Brough Primary School – Curriculum Intention Plan 2023 - 2024

Subject: Science Year Group: Year 5/6	Area of learning: Light

Links to previous work/Remember when	- Knowing they need light to be able to see things and that dark is the absence of light - Notice that light is reflected from surfaces - Recognise that light from the sun can be dangerous and that there are ways to protect their eyes - Recognise that shadows are formed when the light from a light source is blocked by a solid object - Find patterns in the way that the size of shadows change. Working Scientifically - being able to ask and investigate relevant scientific questions; - setting up simple scientific enquiries; - making systematic and careful observations; - gathering, recording and presenting data; - reporting on findings both oral and written; - using results to draw simple conclusions - using straight forward scientific evidence to support what they have found out.

Term	Year 5/6	Key Skills to be taught
Autumn 1 2023 What the children should know at the end of this series of lessons		- 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. Working Scientifically - plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary - take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - use test results to make predictions to set up further comparative and fair tests - identify scientific evidence that has been used to support or refute ideas or arguments

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Vocabulary

Light, light source, names of light sources, dark, reflect, reflective, mirror, shadow, block, absorb, direct/direction, transparent, opaque, translucent, straight, bend, rainbow, colours, magnifying glass.

Sequence of learning	Objectives and suggested details provided by subject leader.
1&2	Revise knowledge of light in relation to light sources and their dangers and shadows are formed when light from a light source is blocked – recognising also that the position and size of the shadow depends on the location of the light source. Revise knowledge of investigation vocabulary such as independent variable and control variables etc. ● Through discussion and answers to the teacher's questions discover what the children have remembered/already know. i). Recognise that light appears to travel in straight lines. ii). Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. WS – Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. WS – Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. ● Plan and carry out an investigation into shadow size and shape, and how the angle of the light source affects shadows.
3	i). Recognise that light appears to travel in straight lines. ii). Explain that we see things because light travels from a light source to our eyes or from a light source to an object and then into our eyes. WS – Use test results to make predictions to set up further comparative and fair tests. *(Once a set of results is obtained, make a range of predictions for other situations – for example, if the children used a classroom light source, what would they expect the light travel diagram to look like if it was re-done outside during the day?)* WS – Identify scientific evidence that has been used to support or refute ideas or arguments. *(How can this evidence be used to refute a small child's belief that they see things because of 'light' coming out of their eyes?)* ● Devise an investigation to prove that light travels from a light source to an object and is the reflected off the object into our eyes. ● How could we prove that our eyes are not a light source – see WS objective. ● Make predictions based on results as per WS objective.
4	i). 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. ii). To understand that different parts of the visible spectrum travel at different speeds and that therefore white light can be split into rainbow colours and

	light appears to 'bend' slowing down when travelling through different materials. WS – Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. - Recap the definitions of a light source and ensure children can correctly label diagrams showing how we see objects. Include discussion about different materials and how they are different colours. - Introduce prisms to demonstrate how white light is made of different components and that the different parts of the visible spectrum travel at different speeds. Link to Sir Isaac Newton.
5	i). Recognise that light appears to travel in straight lines. WS – Identify scientific evidence that has been used to support or refute ideas or arguments. Set up a simple demonstration or refraction. Give children the equipment and a set of instructions and then ask the children to make some observations about how the ruler appears to change as is enters the water. They know the ruler isn't actually bent so how can it be explained? How does this evidence prove that the ruler isn't actually bent?
6	Assessment task: - 1). Complete Year 6 science light quiz - https://www.twinkl.co.uk/go/resource/science-light-year-6-interactive-quiz-tgt-sc

Learning Outcome/product
Children are able to explain how light travels and how we see objects. They should be able to explain the relationship between light sources and the size and shape of shadows created by a given object.

Assessment records	List only those children who have not achieved the expected outcomes.

End of unit assessment question
E.g. See quiz for end of unit task.