

### Long Term Overview with Medium Term Links KS4 and 5

Formal pathway	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>AQA 2024/25</b>	Component 1 Biology: The human Body		Component 3 Chemistry: Elements, mixtures and compounds		Component 5 Physics: Energy, forces and the structure of matter	
<b>AQA 2023/24</b>	Component 6 Physics: Electricity, magnetism and waves		Component 2 Biology: Environment, evolution and inheritance		Component 4 Chemistry: Chemistry in our world	
<b>6th Form</b>	Welsh Board for Science					
<b>Science Topic KS4 2023/24</b>	Circuits	Forces and magnets	Evolution	Light/Sound	Water cycles	Plants
<b>Overview</b>	<ul style="list-style-type: none"> <li>•How to create a simple circuit</li> <li>•The names of parts that form a circuit</li> <li>•How switches work and why we use them</li> </ul> <p style="text-align: center;">Consolidate:</p> <ul style="list-style-type: none"> <li>•How to create different circuits and how they would work or be different</li> <li>•The names of parts that form a</li> </ul>	<ul style="list-style-type: none"> <li>•Identify and compare how things move on different surfaces</li> <li>•What a force is (push and pull )</li> <li>•How materials can change the movement of an object</li> <li>•What magnets are and what magnetic means</li> <li>•Magnetic forces can work at a distance, attracting</li> </ul>	<ul style="list-style-type: none"> <li>•What inheritance is</li> <li>•What characteristics can be inherited and what are acquired</li> <li>•What adaptation is</li> <li>•How animals and humans have adapted to environments</li> <li>•What types of fossils there are</li> <li>•How fossils help develop our understanding</li> <li>•Who the leading people are in</li> </ul>	<ul style="list-style-type: none"> <li>•That they need light to see things</li> <li>•Darkness comes from an absence of light</li> <li>•How light is reflected from surfaces</li> <li>•How shadows are formed</li> <li>•How to protect their eyes from dangerous light e.g. the sun</li> <li>•Understand how the size of shadows can change and identify patterns</li> <li>•What opaque means and examples</li> <li>•What transparent means</li> </ul>	<ul style="list-style-type: none"> <li>What a liquid is and the properties</li> <li>•How temperature can change states of matter (melting, cooling)</li> <li>•What evaporation is and how it occurs</li> <li>•How evaporation is linked to temperature</li> <li>•What condensation is and how it occurs</li> <li>•How the water cycle works</li> </ul>	<ul style="list-style-type: none"> <li>•What roots are and the function of them</li> <li>•What the stem/ trunk is and the function</li> <li>•What leaves are and the function of them</li> <li>•What flowers are on flowering plants and the function of them</li> <li>•What plants need to be able to live and grow</li> <li>•How water is transported in plants</li> <li>•What seed dispersal is and different</li> </ul>

	<p>circuit</p> <ul style="list-style-type: none"> <li>•How we measure voltage and why this is important</li> <li>•The symbols for different parts of a circuit</li> </ul>	<p>or repelling•Items that are magnetic</p> <ul style="list-style-type: none"> <li>•That magnets have two poles</li> <li>•Why we use magnets</li> <li>•How force can be measured</li> </ul> <p>Building/consolidating</p> <p>What do children need to know?•What a force is (push and pull)</p> <ul style="list-style-type: none"> <li>•The names of different forces</li> <li>•What gravity is and how it works</li> </ul>	<p>evolution and inheritance and their work</p> <ul style="list-style-type: none"> <li>•What evolution is</li> </ul>	<p>and examples</p> <ul style="list-style-type: none"> <li>•What translucent means and examples</li> </ul> <p>Building: What do children need to know?</p> <ul style="list-style-type: none"> <li>•How light travels</li> <li>•That we are able to see through a reflection of light</li> <li>•How light is reflected from surfaces</li> <li>•How shadows are formed <ul style="list-style-type: none"> <li>•That light travels from a light source to our eyes or to objects and then our eyes</li> </ul> </li> <li>•Understand how the size of shadows can change and identify patterns in their shape</li> <li>•That light both reflects and refracts</li> <li>•Different light sources <ul style="list-style-type: none"> <li>•How the eye sends light signals to the brain</li> </ul> </li> </ul> <p>Sound:</p> <ul style="list-style-type: none"> <li>•How sounds are made</li> <li>•That sound is associated with vibrations</li> <li>•How sound travels in waves</li> <li>•Materials that block sound</li> <li>•How the volume is affected by the strength of</li> </ul>		<p>methods</p> <ul style="list-style-type: none"> <li>•What pollination is</li> <li>•What seed formation is</li> </ul>
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				vibrations •That sounds get fainter as the distance from the source increases •What pitch is •How to create different pitch •Features of the ear		
<b>Science Topic</b> <b>KS4</b> <b>2024/25</b>	Earth and space	Electricity	States of Matter	Everyday Materials <i>Rocks</i>	Plants and habitats	Animals including humans
	<ul style="list-style-type: none"> <li>Names of the planets in the solar system</li> <li>How the planets orbit the Sun and why we get lunar and solar eclipses</li> <li>Understand how the Sun, Earth and Moon as spherical bodies and the size difference</li> <li>Why we have night and day</li> <li>Why we have seasons</li> <li>That Earth is tilted on an axis and rotates every 24 hours</li> <li>The phases of the</li> </ul>	<ul style="list-style-type: none"> <li>What electricity is</li> <li>Items that require electricity</li> <li>The difference between mains electricity and batteries</li> <li>What a conductor is and examples</li> <li>What an insulator is and examples</li> <li>Why we need insulators and conductors</li> </ul> <p><b>Consolidating/building:</b>          What do children need to know?          •What electricity is          •The difference</p>	<ul style="list-style-type: none"> <li>What materials are</li> <li>How to group different materials based on their properties</li> <li>What a gas, solid and liquid are and the properties of these</li> <li>What dissolving is and examples of materials that dissolve</li> <li>That some changes are reversible and some are irreversible</li> <li>Identify reversible changes and irreversible changes (e.g. melting and freezing)</li> </ul>	<p><b>Rocks</b></p> <ul style="list-style-type: none"> <li>How to compare and group rocks based on their appearance/ physical properties</li> <li>What fossils are</li> <li>How fossils are formed (trapped within rock)</li> <li>What soil is and why it is important</li> <li>Different types of rocks</li> <li>The difference between natural and man-made rocks</li> <li>Why rocks are useful</li> <li>What erosion is and how it happens</li> </ul>	<ul style="list-style-type: none"> <li>What a habitat is</li> <li>Different types of habitats</li> <li>How to group animals/ living things (plants) in different ways</li> <li>Why it is important to classify living things</li> <li>How to use a classification system</li> <li>The difference between vertebrates and invertebrates</li> <li>Names for different groups e.g. bird, reptile</li> <li>Features of each different living thing</li> <li>How environments can be affected</li> </ul> <p><b>Consolidating/building:</b>          What do children need to</p>	<ul style="list-style-type: none"> <li>The different food groups</li> <li>Foods that fit into each group</li> <li>What a balanced diet is and the nutrition from each</li> <li>How animals eat to survive</li> <li>Why we have bones and the names of some of these</li> <li>Which organs different bones protect</li> <li>Why muscles are important</li> <li>The names of muscles</li> <li>How muscles move</li> </ul> <p><b>Emerging with some</b></p>

	<p>moon</p> <ul style="list-style-type: none"> <li>•Why we have leap years</li> <li>•How our understanding has changed over the years</li> </ul>	<p>between mains electricity and batteries and which is safer</p> <ul style="list-style-type: none"> <li>•What a conductor is and examples</li> <li>•What an insulator is and examples</li> <li>•Why we need insulators and conductors</li> </ul>	<ul style="list-style-type: none"> <li>•How to separate materials (e.g. sieving or filtering)</li> <li>•Why particular materials are better for different situations</li> <li>•Which materials are flammable and when this is useful</li> </ul> <p><b>Consolidating/building:</b></p> <p>What do children need to know?</p> <ul style="list-style-type: none"> <li>•How to compare different materials so they can group them</li> <li>•What a solid is and the properties</li> <li>•What a gas is and the properties</li> <li>•What a liquid is and the properties</li> <li>•How temperature can change states of matter (melting, cooling)</li> <li>•What evaporation is and how it occurs</li> <li>•How evaporation is linked to temperature</li> <li>•What condensation is and how it occurs</li> </ul>		<p>know?</p> <ul style="list-style-type: none"> <li>•The parts of a flower</li> <li>•The roles of the different parts of a flower/plant</li> <li>•What reproduction is•How plants reproduce</li> <li>•How different animals reproduce</li> <li>•The life cycle of a mammal, amphibian, insect and bird</li> <li>•Similarities and differences in the life cycle of a mammal, amphibian, insect and bird</li> <li>•Different gestation periods/ growth</li> <li>•Scientists that have worked in the field e.g. Jane Goodall</li> </ul> <p><b>Building- pre AQA:</b></p> <p>What do children need to know?</p> <ul style="list-style-type: none"> <li>•How to group animals/ living things in different ways</li> <li>•Why it is important to classify living things</li> <li>•Who Carl Linnaeus was</li> <li>•The Linnaean system of classification</li> <li>•What microorganisms are</li> <li>•Names for different</li> </ul>	<p><b>consolidation:</b></p> <p>What do children need to know?</p> <ul style="list-style-type: none"> <li>•The human life cycle and the names of the different phases</li> <li>•Identify the different stages of life</li> <li>•How a foetus develops</li> <li>•How the gestation period differs in different animals</li> <li>•How infants develop and how this compares to other animals</li> <li>•Changes during puberty</li> <li>•How to keep fit and healthy</li> <li>•Features of adulthood</li> <li>•How humans change during old age and life expectancy</li> </ul> <p><b>Consolidation/Building:</b></p> <p>What do children need to know?</p> <ul style="list-style-type: none"> <li>•How diet impacts on the human body (recap of balanced diets)</li> <li>•Names of parts of the</li> </ul>
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