St. Benedict's Primary School
SCIENCE
KNOWLEDGE AND SKILLS BUILDER

Science element from the National Curriculum – **LIGHT**

Phase	Context for learning	Knowledge and Skills for LIGHT
LOWER KEY STAGE 2	**YEAR 3 Summer 2** **ILP Tribal Tales** **Context** **Big Question** **Programmes of Study** Find patterns in the way that the size of shadows change. **Context**: Learn to Investigate (LTI) Why do shadows change?	**Skills** Find patterns in the way shadows change during the day. **Knowledge** Shadows change shape and size when the light source moves. For example, when the light source is high above the object, the shadow is short and when the light source is low down, the object's shadow is long.
	Programmes of Study Recognise that they need light in order to see things and that dark is the absence of light.	**Skills** Describe the differences between dark and light and how we need light to be able to see. **Knowledge** Dark is the absence of light and we need light to be able to see.
	Notice that light is reflected from surfaces.	**Skills** Group and sort materials as being reflective or non-reflective. **Knowledge** Light can be reflected from different surfaces. Some surfaces are poor reflectors, such as some fabrics, while other surfaces are good reflectors, such as mirrors.
	Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.	**Skills** Explain why light from the Sun can be dangerous. **Knowledge** Light from the Sun is damaging for vision and the skin. Protection from the Sun includes sun cream, sun hats, sunglasses and staying indoors or in the shade.

	Recognise that shadows are formed when the light from a light source is blocked by a solid object.	**Skills** Explain, using words or diagrams, how shadows are formed when a light source is blocked by an opaque object. **Knowledge** A shadow is formed when light from a light source, such as the Sun, is blocked by an opaque object. Transparent objects allow light to pass through them and do not create shadows.
	Find patterns in the way that the size of shadows change.	**Skills** Find patterns in the way shadows change during the day. **Knowledge** Shadows change shape and size when the light source moves. For example, when the light source is high above the object, the shadow is short and when the light source is low down, the object's shadow is long.
	YEAR 6 Spring 1 **ILP Frozen Kingdom** **Context** Companion Projects How does light travel? What are reflections? What colour is a shadow? Can you see through it?	
	Recognise that light appears to travel in straight lines.	**Skills** Recognise that light appears to travel in straight lines. **Knowledge** Light travels 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.	**Skills** Explain that, due to how light travels, we can see things because they give out or reflect light into the eye. **Knowledge** Light sources give out light. They can be natural or artificial. When light hits an object, it is absorbed, scattered, reflected or a combination of all three. Light from a source or reflected light enter the eye. Vertebrates, such as mammals, birds and reptiles, have a cornea and lens that refracts light that enters the eye and focuses it on the nerve tissue at the back of the eye, which is called the retina. Once light reaches the retina, it is transmitted to the brain via the optic nerve.
	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.	**Skills** Explain that, due to how light travels, we can see things because they give out or reflect light into the eye. **Knowledge**

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	Year 6 Summer 1 **ILP Hola Mexico** **Context**:The Feathered Serpent (Mayans) **Big Question** **Programme of Study** Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	**Skills** Explain, using words, diagrams or a model, why shadows have the same shape as the objects that cast them and how shadows can be changed. **Knowledge** A shadow appears when an object blocks the passage of light. Apart from some distortion or fuzziness at the edges, shadows are the same shape as the object. The distortion or fuzziness depends on the position or type of light source.
	Year 6 Summer 2 **ILP Gallery Rebels** **Context:** Changes in Light **Big Question** **Programme of Study** Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.	**Skills** Explain, using words, diagrams or a model, why shadows have the same shape as the objects that cast them and how shadows can be changed. **Knowledge** A shadow appears when an object blocks the passage of light. Apart from some distortion or fuzziness at the edges, shadows are the same shape as the object. The distortion or fuzziness depends on the position or type of light source.