Science Medium Term Plan

	Year Group:	**Term:**	**Topic/Unit :**
	6	Autumn	Light
National Curriculum Programme of Study	• 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.		
Prior Learning	• Recognise that they need light in order to see things and that dark is the absence of light. (Y3 - Light) • Notice that light is reflected from surfaces. (Y3 - Light) • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light) • Recognise that shadows are formed when the light from a light source is blocked by an opaque object. (Y3 - Light) • Find patterns in the way that the size of shadows change. (Y3 - Light) • Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Y5 - Properties and changes of materials)		
Future 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) • Colours and the different frequencies of light, white light and prisms (qualitative only); differential colour effects in absorption and diffuse reflection. (KS3)		
Links to other subjects	Maths – angles and measure		
Enrichment	Light show?		

Working Scientifically	**Comparative tests**	**Identify and classify**	**Observation over time**	**Pattern seeking**	**Research**
					
	How does the angle that a light ray hits a plane mirror affect the angle at which it reflects off the surface?	Can you identify all the colours of light that make white light when mixed together? What colours do you get if you mix different colours of light together?	How does my shadow change over the day?	Is there a pattern to how bright it is in school over the day? And, if there is a pattern, is it the same in every classroom?	How do our eyes adapt to different conditions?

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Working Scientifically Assessment Focus	**Record:** Investigating shadows **Working Scientifically Review:** Take accurate measurements and records data on a graph **Assessment Focus** • Can children make accurate measurements? • · Can children plot their results accurately on a line graph?
Sticky vocabulary	Light, straight lines, light rays, Light source, dark, reflect, mirror, bounce, visible, beam, sun, glare, travel, straight, opaque, shadow, block, transparent, translucent, absorb, emitted, scattered, refraction **Working scientifically vocabulary:** relationship, variables, precision, accuracy,
End points	• Light appears to travel in straight lines, and we see objects when light from them goes into our eyes. • The light may come directly from light sources, but for other objects some light must be reflected from the object into our eyes for the object to be seen. • Objects that block light (are not fully transparent) will cause shadows. • Because light travels in straight lines, the shape of the shadow will be the same as the outline shape of the object.