Science

Learning Outcomes

Content of this grid is from the National Curriculum in England: science programmes of study with adapted outcomes from the STEM Schemes of Work for Students Working up to Level 1. The 'Working Scientifically' outcomes of the National Curriculum are incorporated into the different topics covered.

Light			
By the end of KS5 pupils should know:	**Redway Pre-Formal Pathway** Encounter → Foundation	**Redway Semi-formal Pathway** Core → Development	**Redway Formal Pathway** Enrichment → Enhancement
1. Recognise that they need light in order to see things and that dark is the absence of light	a. Experience darkness. b. Awareness of light and dark. c. Experience different light intensities e.g., candle, torch, UV, strip lighting etc. d. Visually track high contrast objects.	a. Explore objects of varying detail and colour in different light intensities. b. Know they cannot see anything in total darkness.	a. Understand that we need light to be able to see. b. Know that you can still see the outlines of objects in low intensity light, but it is difficult to see detail. c. Know that it becomes more difficult to see colours as the light intensity decreases.
2. Notice that light is reflected from surfaces.	a. Explore objects that are shiny. b. Explore a range of objects that produce light. c. Experience observing themselves and others in a mirror.	a. Can select objects that emit light from a range of items. b. Explore how light shines off a variety of different surfaces, including dull and shiny, by shining a torch onto them.	a. Can name a variety of different light sources. b. Understand what is meant by the term reflected. c. Can investigate the reflectivity of different surfaces by shining a torch onto them e.g., night-time clothing, bicycle reflectors, mirrors, holographic paper etc.
3. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.	a. Experience wearing sunglasses.	a. Explore some different methods of protecting our eyes	a. Know that it is dangerous to look directly at the sun and it can damage our eyes. b. Can name some of the ways in which we can protect our eyes

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		from the sun e.g., sunglasses, peaked cap, parasol etc.	from the sun e.g., sunglasses, peaked cap, parasol etc. c. Understand that the different methods for protecting our eyes from the sun work by stopping some of the light reaching our eyes.
4. Recognise that shadows are formed when the light from a light source is blocked by an opaque object.	a. Respond with curiosity to light shining through different coloured acetate. b. Respond with curiosity to moving shadows.	a. Explore making shadows with their hands. b. Explore making shadows with other objects.	a. Know that opaque objects don't let light pass through them. b. Know that a shadow is formed when an opaque object blocks the light. c. Know that the outline of the shadow is the same as the outline of the opaque object forming the shadow.
5. Find patterns in the way that the size of shadows change.		a. Know that their shadow will move when they move. b. Explore how a shadow changes as the object forming the shadow moves.	a. Know how the size of their shadow changes depending on the time of day. b. Make observations of how a shadow changes when the object is placed closer/further away to the light source e.g., a torch. c. Record observations in a scientific way. d. Interpret results.