



Year Six

Learning Journey Plan

Term - Autumn 2

Curriculum Area - Science - Light

	What will my pupils need to have learnt before?	What do I want my pupils to learn. Know that.. Know how.. NC	How will my pupils access that learning, what will we be doing? What will be the order of learning?	What are the authentic outcomes to be produced?	Vocabulary
Science	<p>Recognise that they need light in order to see things and that dark is the absence of light</p> <p>Notice that light is reflected from surfaces</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object</p> <p>Find patterns in the way that the size of shadows change. (Year 3)</p>	<p>Recognise that light appears to travel in straight lines</p> <p>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</p> <p>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</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p> <p>Work scientifically by: deciding where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works.</p> <p>Look at a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters (they do not need to explain why these phenomena occur).</p> <p>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.</p> <p>Pupils should read, spell and pronounce scientific vocabulary correctly.</p> <p>explore and talk about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically.</p> <p>recognise that scientific ideas change and develop over time.</p>	<ol style="list-style-type: none"> children to recap learning from previous years of light. Mini quiz on prior learning to do with this unit. Explain that in today's lesson we will be learning about light sources and reflectors. Children to sort objects into man-made, natural and reflectors. Discussion about different objects within the classroom. Children to be given a variety of the key vocabulary for this unit and definitions to go with them loop card game. Recap from previous lesson asking children what vocabulary they remember— Children to investigate how light travels using string—working in groups of 3 children to create a human model of how human's see. Light from the source reflects off the object and into the human eye. Explain how our eyes see things upside-down and rotates them. Children to create a presentation to summarise the learning from this lesson as if they were teaching a youtube lesson about light for school children. Children must use scientific vocabulary accurately to explain the different things they have learnt in the lesson. Explain that in today's lesson we will be learning about the importance of reflection to help us to see. Introduce children to the idea of the angle of incidence and angle of reflection. Using their understanding of reflection children will use cereal boxes and mirrors to create their own periscopes to support their understanding of how reflection helps us to see and how reflection can be useful for different people's jobs. Children to recap on learning so far in this unit—true or false statements about light. Introduce the idea of refraction. Explain to children what refraction is and how it is caused. Children to carry out investigations involving refraction and how it changes the way light travels. 3 activities: activity one arrow changer. Activity two shape disappear. Activity 3 rising faces. Children to write a prediction for what they think will happen before carrying out each activity and then write a brief (tweet) explanation of what happened and why they think that is. Children to research key scientist in this field—Isaac Newton. Children to carry out research about Newton and write a biography about him including his achievements, how he has impacted on modern life and his inspirations (2 weeks) Children will learn more about Newton's discoveries about the colour spectrum. Children to learn about the differing lengths of different colours of light and how these can be split apart using a prism. Children to investigate the colour spectrum using a prism and a torch—link to how rainbows are formed. Children to draw a scientific representation for the colour spectrum. Write an explanation of the light spectrum. Quiz based on learning so far in this unit—remind children of the key vocabulary covered throughout the unit. In today's lesson children to use the idea that light travels in straight lines to explain how shadows are formed and explain why they have the same shape as the objects that cast them. Children to investigate using different objects and torches moving objects closer and further away—how does this impact on them? Changing the angle of the torch how this impacts and why? Children to draw a diagram of how shadows are formed and write an explanation using key scientific vocabulary. 	<p>Design and make a periscope using knowledge of reflection and angle of incidence</p> <p>Investigations into refraction and the colour spectrum</p>	<p>Shadow</p> <p>Reflection</p> <p>Refraction</p> <p>Prism</p> <p>Colour spectrum</p> <p>incidence</p> <p>Hypothesis</p> <p>Variable</p> <p>Independent variable</p> <p>Dependent variable</p> <p>Control variable</p> <p>Prediction</p> <p>Aim</p> <p>Method</p> <p>Fair test</p> <p>Investigation</p> <p>Particles</p> <p>Electromagnetic radiation</p> <p>Opaque</p> <p>Translucent</p> <p>Transparent</p> <p>Isaac Newton</p>