<table>
<tr><th colspan="2">Year 6 – Light and Sight (Light)</th></tr>
<tr><td>Links made with other subjects</td><td></td></tr>
<tr><td>The BIG Question</td><td>How do we see?</td></tr>
<tr><td>The BIG Outcome</td><td>Create an annotated diagram modelling how we see and how shadows are formed</td></tr>
<tr><td>Science objectives
(link to NC)</td><td>- 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.</td></tr>
<tr><td>Prior knowledge
What prior knowledge is needed for children to be successful in this unit?</td><td>Children already know:
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)
Yr 3 - Light and Shadow</td></tr>
<tr><td>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</td><td>This unit gives prior knowledge to:
KS3 The similarities and differences between light waves and waves in matter. • Light waves travelling through a vacuum; speed of light. • The transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface. • Use of ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of convex lens in focusing (qualitative); the human eye. • Light transferring energy from source to absorber leading to chemical and electrical effects; photo-sensitive material in the retina and in cameras. • Colours and the different frequencies of light, white light and prisms (qualitative only); differential colour effects in absorption and diffuse reflection.</td></tr>
<tr><td>Science strands</td><td><u>Related Enquiry Questions</u>
<table>
<tr><td>Classifying</td></tr>
<tr><td>Not relevant</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>Not relevant</td></tr>
<tr><td>Comparative testing</td></tr>
<tr><td>- Investigate the shape of shadows and link this to light travelling in straight lines.</td></tr>
<tr><td>Researching</td></tr>
<tr><td>Not relevant</td></tr>
</table></td></tr>
<tr><td>Vocabulary/ Glossary</td><td>Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, straight lines, light rays</td></tr>
<tr><td>Knowledge
(see italics for knowledge to remember)</td><td>The knowledge that children will learn and remember:
1. Light appears to travel in straight lines
2. We see objects when light from them goes into our eyes.
3. The light may come directly from light sources</td></tr>
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	4. *Natural sources of light include the sun, stars, fire, and electricity in storms. There are even some animals and plants that can create their own light, such as fireflies, jellyfish, and mushrooms.* 5. *Other sources are torches, lights and TVs etc* 6. *For other objects some light must be reflected from the object into our eyes for the object to be seen (mirrors and object that does not produce light)* 7. *Objects that block light (are not fully transparent) will cause shadows.* 8. *As light travels in straight lines the shape of the shadow will be the same as the outline shape of the object.*
SEND expectations	1. *Light appears to travel in straight lines* 2. *We see objects when light from them goes into our eyes.* 3. *The light may come directly from light sources* 4. *For other objects some light must be reflected from the object into our eyes for the object to be seen (mirrors and object that does not produce light)* 5. *Objects that block light (are not fully transparent) will cause shadows.* 6. *As light travels in straight lines the shape of the shadow will be the same as the outline shape of the object.*
Common misconceptions	we see objects because light travels from our eyes to the object