



Year B- Year 5 & 6 Science Overview

	Autumn Term		Spring 1	Spring 2	Summer 1	Summer 2
	Earth and Space		Light	Electricity	Animals including Humans	Living things and their habitats
<b>Prior knowledge</b>	Pupils will understand we have four seasons (autumn, winter, spring and summer). The Sun is a source of light, but the Moon is not. Pupils will know that a shadow is caused when an object blocks light from passing through it. The properties of a sphere.		Pupils will be able to recognise that they need light 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 a solid object. Find patterns in the way that the sizes of shadows change.	Pupils will understand a simple circuit and how it works.	Describe the changes as humans develop to old age	Pupils will have learnt to identify and describe the function of various parts of a plant. They will explore the role flowers play in the life cycle, including pollination, seed fertilisation and seed dispersal. In year 4 they will have explored the classification of living things.
<b>Intent</b>	Pupils will understand the main bodies that make up our known Solar system and explain that the planets orbit around the Sun. They will be able to explain how day and night using the idea of the Earth's rotation.		Pupils will be able to explain that light travels in straight lines and will be able to use this knowledge to investigate how we see.	Pupils will be able to use circuit boards correctly. They will be able to use their knowledge to design and create a working appliance.	Pupils will be able to label the internal organs of the human body and explain their function. They will be able to explain how the human heart works and the impact of exercise. Pupils will be able to explain how muscles work.	Pupils will have a comprehensive understanding of biological life cycles and the mechanisms of reproduction across both the plant and animal kingdoms.
<b>Type of Scientific enquiry</b>	<p>Conducting research about the planets</p> <p>Observing the lengths of shadow and how they change; simulating and describing the movement of the Earth and the Moon; taking note of how the appearance of the Moon changes during its orbit</p> <p>Identifying patterns between the length of time it takes to orbit the Sun and the position of the planet in the solar system</p> <p>Testing which areas of a globe are in dark, when other areas are light</p> <p>Deciding how to prove or disprove a statement on number of daylight hours</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>Using scientific understanding and testing to determine when components and circuits don't work</p> <p>Using scientific understanding to create working electrical circuits and use recognised symbols</p> <p>Carrying out a test to investigate the effect of changing voltage on different components in a circuit</p> <p>Observing the changes to series circuits when components are added and removed</p> <p>Using scientific understanding to design a working appliance</p>	<p>Identifying the main parts of the human circulatory system and describe the function of the heart, blood and blood vessels.</p> <p>Classifying the parts of the circulatory system.</p> <p>Observing the function of a model heart. Testing to investigate the effects of exercise on heart rate.</p> <p>Use research to describe the ways in which nutrients and water are transported within humans.</p> <p>Children use their problem solving skills to make suggestions about how to live a healthy lifestyle. Using different sources to research information</p>	<p>Making observations to classify plants and plant reproduction</p> <p>Making detailed observations of a flower, naming and classifying parts of a plant</p> <p>Carrying out an investigation into the germination of different types of seeds</p> <p>Making observations and understanding the classification of animals</p> <p>Using different sources to research life cycles</p> <p>Observing patterns to make comparisons</p> <p>Using different sources to research human impact on life cycles</p>



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					about the effects of substances.	Making observations of the characteristics of animals as they change through a life cycle
<b>Working scientifically</b>	<p>Recording key data about planets; recording which parts of the globe are in darkness while others are light</p> <p>Setting up a fair test to gather evidence the Earth is spherical</p> <p>Observing and measuring the length of shadows</p> <p>Evaluating data about planets' orbits; explaining the relationship between the Sun, the Earth and the Moon</p> <p>Recording the phases of the Moon that we can see during orbit</p> <p>Communicate results of an investigation into day and night</p>		<p>Use test results to make predictions to set up further comparative and fair tests</p> <p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p>	<p>Recording results from testing in tables, using sketches to record circuit diagrams</p> <p>Recording by drawing circuit diagrams using scientific symbols</p> <p>Observing and measuring differences in the function of components of a circuit</p> <p>Recording data in tables</p> <p>Recording results from observations</p> <p>Explaining the effect of changing circuits</p> <p>Evaluating the effectiveness of an appliance and identifying ways to improve it</p>	<p>Identifying the main parts of the human circulatory system and describe the function of the heart, blood and blood vessels.</p> <p>Classifying the parts of the circulatory system. Observing the function of a model heart.</p> <p>Testing to investigate the effects of exercise on heart rate.</p> <p>Use research to describe the ways in which nutrients and water are transported within humans.</p> <p>Children use their problem solving skills to make suggestions about how to live a healthy lifestyle.</p> <p>Using different sources to research information about the effects of substances.</p>	<p>Using diagrams and labels to record information and sort information into tables and charts</p> <p>Recording information by making labelled annotated sketches</p> <p>Explaining and communicating how plants reproduce – poster, presentation or animation</p> <p>Making a prediction about what will happen based on prior knowledge</p> <p>Setting up and carrying out a comparative test considering how to control variables</p> <p>Representing life cycles in annotated diagrams</p> <p>Presenting results and findings from an enquiry</p> <p>Communicating findings from observations</p> <p>Determining the best questions to be researched for an enquiry</p> <p>Making observations of animals over a life cycle and recording changes</p>



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						Recording changes in life cycles using diagrams, tables and charts, making notes
<b>Key vocabulary</b>	Solar System Rotation Orbit Sphere Phases Approximate		Reflect Predict Evaluate Opaque Translucent Refraction	Component Circuit Cell Conduct Appliance Switch	Respiration Circulatory system Heart Lungs Blood vessels Artery	Amphibian Clone Fertilisation Germination Metamorphosis Species
<b>Outcome</b>	Pupils will plan an investigation to answer the question 'What happens to the Sun during the daytime?' Pupils will also gain an understanding of the phases of the Moon and be able to describe the Moon's movement in relation to the Earth.		Pupils will make predictions and investigate the relationship between light sources, objects and shadows and understand how the eye works. Pupils will extend their experience of light by looking at rainbows, prisms and bending light in water.	Pupils will conduct investigations to determine how the voltage in a circuit affects the brightness of a bulb or the function of other components. They will use their 'working scientifically' skills to plan an experiment to investigate variations in how components function and use the results to write a clear and concise conclusion.	Pupils will plan and investigate how different types of physical exercise affects the heart rate. Pupils will be able to form healthy lifestyle choices	Pupils will compare the life cycles of insects, amphibians, birds and mammals. They will describe key stages in a life cycle, explore how animals care for their young, and learn that while some animals hatch from eggs, mammals give birth to live young and begin nurturing them early.