

# Science Long Term Programme of Study Year 8 2021-2022

## Temperance Term

W/C	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	HALF TERM
Area of Study	Healthy Lifestyle (B2.1)			Electricity and Magnetism (P2.1)				
Core Learning	<p><b>Explain what is meant by a balanced diet and how nutrients are digested.</b></p> <p>Explain what makes a food a healthy option and how each nutrient contributes to a healthy, balanced diet.</p> <p>Explain why testing food for starch, lipids, sugar, and protein is important and the meaning of positive or negative results in terms of the food tests. and explain how each part of the digestive system works in sequence, including adaptations of the small intestine for its function.</p>			<p><b>Explain what electricity is and the difference between current and potential difference.</b></p> <p>Explain, in terms of electrons, why something becomes charged.</p> <p>Compare a gravitational field and an electric field.</p> <p>Use a model to explain how current flows in a circuit.</p> <p>Explain the difference between potential difference and current.</p> <p>Explain why potential difference is measured in parallel.</p> <p>Predict the effect of changing the rating of a battery or bulb in a circuit.</p> <p>Explain why current and potential difference vary in series and parallel circuits.</p> <p>Explain how magnets can be used.</p>				
Opportunities for Challenge	Explain that different people require different amounts of energy, using energy calculations and data to support explanations			<p>Explain what factors affect the resistance of a resistor.</p> <p>Predict and explain the effect of changes on the strength of different electromagnets</p>				
Assessment	End of Topic Test			End of Topic Test				

W/C	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	CHRISTMAS
Area of Study	The Earth and Its Elements (C2.4 and C2.1)						

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<b>Core Learning</b>	<p><b>Describe the carbon and rock cycles and recognise patterns in the periodic table.</b>          Describe the composition of the atmosphere in terms of abundance of components.          Give a detailed explanation of the sedimentary rock cycle.          Link properties of igneous and metamorphic rocks to their methods of formation.          Explain changes in the levels of carbon dioxide using stages of the carbon cycle.          Discuss in detail the impacts of global warming, identifying primary and secondary problems.</p> <p>Predict the properties of an element, given its position on the Periodic Table.          Explain how the position of an element can be used to suggest properties of elements.          Compare predictions with evidence, and from reactions involving Group 1 elements.</p>	
<b>Opportunities for Challenge</b>	<p>Use data to discuss the relative benefits and drawbacks of recycling materials.</p> <p>Determine word equations to represent displacement reactions.</p>	
<b>Assessment</b>	End of Topic Test	

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## Justice Term

W/C	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	HALF TERM
Area of Study	<b>The Changing Environment (B2.2 and B2.3)</b>						
Core Learning	<p><b>Explain how competition or long-term environmental change can lead to evolutionary adaptation or extinction.</b>            Explain how variation gives rise to different species and explain how competition or long-term environmental change can lead to evolutionary adaptation or extinction.            Explain that some variation is affected by both environmental and inherited factors and the causes of continuous and discontinuous variation, represent variation within a species using the appropriate type of graph.</p>						
Opportunities for Challenge	Explain how characteristics are inherited through and coded for by genes and how natural selection leads to evolution and explain some factors that may have led to extinction.						
Assessment	End of Topic Test						

W/C	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	EASTER
Area of Study	<b>Movement and Energy (P2.2 and P2.3)</b>						
Core Learning	<p><b>Use the speed equation to explain unfamiliar situations and describe how energy is transferred.</b>            Draw and analysed distance–time graphs for a range of journey.            Explain gas pressure in different situations and compare some effects of atmospheric pressure.            Explain why an object will float or sink in terms of force or density.            Apply the concept of moments to everyday situations.            Use calculations to explain situations involving moments.</p> <p>Calculate energy requirements for various situations, considering diet and exercise.            Compare energy transfers to energy conservation.            Explain, in terms of particles, how energy is transferred.            Compare the advantages and disadvantages of using renewable and non-renewable energy resources.            Explain how a range of resources generate electricity, drawing on scientific concepts.</p>						
Opportunities for Challenge	<p>Calculate pressure in multistep problems, compare pressure in different situations</p> <p>Calculate and compare energy costs in different scenarios; explain how conservation of energy applies in one example</p>						

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Assessment	End of Topic Test	
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## Courage Term

W/C	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	HALF TERM
Area of Study	Products and Purity (C2.2 and C2.3)						
Core Learning	<p><b>Experiment and discover how metals react with different substances.</b>            Use formula equations to show what happens when metals react in different acids.            Explain the reactivity of metals according to how they react with oxygen.            Use a range of separating techniques and identify solutes, solvents and solutions.</p>						
Opportunities for Challenge	Calculate molecular formulas from given information. Balance symbol equations						
Assessment	End of Topic Test						

W/C	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	SUMMER
Area of Study	KS3 Exams		Detection (C3.3)				
Core Learning			<p><b>Describe how scientific evidence can help solve crimes.</b>            Use the reactivity series to predict whether metals will react with oxygen and water vapour in the air or soil.</p>				
Opportunities for Challenge			Relate the reactivity series of metals with water or dilute acids to the tendency of the metal to form its positive ion.				
Assessment			End of Topic Test				