

Science: Light Y3	
Definition: Light, or illumination, is a form of energy that travels in waves, like sound. Visible light is the portion of radiation on the electromagnetic spectrum that can be seen by the human eye.	
Physics definition: Physics is the study of nature and how matter and energy behave.	
POS:	
<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 	
Prior learning : EYFS: <ul style="list-style-type: none"> Observe and interact with natural processes i.e. light travelling through transparent materials Classifying objects from the environment around them Year 1 <ul style="list-style-type: none"> Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense Describe the simple physical properties of a variety of everyday materials. 	Links to other science topics: <ul style="list-style-type: none"> Recognise that light appears to travel 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 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 Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Disciplinary concepts: Energy – why are some lights brighter than others? Cause and Effect – how is looking directly at the sun dangerous?	
Common misconceptions: Some children think that brightly coloured or shiny objects can be seen when it is completely dark. This misconception arises because in our everyday lives it is very difficult to remove all light, so we rarely experience true darkness. You can explain that shiny objects are reflectors. They are easily seen in daylight, and are visible at night when a light is shone on them, but they cannot be seen in complete darkness. To be seen in the dark, an object must be a light source, which means it must emit light. The Sun, stars, fires, light bulbs, television sets and computer screens are all light sources. The Moon is commonly mistaken for a light source. The Moon doesn't make its own light, but instead reflects the light from the Sun. Some children believe that eyes give out a form of light which enables us to see.	
Core Knowledge: <ul style="list-style-type: none"> We see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Some objects, for example, the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light. Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective. The light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or sunhats in bright light. Shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The size of the shadow depends on the position of the source, object and surface. 	
Wider Knowledge: Discuss use of reflective materials in the environment eg high visibility jackets, cats eyes on roads, reflectors on bicycles	
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. 	
End Goals: <ul style="list-style-type: none"> To understand that without light you cannot see (even if you give your eyes time to adjust to the dark) To know that shiny objects reflect light and that some materials reflect light better than others To understand how to protect his eyes from being damaged by the sun To know the difference between opaque, transparent and translucent materials and how these affect the quality of a shadow produced. To demonstrate how to change the size and shape of a shadow and talk generally about the patterns observed, linking shadow size and shape to relative positions of light source and object. 	
CPD: Reach out CPD Science Association / STEM website	Enrichment: Make a shadow puppet theatre, design and make sunglasses.