

Y3 Science – Light

Inspiration Creativity (problem solving)		Partnership with parents Community –	
Key Questions <ul style="list-style-type: none"> - How do we see things? - What are light sources? - What is reflection? - Which of these materials are reflective/ is the most reflective? - Why should we not look directly at the sun or other bright lights? - How is a shadow formed? - What shapes will shadows be? - How do shadows cast by the sun change across the day? - Why do shadows cast by the sun change across the day? 		Working Scientifically <ul style="list-style-type: none"> - asking relevant questions and using different types of scientific enquiries to answer them - setting up simple practical enquiries, comparative and fair tests - making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - gathering, recording, classifying and presenting data in a variety of ways to help in answering questions - recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - identifying differences, similarities or changes related to simple scientific ideas and processes - using straightforward scientific evidence to answer questions or to support their findings. 	
		<i>Also covered in:</i> Y6 - Light	
		At the end of this unit, children will be able to: <ul style="list-style-type: none"> - know that they need light in order to see things and that dark is the absence of light - Understand that light is reflected from surfaces - know that light from the sun can be dangerous and that there are ways to protect their eyes - explain that shadows are formed when the light from a light source is blocked by an opaque object - find and discuss patterns in the way that the size of shadows change - setting up simple practical enquiries, comparative and fair tests - making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - identify differences, similarities or changes related to simple scientific ideas and processes 	
Knowledge <ul style="list-style-type: none"> - Light is needed to see things and darkness is the absence of light. - Some objects are visible because they are light sources and some are visible because they reflect light. - Light travels in a straight line and when light hits an object, it is reflected (bounces off) and if the reflected light hits our eyes, we can see the object. - Some materials are more reflective than others - reflective strips on coats or bags mean you can be seen at night or people like fire-fighters or builders who may work in a dark and dangerous environment. 'Cat's Eyes' help drivers see the road by reflecting light from headlamps. Mirrors let us see ourselves, and are also useful in cars, to allow drivers to see behind them. Retro-reflectors are used for road signs so that drivers can see the signs from their car. - We cannot look directly at the sun as it will damage our eyes and people use sunglasses and sun filters to protect their eyes. Bright lights indoors can also damage eyes, so we should never look at them, or shine lights into anyone's eyes. - Shadows are formed when an opaque object blocks the path of light, which travels in straight lines and the shape of an object affects its shadow. - Shadows cast by the Sun change in length and direction during the day because of the apparent motion of the Sun across the sky (though this is really caused by the rotation of the Earth). The Earth's rotation changes the angle of the sun as the day passes, so the shadows change based on the position of the sun in the sky. If the sun is up high (around noon), the shadows will be short or not appear to exist (they are under or nearly under the objects). As it gets later in the day, the shadows get longer. 			
Topic Specific Vocabulary light, source, dark, beam, ray, reflect, reflective, see, illuminate, visible, shadows, opaque, translucent, transparent, motion, rotation, angle,		NC Subject content <ul style="list-style-type: none"> - 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. 	
Subject Specific/Academic Vocabulary This vocabulary should be explicitly taught in context. Other tier 2 words should also be explored as they are encountered.			
Year 3	Year 4	Year 5	Year 6

Benefit, impact, issues, occur, process, sequence, source, variables	Appropriate, consequences, identified, procedure, range, relevant, significant, specific, theory, transfer	Factors, affect, analyse, contribute, demonstrate, outcome, react, volume,	Component, exclude, function, imply, initial, justify, sufficient.
We are scientists			