Science Learning Journey Year 8

Temperance Term

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	
Topic	**B2.1 Health and Lifestyle and C2.1 The Periodic Table**								HALF TERM
Challenge Objective and Content (for all learners)	**Explain what is meant by a balanced diet and how nutrients are digested.** Explain what makes a food a healthy option and how each nutrient contributes to a healthy, balanced diet. 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. **Describe and explain patterns in the periodic table.** 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.								
Inspire Opportunities	Explain that different people require different amounts of energy, using energy calculations and data to support explanations Determine word equations to represent displacement reactions.								
Assessment Opportunities	End of Topic Tests								

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	
Topic	**P2.1 Electricity and Magnetism and B2.2 Ecosystem Processes**						CHRISTMAS
Challenge Objective and Content (for all learners)	**Explain what electricity is and the difference between current and potential difference.** Explain, in terms of electrons, why something becomes charged. Compare a gravitational field and an electric field. Explain the difference between potential difference and current. Explain why potential difference is measured in parallel. Explain why current and potential difference vary in series and parallel circuits. Explain how magnets can be used. **Describe the processes of respiration and photosynthesis.** State the word equations for photosynthesis and respiration. Describe the structure and function of the main components of a leaf. Describe the process of chemosynthesis.						
Inspire Opportunities	Explain what factors affect the resistance of a resistor. State and balance the symbol equations for photosynthesis and respiration.						

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Assessment Opportunities	End of Topic Tests and Temperance Term Assessment	

Science Learning Journey Year 8

Justice Term

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	
Topic	**C2.2 Separation Techniques and P2.2 Energy**						HALF TERM
Challenge Objective and Content (for all learners)	**Use a range of separating techniques and identify solutes, solvents and solutions.** Explain the process of evaporation and distillation Describe how chromatography separates mixtures **Describe how energy is transferred.** 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.						
Inspire Opportunities	Compare cooling curves for different substances. Calculate and compare energy costs in different scenarios; explain how conservation of energy applies.						
Assessment Opportunities	End of Topic Tests						

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	
Topic	**B2.3 Adaptation and Inheritance and C2.3 Metals and Acids**						EASTER
Challenge Objective and Content (for all learners)	**Explain how competition or long-term environmental change can lead to evolutionary adaptation or extinction.** 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. **Experiment and discover how metals react with different substances.** 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.						
Inspire Opportunities	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. Calculate molecular formulas from given information						

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Assessment Opportunities	End of Topic Tests and Justice Term Assessment	

Science Learning Journey Year 8

Courage Term

	Week 1	Week 2	Week 3	Week 4	Week 5	
Topic	**P2.3 Motion and Pressure and Revision**				**End of Year Assessments**	**HALF TERM**
Challenge Objective and Content (for all learners)	**Use the speed equation to explain unfamiliar situations.** 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**.**					
Inspire Opportunities	Calculate pressure in multistep problems, compare pressure in different situations					
Assessment Opportunities	End of Topic Tests and End of Year Assessment					

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	
Topic	**P2.3 Motion and Pressure C2.4 The Earth**						**SUMMER**
Challenge Objective and Content (for all learners)	**Use the speed equation to explain unfamiliar situations.** 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**.** **Describe the carbon and rock cycles.** 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.						

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Inspire Opportunities	Calculate pressure in multistep problems, compare pressure in different situations Use data to discuss the relative benefits and drawbacks of recycling materials.	
Assessment Opportunities	End of Topic Tests	