Subject	Term	Unit
Science - Year 3	Summer 2	Light

Intent

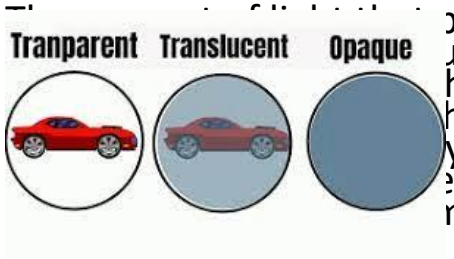
At Hurst Hill, we nurture young scientists by fostering curiosity and developing strong scientific knowledge and enquiry skills. Children learn to investigate, observe and evaluate confidently, understanding how science shapes the past, present and future while building firm foundations for lifelong scientific learning.

Prior knowledge	National Curriculum
• observe and describe weather associated with the seasons and how day length varies	• recognise that they need light in order 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 an opaque object • find patterns in the way that the size of shadows change

What?	To begin to investigate what light is and how we see things. To investigate how light is reflected and how shadows are formed. To think about how to keep ourselves safe in sunlight.
Why?	This is the first time the children will have learnt about light. They need this key knowledge embedded to build upon in Year 6.
How?	Through observation of light sources, objects and shadows. Measurement of shadows.

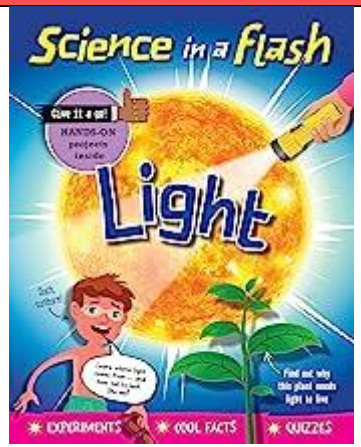
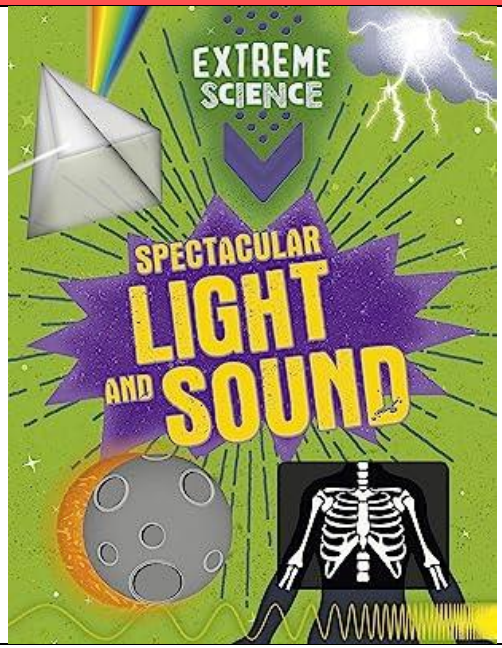
Vocabulary	
Chemical reactions	A process that involves changes in the structure of something.
Dark	The absence of **light**.

Dim	**Light** that is not **bright**.
Electricity	A form of energy that can be carried by wires and is used for heating, lighting and to provide power for machines.
Emits	To produce a sound or **light**.
Light	A **brightness** that lets you see things.
Mirror	A flat piece of glass that **reflects light**, so that when you look at it you can see yourself **reflected** in it.
Opaque	An object or substance that can't be seen through.
Product	Something that is produced.
Reflects	Sent back from the **surface** of an object or substance without passing through it.
Shadows	Dark shapes that are made on a **surface** when something stands between the **surface** and a **light**.
Source	Where something comes from.
Sunglasses	Glasses with **dark** lenses which are worn to protect your eyes from **bright** sunlight.
Surface	The flat, top part, or the outside of an object or substance.
Torches	Small **electric lights** that can be carried and are powered by batteries.
Translucent	A material that allows some **light** to pass through it.
Transparent	An object or substance that can be seen through.

Objective	Learning
Can I explain what light is?	**Comparative Testing** We need light so that we are able to see in the dark. This is because darkness is the absence of light. Any object that we can see must at least partially reflect light into our eyes. Try to find an area in school that is completely dark. Why is this hard to do? Write a definition of darkness. Think about different light sources and record them. Where do we get light from?
Can I explain what reflection is?	**Comparative Testing** Now that we know this, how does light reach our eyes if we are not standing in front of a light source? For example, how can we see the pages of a book? What equipment and materials might help us investigate this? Is there anything else we need to consider? If you had to draw what you think will happen, how would it look? Why? Shine torches on mirrors and shiny surfaces and look at how the light is reflected back. Record findings. Does the same happen for all objects. Test. Explain that some light is absorbed but some light reflects back into our eye so we can see the object. Draw to explain.
Can I investigate how much light gets through different objects?	**Comparative Testing**  passes through an object depends on the type of material that ue material blocks light so we can neither see through it nor hilst a translucent material allows some light to travel through ht light sources. Materials that are transparent allow light to y. ent to show describe the amount of light which travels through naterial with the key words.
Can I explain which material would be best for making sunglasses lenses?	**Pattern Seeking** We must never look directly at the Sun as the light that is produced is very bright and can be harmful to our eyes. This is why we wear sunglasses. If you think about how much light gets through different objects, which type of material Would it be best to use sunglasses lenses? Which material would be worst? Why? Use the knowledge from last week to design their own pair of sunglasses.
Can I explain how shadows are formed?	**Pattern Seeking** When light is blocked by an opaque object, a dark shadow is formed. When light is shone onto a translucent object, some of the light travels through it and creates a fairly dark shadow, whilst a very faint shadow is formed when light is shone onto a transparent object.

	Go outside or use torches inside to make and draw shadows of interesting objects. Write explanations using diagrams of how they are formed.
Can I investigate the link between the size of the shadow and the distance the object is moved away from the light source?	**Pattern Seeking** The size of a shadow changes as the light source moves. The further away the light source is, the smaller the shadow is. The closer the source of the light, the bigger the shadow. Make a shadow 10cm from the light source. Move the object 5cm each time and measure the shadow. Record and discuss results. Complete sentence: As the object moved further from the light source, the shadow got _____.

Websites
https://www.stem.org.uk/resources/community/collection/12719/year-3-light https://www.outstandingscience.co.uk/index.php?action=view_page&page=view_unit&unit=3d https://www.bbc.co.uk/bitesize/topics/z3nnb9q

Recommended Reads		
		

Golden Thread
Light