Pinner Wood School

Year Group	6	**Term**	Autumn 2	**Subject**	Science	**Topic**	Light up your World!
						Key Question	KQ: How can you light up your life?
Prior Learning and other Curriculum Links	Year 2: I can explain that I need light in order to see things and that dark is the absence of light. Year 2:I can show that light is reflected from surfaces.					**Statements (Skills)**	• I can show that light appears to travel in straight lines. • I can explain that light travels in straight lines and that objects are seen because they give out or reflect light into the eye. • I can demonstrate and 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. • I can demonstrate that light travels in straight lines to show why shadows have the same shape as the objects that cast them.
Fundamentals	<u>Working Scientifically</u> - I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. - I can take accurate measurements, using a range of scientific equipment taking repeat readings when appropriate.					**Key Facts/Sticky Knowledge**	• Light travels in straight lines from a source of light, which bounces off an object. We can see the object because the light enters our eyes. • All objects reflect light (smooth, shiny, dull, rough surfaces). • Refraction is the bending of light as it passes from one transparent substance into another. • Isaac Newton developed the Theory of Light

	- I can record complex data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. - I can use test results to make predictions to set up further comparative and fair tests. - I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. - I can identify scientific evidence that has been used to support or refute ideas or arguments.		• Light is made from all the colours of the rainbow
Our Curriculum Journey	**Journey:** The topic begins with the first KQ 'How does light travel?' where we will discuss what the children already know about light, addressing misconceptions and introducing key new vocabulary to explain how light travels. The first task will be a group activity where the children will act out how light helps us see to allow them to apply their knowledge. The second task will be a worksheet where the children will draw a diagram explaining that how light travels to assess their understanding. KQ 2 is 'How is light reflected?' initially the children will initially vote which explanation of reflection on the board is correct, and then the lesson will delve deeper into looking at and explaining reflection. The task will be for children in groups to create a periscope, which will provide them with a better understanding of reflection. The next key question will focus on 'What is refraction?' where the children will be presented with the scenario of the straw in water, and they will discuss why the straw looks 'bent'. Afterwards, the children will learn about refraction, and they will conduct 2 investigations to explore refraction after having made predictions about what they expect will happen. The first investigation will be for the children to draw a horizontal arrow on a small piece of paper, and hold it behind a glass of water. The second investigation will be the children need to draw a small picture (or stick a small sticker) on a piece of paper. They should put a glass of water on top of the picture, then look at their picture through the side of the glass while slowly pouring water in. Afterwards, the children will log their findings and compare		

	it to their predictions. KQ 4 is 'What is a shadow?' where the children will learn that shadows are formed when an opaque object blocks a ray of light. The children will learn the key vocabulary Opaque, Translucent and Transparent, and how this is linked to shadow. Following on from this, the children will conduct an experiment where they will use a light source to investigate the length of a shadow. The children will learnt how to conduct an experiment, including aim, hypothesis and variables, as well as the required exquipment. Once the experiment has been conducted, the children will learn how to write up their method and results. KQ5 will focus on 'what colour is light?' the lesson will begin with an interactive acitivity where the children will stand by a colour paper in the classroom that they think light is. The children will be asked this same question at the end of the lesson to assess what they have learnt about the colour of light. Following on from this, the children will learn about Isaac Newton and his Theory of Colour, especially how a prism refracts light causing it to bend, and displays the separate colours. The children will then create a colour wheel, which they will spin in order to appy Newton's theory that spinner appears white when it is spinning, similar to rays of light. The final KQ is 'How can we filter light?', which will build on their prior learning from last lesson, and begin looking at the filtering. The children will then take part in a filtering activity, where they will first predict what they will see when they look at the coloured counters or sweets though different coloured filters, filling in their ideas in their books. When complete, they should look at their results to spot anything interesting, and form a conclusion to demonstrate the knowledge they have learnt about light.		
Key Vocabulary (revisited)	Light and reflection.	**Key Vocabulary (new)**	Light source, incident ray, refelected ray, the law of reflection, refraction, visible spectrum. Prism, shadow, transparent, translucent, opaque.