

Ashwell Primary School

Science Curriculum

Light Knowledge Organiser



EYFS

Core Knowledge / skills to be acquired:

- know that it is dangerous to look at the sun
- relate their sense of sight to their eyes
- relate their sense of hearing to their ears

Key Vocabulary:

eyes, ears, sun, light, sound, senses

Curriculum Enrichment / Cultural Capital Opportunities

Prior knowledge / skills this builds on:

What comes next: (Year 3 – Light)

- name a number of light sources, including the sun
- describe and compare some light sources
- state that light sources are seen when light from them enters the eyes
- **recognise that light from the sun can be dangerous and that there are ways to protect their eyes**
- recognise that they cannot see in the dark
- recognise that light travels from a source
- **recognise that they need light in order to see things and that dark is the absence of light**
- explain that places are dark because there is no light and a light source is needed to help us see in such places
- **notice that light is reflected from surfaces**
- state that reflections can be seen in shiny surfaces
- makes generalisations about shiny surfaces (e.g. smooth)
- demonstrate light travelling using a torch and record light bouncing off a mirror
- identify suitable reflective clothing for travelling in the dark
- explain that they cannot see shiny objects in the dark because there are no light sources
- recognise that when light is blocked, a shadow is formed
- **recognise that shadows are formed when the light from a light source is blocked by a solid object**
- recognise that shadows are similar in shape to the objects forming them
- make observations of changes in shadows
- explain that shadows are formed when light from a source is blocked
- state that even transparent objects block some light and form shadows
- describe the difference in shadows cast by opaque, translucent and transparent materials
- explore how to make shadows of different shapes and sizes
- **find patterns in the way that the size of shadows change**
- *use ideas about shadows to make predictions about the shadows formed by different objects or materials*
- *describe how the length of a shadow changes throughout the day as the sun moves across the sky*
- *describe how nocturnal animals are adapted to use what little light there is or their other senses in the dark (e.g. cats, aye-aye, lemurs)*
- *describe how Percy Shaw invented cat's eyes and explain their importance to road safety*

Year 3 – Light and shadows

Core Knowledge / skills to be acquired:

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Key Vocabulary:

Shadow, light, flames, opaque, block, direction, light, travels, shortest, longest, highest, torch, shape, similar, transparent, translucent, light source, sun, object daytime, night-time, reflect, shine, shiny, absorb, reflective surface, surface, mirror, sundial, block, lamp

Curriculum Enrichment / Cultural Capital Opportunities

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Prior knowledge / skills this builds on: (EYFS)

- know that it is dangerous to look at the sun
- relate their sense of sight to their eyes
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What comes next: (Year 6 – Light)

- explore how light travels using torches and periscopes
- **recognise that light appears to travel in straight lines**
- describe reflection as light 'bouncing off' objects
- understand that in order to be seen, all non-luminous objects must reflect light
- diagrammatically represent light from sources and bouncing off reflective surface using arrows
- **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**

- draw diagrams to illustrate how light is travelling from the source to the eye
- **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**
- describe a variety of ways of changing the size of the shadow produced by an object
- describe the relationship between the size of a shadow and the distance between the light source and an object
- diagrammatically represent the formation of shadows using arrow convention
- **use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them**
- *know that, when sunlight passes through some objects, coloured light is produced (for example in rainbows, soap bubbles and prisms)*
- *describe how curved mirrors distort a reflection*

Year 6 - Light

Core Knowledge / skills to be acquired:

- explore how light travels using torches and periscopes
- **recognise that light appears to travel in straight lines**
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- diagrammatically represent the formation of shadows using arrow convention
- **use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them**
- *know that, when sunlight passes through some objects, coloured light is produced (for example in rainbows, soap bubbles and prisms)*
- *describe how curved mirrors distort a reflection*

Key Vocabulary:

Reflection, transparent, translucent, opaque, periscope, luminous, non-luminous, absorb, direction

Curriculum Enrichment / Cultural Capital Opportunities

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