piece of white paper? How does the shape of a mirror affect how the light reflects? How can we change the darkness, size and shape of a shadow?</p>
Links to NHFS core curriculum themes	Key Vocabulary	Key Scientists
<p>Sustainability – dangers of the sun and damage to the Earth's O-Zone layer</p> <p>Aspirations – Eye care professionals</p> <p>Equality – embracing the difference in lifestyles across the world based on the amount of sunlight throughout the year</p>	<p>Light, dark, light source, shadows, reflection, opaque, ray of light, dangerous, directly</p>	<p>Ibn al-Haytham "Alhazen" (Inventor)</p> <p>Lewis Latimer (Inventor) Light, dark, light source, shadows, reflection, opaque, ray of light, dangerous, directly</p>
Prior Learning	Future Learning	Big Question
<p><u>In Year 1 children should:</u></p> <ul style="list-style-type: none"> Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. 	<p><u>In Year 6 children will:</u></p> <ul style="list-style-type: none"> Recognise that light appears to travel in straight lines. 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. 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. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. 	<p>What is a shadow?</p>

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 <p>How does the distance between the shadow puppet and the screen affect the size of the shadow? Which pair of sunglasses will be best at protecting our eyes?</p>	 <p>How would you organise these light sources into natural and artificial sources?</p>	 <p>Is the Sun the same brightness all day? How does my shadow change over a day/month/year?</p>	 <p>Do all dark fabrics block out a light source?</p>	 <p>How does the Sun make light?</p>
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