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Temperance Term

W/C	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	
Area of Study	**C4 – Chemical Changes and P2- Electricity**							
Core Learning	**C4 – Investigate and predict chemical changes in substances** -Explain oxidation and reduction in terms of loss or gain of oxygen -Experiment and describe reactions of metals with water and dilute acids -Interpret and evaluate metal extraction processes -Explain oxidation and reduction in terms of loss and gain of electrons. -Write ionic equations for displacement reactions. -Explain reactions of acids with metals -Predict products from given reactants -Use the pH scale to identify acidic or alkaline solutions -Describe and explain the process of electrolysis -RP Investigate the electrolysis of aqueous solutions -Write half equations **P2-Describe how to calculate resistance and the factors which can alter it. Describe how electricity is delivered to our homes and businesses.** -Recognise standard circuit symbols							HALF TERM

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	-MS 3b,c Calculate charge flow and potential difference -RP 3 Investigate the factors affecting the resistance of electrical circuits -Draw and interpret resistance graphs for lamps, diodes, thermistors and LDRs.	
Opportunities for Challenge	C4 - Explain any observed changes in mass in non-enclosed systems during a chemical reaction given the balanced symbol equation for the reaction and explain these changes in terms of the particle model. P2-Conduct multi step calculations	
Assessment	End of Topic Tests	

W/C	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	
Area of Study	**C5 – Energy Changes and P2- Electricity**						
Core Learning	C5- **Explain how the interaction of particles often involves transfers of energy.** -Describe the differences between exothermic and endothermic reactions -RP Investigate the variables that affect temperature changes -Draw and analyse simple reaction profiles -Calculate the energy transferred in chemical reactions -Describe the effects of changing conditions on a system at equilibrium can be predicted using Le Chatelier's Principle						CHRISTMAS

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	P2-Describe how to calculate resistance and the factors which can alter it. Describe how electricity is delivered to our homes and businesses. -RP4 Investigate I-V characteristics of a variety of circuit components -Describe the differences between series and parallel circuits -Explain the difference between direct and alternating potential difference -Identify the wires in a plug -Explain why the National Grid system is an efficient way to transfer energy	
Opportunities for Challenge	C5 - Interpret appropriate given data to predict the effect of a change in temperature on given reactions at equilibrium P2 - Conduct multi step calculations	
Assessment	End of Topic Tests	

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Justice Term

W/C	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	
Area of Study	**B4 – Bioenergetics and C3 – Quantitative Chemistry**						
Core Learning	**B4 - Describe and explain the processes of respiration and photosynthesis** -State the word and symbol equations for photosynthesis. -MS Measure and calculate the rate of photosynthesis as well as extract and interpret graphs. -RP Investigate the effect of light intensity on the rate of photosynthesis -Describe the uses of glucose from photosynthesis. -Explain the processes of aerobic and anaerobic respiration, stating the equations. -Explain how the body responds to exercise. **C3 – Use chemical equations as a way to communicate chemical ideas.** -Define 'conservation of mass' -Calculate relative formula mass and percentage mass. -Investigate mass changes -Make estimations of uncertainty -Understand the term 'moles' and calculate moles in a given mass of a substance. -MS1b express data in standard form -MS 3b Change the subject of an equation -MS1c Use ratios, fractions and percentages -Calculate percentage yield						HALF TERM
Opportunities for Challenge	B4 - Explain the importance of sugars, amino acids, fatty acids and glycerol in the synthesis and breakdown of carbohydrates, proteins and lipids. C3 – Demonstrate how to calculate moles and rearrange the mole equation.						
Assessment	End of Topic Tests						

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W/C	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	
Area of Study	**C6 – The Rate and Extent of Chemical Change and B5 – Homeostasis and response**						
Core Learning	**C6 - Understand energy changes that accompany chemical reactions.** -MS 1a Recognise and use expressions in decimal form. -MS4a Translate information between graphical and numerical form -Calculate mean rate of reaction. -Describe and explain factors which effect the rate of reaction, including concentration and surface area. -RP5 Investigate how changes in concentration affect the rates of reaction. -Predict and explain changes in rate of reaction by using the collision theory. -Explain the effects of a catalyst -Define endothermic and exothermic reactions and describe the term 'equilibrium' **B5 – Describe the structure and function of the nervous system and the hormonal system.** -Define 'homeostasis' -Explain the role of homeostasis in the control of blood glucose, body temperature and water levels. -Describe the structure and function of the nervous system -MS Extract and interpret data from graphs -RP 7 Investigate the effect of a factor on human reaction time. -Explain how the human endocrine system is controlled. -WS 1.3 Evaluate information around the relationship between obesity and diabetes. -Describe the role of hormones in human reproduction, including the menstrual cycle. -WS 1.3 Discuss why the issues regarding contraception cannot be answered by science alone.						EASTER
Opportunities for Challenge	C6 - Explain why catalysts increase the rate of reaction by providing a different pathway for the reaction that has a lower activation energy. B5 - Explain the role of the reflex arc in reflex actions.						
Assessment	End of Topic Tests						

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Courage Term

W/C	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	
Area of Study	**C7- Organic chemistry and C8 – Chemical Analysis**				**Mock Revision**		HALF TERM
Core Learning	**C7-Explain the importance of carbon compounds as organic compounds, in terms of structure and properties.** -Recognise substances as alkanes given their formulae in these forms. -Recognise substances as alkenes given their formulae in these forms -Describe the process of fractional distillation **C8-Explain a variety of instrumental methods can be used to analyse substances** -Use melting point and boiling point data to distinguish pure from impure substances. -Explain how paper chromatography separates mixtures and calculate retention factor -RP 6 Investigate how paper chromatography can be used to separate and tell the difference between coloured substances						
Opportunities for Challenge	C7 - Determine name and therefore properties from chemical formula. C8 – Use chromatography to calculate Rf values.						
Assessment	End of Topic Tests						

W/C	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	
Area of Study	**Year 10 Mock Exams**		**C7- Organic chemistry and C8 – Chemical Analysis**				SUMMER

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Core Learning		**Explain the importance of carbon compounds as organic compounds, in terms of structure and properties.** -Describe the properties of hydrocarbons and identify trends -WS 1.2, 4.1 Investigate the properties of different hydrocarbons -Explain the process of cracking and why it is useful **Explain a variety of instrumental methods can be used to analyse substances** -Explain the tests for a variety of gases, including oxygen and chlorine	
Opportunities for Challenge		C7 - Determine name and therefore properties from chemical formula. C8 – Use chromatography to calculate Rf values.	
Assessment		End of Topic Tests	