Lent 2 Science Year 6: Light (Physics)			
Scripture Link: Psalms 18:28			
National Curriculum Objective •			
Enquiry Question: How does light travel?			
	Lesson 1	Lesson 2	Lesson 3
Learning intention for each lesson	To know that light appears to travel in straight lines.	To know how to use the idea of light travelling in straight lines to explain that objects are seen because they give out, or reflect, light into the eye.	To know about the structure of the eye and the function of the constituent parts.
Recall and Retrieval	know that a series circuit: A series circuit is a circuit in which the current follows one path. know that a parallel circuit: The current is divided into several paths. One of the components, such as a bulb, can be switched on or off without affecting the others in a parallel circuit. Can name some light sources	Know what a reflection is know that light always appears to travel in straight lines, but these lines can be sent in other directions when it is reflected by different surfaces. know that when light reflects off a rough surface it goes in different directions so you don't get a sharp reflection.	know what a periscope is know that light **reflects** off things and enters our eye through the pupil. That then travels through the optic nerve to the brain. The brain interprets these signals into images of what we can see.
Sequence of substantive knowledge throughout the lesson	I know that light always appears to travel in straight lines, but these lines can be sent in other directions when it is reflected by different surfaces. I know that when light reflects off a rough surface it goes in different directions so you don't get a sharp reflection.	I know what a periscope is. I know that light **reflects** off things and enters our eye through the pupil. That then travels through the optic nerve to the brain. The brain interprets these signals into images of what we can see.	I know that signals from the eye connect with the brain to enable us to see. I know that the lens focusses the light onto the retina at the back of the eye. I know that the light sensors in the retina change the light into electrical signals. I know that the signals travel along the optic nerve to the brain. I know that the brain 'reads' those signals and changes them to images of what we are seeing.

Key Skills/disciplinary knowledge	• **reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations;** • **identifying differences, similarities or changes related to simple scientific ideas and processes;**	• **reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations;** • **identifying differences, similarities or changes related to simple scientific ideas and processes;**	• **reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations;** • **identifying differences, similarities or changes related to simple scientific ideas and processes;**
Key Vocabulary	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, refraction, medium, dense.	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, refraction, medium, dense.	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, refraction, medium, dense. **Iris** - Coloured circle around the pupil. It controls the size of the pupil **Pupil** - Black part of the eye. This is an opening that lets light in **Lens** - This focuses light onto the retina **Retina** - Light-sensitive layer at the back of the eye. It is made up of **rods** and **cones** **Rods** - Sense cells that help us see the shapes of things **Cones** - Sense cells that help us see colours **Optic nerve** - Carries messages from the retina to the brain. The brain turns these into an image of what we are looking at
Main teaching activity ***If the school has another short term planning format, this does not need to be included.***			
Scaffolding	Children to work in pairs or small groups. You may want to have a teacher/TA guided group to pose questions and aid thinking.	Mixed ability pairs	provide the scientific labels for children to copy scientific language.
Challenge		Children can make their own periscope individually or in pairs.	Picture/ word bank.
Diversity Links			

Catholic Social Teaching Principles			
British Values			
Wider links			

Lent 2 Science Year 6: Light (Physics)			
	Lesson 4	Lesson 5/6	
Learning intention for each lesson	To know how to explain why shadows have the same shape as the objects that cast them.	To know what happens to light in water	
Recall and Retrieval	know that the lens focusses the light onto the retina at the back of the eye. know that the light sensors in the retina change the light into electrical signals. know that the signals travel along the optic nerve to the brain. know that the brain 'reads' those signals and changes them to images of what we are seeing.	Can explain what shadows are: know that a shadow is the dark shape made when something blocks light. know that you must have a source of light in order to have shadows know that if there is more than one light source, there will be several shadows know that the shape of an object always determines the shape of its shadow know that a shadow is formed by an opaque object blocking the path of the light. know that the size and shape of the shadow can change. These changes are caused by the position of the light source	
Sequence of substantive knowledge throughout the lesson	I know that the shape of an object always determines the shape of its shadow I know that a shadow is formed by an opaque object blocking the path of the light. I know that the size and shape of the shadow can change. These changes are caused by the position of the light source	I know what refraction is: the bending of light rays I know that light travels in straight lines *until it passes from one material to another*, for example from air to water or water to air. I know that light is made up of many colours and that call this full range the colour spectrum. I know that rainbows are formed: A rainbow is formed when sunlight bends when it enters raindrops. This splits white light into the different visible colours that are then reflected back out of the raindrops.	
Key Skills/disciplinary knowledge	• **planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary;**	• **reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral**	

	• **using test results to make predictions to set up further comparative and fair tests;** • **reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations;** • **identifying differences, similarities or changes related to simple scientific ideas and processes;**	**and written forms such as displays and other presentations;** • **identifying differences, similarities or changes related to simple scientific ideas and processes**	
Key Vocabulary	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, refraction, medium, dense.	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, refraction, medium, dense.	
Main teaching activity ***If the school has another short term planning format, this does not need to be included.***			
Scaffolding	Working in mixed ability groupings.	Images/word banks Mixed ability pairs	
Challenge		TA support with questioning and technical vocabulary.	
Diversity Links			
Catholic Social Teaching Principles			
British Values			

Wider curriculum links			