



The Canons CE Primary School



Year 3 – Light

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Prior Learning	In Year 3	Future Learning
In Year 1 children will be taught to: • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense (<i>animals, including humans</i>) • describe the simple physical properties of a variety of everyday materials. (<i>Everyday materials</i>)	In Year 3 children will be taught to: • find patterns in the way that the size of shadows change • investigate how the size of shadows change • recognise how shadows are formed when a solid object blocks the light • describe how light from the sun can be dangerous and the ways they can protect their eyes • describe what happens when light hits a reflective surface • describe what happens when there is an absence of light • recognise that we need light in order to see things.	In Year 6 children will be taught to: • use my knowledge of the way light travels to describe how shadows are formed • discuss how objects are seen using scientific vocabulary e.g. light source and reflection • demonstrate that light travels in straight lines to explain how objects are seen • use examples to show that light appears to travel in straight lines.
	Key Vocabulary	
	light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous	
Famous Scientists	Common Misconceptions	Possible Evidence to be Secure
• Justus Von Liebig – mirrors • James Clerk Maxwell – visible and invisible waves of light • Thomas Young (1773 – 1829)	Some children may think: • we can still see even when there is an absence of any light • our eyes 'get used to' the dark • the moon and reflective surfaces are light sources • a transparent object is a light source • shadows contain details of the object, such as facial features on their own shadow • shadows result from objects giving off darkness.	Children can: • describe how we see objects in light and can describe dark as the absence of light • state that it is dangerous to view the sun directly and state precautions used to view the sun, for example in eclipses • define transparent, translucent and opaque • describe how shadows are formed.



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Working Scientifically

National Curriculum Statutory Requirements

1. Ask relevant questions and use different types of scientific enquiries to answer them.
2. Set up simple practical enquiries, comparative and fair tests.
3. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
4. Gather, record, classify and present data in a variety of ways to help in answering questions.
5. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
6. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.
7. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
8. Identify differences, similarities or changes related to simple scientific ideas and processes.
9. Use straightforward scientific evidence to answer questions or to support their findings.

Highlighted = main focus during this topic

Teaching Ideas – Different Types of Scientific Enquiry

Comparative and Fair Testing	Identifying and Classifying	Observation Over Time	Pattern Seeking	Research
Which pair of sunglasses will be best at protecting our eyes? How does the number of layers of transparent plastic affect how much light can pass through? How does the distance between the shadow puppet and the screen affect the size of the shadow?	How would you organise these light sources into natural and artificial sources?	When is our classroom darkest? Is the Sun the same brightness all day?		How does the Sun make light?

Teaching Ideas – How Pupils Could Work Scientifically

Teaching Ideas – Possible Evidence to be Secure

(Bracketed Number = National Curriculum Statutory Requirement Link)

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| <ul style="list-style-type: none"> Explore how different objects are more or less visible in different levels of lighting. (2, 3, 4, 7) Explore how objects with different surfaces, e.g. shiny vs matt, are more or less visible. (2, 3, 4, 7) Explore how shadows vary as the distance between a light source and an object or surface is changed. (2, 3, 4, 7) Explore shadows which are connected to and disconnected from the object e.g. shadows of clouds and children in the playground. (2, 3, 4, 7) Choose suitable materials to make shadow puppets. (9) Create artwork using shadows. (9) | <p>Children can:</p> <ul style="list-style-type: none"> describe patterns in visibility of different objects in different lighting conditions and predict which will be more or less visible as conditions change (4, 5) clearly explain, giving examples, that objects are not visible in complete darkness (6, 7) describe and demonstrate how shadows are formed by blocking light (7) describe, demonstrate and make predictions about patterns in how shadows vary. (5, 6, 7) |
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