

Topic Name	Light
Big Question	How can you light up your life?
Scientists to use as examples	Thomas Edison Patricia Bath
Key Knowledge	<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>Pupils should build on the work on light in year 3, exploring the way that light behaves, including light sources, reflection and shadows. They should talk about what happens and make predictions.</p> <p>Pupils might work scientifically by: deciding where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. They might investigate the relationship between light sources, objects and shadows by using shadow puppets. They could extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water, and coloured filters (they do not need to explain why these phenomena occur).</p>
Key investigational skills	<p>How do we know that light travels in a straight line? How do we know that light is faster than sound? Does the distance of the light source affect the size of the shadow of an object?</p> <p>-Accurately using a ruler to measure and draw straight lines. Use a stopwatch to record times. Measure accurately using a ruler. Record data in tables, graphs.</p> <p>What other experiments can children devise to answer this question.</p> <p>Show other experiments performed by scientists showing this. Use secondary sources for how the eye works.</p>
Vocabulary	Light, plus straight lines, light rays

Future learning – next time they will be learning	The similarities and differences between light waves and waves in matter. (KS3) • Light waves travelling through a vacuum; speed of light. (KS3) • The transmission of light through materials: absorption, diffuse scattering and specular reflection at a surface. (KS3) • 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. (KS3) • Light transferring energy from source to absorber leading to chemical and electrical effects; photo-sensitive material in the retina and in cameras (KS3)
Visits	Opticians
Book links	