

# HALF TERM

|                                                    | Week 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 |
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| Topic                                              | C4 Chemical Changes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |        |        |        |        |
| Challenge Objective and Content (for all learners) | <p><b>C4 – Investigate and predict chemical changes in substances</b></p> <ul style="list-style-type: none"> <li>-Explain oxidation and reduction in terms of loss or gain of oxygen.</li> <li>-Experiment and describe reactions of metals with water and dilute acids.</li> <li>-Interpret and evaluate metal extraction processes.</li> <li>-Explain oxidation and reduction in terms of loss and gain of electrons.</li> <li>-Write ionic equations for displacement reactions.</li> <li>-Explain reactions of acids with metals.</li> <li>-Predict products from given reactants.</li> <li>-Use the pH scale to identify acidic or alkaline solutions.</li> <li>-Describe and explain the process of electrolysis.</li> <li>-RP Investigate the electrolysis of aqueous solutions.</li> <li>-Write half equations.</li> </ul> |        |        |        |        |        |
| Inspire Opportunities                              | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        |        |        |        |        |
| Assessment Opportunities                           | End of Topic Tests and Autumn Term Assessment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |        |        |        |        |        |

CHRISTMAS

## Spring Term

|                                                    | Week 1                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Week 2 | Week 3 | Week 4 | Week 5                                                                                                                                                                                                                                                                                                                                            | Week 6 | HALF TERM |
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| Topic                                              | C5 Energy Changes                                                                                                                                                                                                                                                                                                                                                                                                                                                    |        |        |        | C6 The Rate and Extent of Chemical Change                                                                                                                                                                                                                                                                                                         |        |           |
| Challenge Objective and Content (for all learners) | C5- Explain how the interaction of particles often involves transfers of energy.<br>-Describe the differences between exothermic and endothermic reactions.<br>-RP Investigate the variables that affect temperature changes.<br>-Draw and analyse simple reaction profiles.<br>-Calculate the energy transferred in chemical reactions.<br>-Describe the effects of changing conditions on a system at equilibrium can be predicted using Le Chatelier’s Principle. |        |        |        | C6 - Understand energy changes that accompany chemical reactions.<br>-MS 1a Recognise and use expressions in decimal form.<br>-MS4a Translate information between graphical and numerical form<br>-Calculate mean rate of reaction.<br>-Describe and explain factors which effect the rate of reaction, including concentration and surface area. |        |           |
| Inspire Opportunities                              | C5 - Interpret appropriate given data to predict the effect of a change in temperature on given reactions at equilibrium.                                                                                                                                                                                                                                                                                                                                            |        |        |        | C6 - Explain why catalysts increase the rate of reaction by providing a different pathway for the reaction that has a lower activation energy.                                                                                                                                                                                                    |        |           |
| Assessment Opportunities                           | End of Topic Tests                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        |        |        |                                                                                                                                                                                                                                                                                                                                                   |        |           |

|                                                    | Week 1                                                                                                                                                                                                                                                                                                                                            | Week 2 | Week 3 | Week 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Week 5 | EASTER |
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| Topic                                              | C6 The Rate and Extent of Chemical Change                                                                                                                                                                                                                                                                                                         |        |        | C7 Organic Chemistry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |        |
| Challenge Objective and Content (for all learners) | C6 - Understand energy changes that accompany chemical reactions.<br>-MS 1a Recognise and use expressions in decimal form.<br>-MS4a Translate information between graphical and numerical form<br>-Calculate mean rate of reaction.<br>-Describe and explain factors which effect the rate of reaction, including concentration and surface area. |        |        | C7 - Explain the importance of carbon compounds as organic compounds, in terms of structure and properties.<br>-Recognise substances as alkanes given their formulae in these forms.<br>-Recognise substances as alkenes given their formulae in these forms.<br>-Describe the process of fractional distillation.<br>-Describe the properties of hydrocarbons and identify trends.<br>-WS 1.2, 4.1 Investigate the properties of different hydrocarbons.<br>-Explain the process of cracking and why it is useful. |        |        |
| Inspire Opportunities                              | C6 - Explain why catalysts increase the rate of reaction by providing a different pathway for the reaction that has a lower activation energy.                                                                                                                                                                                                    |        |        | C7 - Determine name and therefore properties from chemical formula.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |        |
| Assessment Opportunities                           | End of Topic Tests and Spring Term Assessment                                                                                                                                                                                                                                                                                                     |        |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |        |        |
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## Summer Term

|                                                    | Week 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Week 2 | Week 3 | Week 4                                                                                                                                                                                                  | Week 5             | Week 6 | HALF TERM |
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| Topic                                              | C7 Organic Chemistry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |        | Revision                                                                                                                                                                                                | Year 10 Mock Exams |        |           |
| Challenge Objective and Content (for all learners) | C7 - Explain the importance of carbon compounds as organic compounds, in terms of structure and properties.<br>-Recognise substances as alkanes given their formulae in these forms.<br>-Recognise substances as alkenes given their formulae in these forms.<br>-Describe the process of fractional distillation.<br>-Describe the properties of hydrocarbons and identify trends.<br>-WS 1.2, 4.1 Investigate the properties of different hydrocarbons.<br>-Explain the process of cracking and why it is useful. |        |        | Chemistry Paper 1 Revision<br>C1 Atomic Structure and the Periodic Table<br>C2 Structure, Bonding and the Properties of Matter<br>C3 Quantitative Chemistry<br>C4 Chemical Changes<br>C5 Energy Changes |                    |        |           |
| Inspire Opportunities                              | C7 - Determine name and therefore properties from chemical formula.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |        |        | Grade 7-9 questions.                                                                                                                                                                                    |                    |        |           |
| Assessment Opportunities                           | End of Topic Tests and Year 10 Mock Exams                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |        |        |                                                                                                                                                                                                         |                    |        |           |

|                                                    | Week 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Week 2 | Week 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Week 4 | Week 5 | Week 6 |
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| Topic                                              | <b>C7 Organic Chemistry</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        | <b>C8 Chemical Analysis</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                       |        |        |        |
| Challenge Objective and Content (for all learners) | <b>C7 - Explain the importance of carbon compounds as organic compounds, in terms of structure and properties.</b><br>-Recognise substances as alkanes given their formulae in these forms.<br>-Recognise substances as alkenes given their formulae in these forms.<br>-Describe the process of fractional distillation.<br>-Describe the properties of hydrocarbons and identify trends.<br>-WS 1.2, 4.1 Investigate the properties of different hydrocarbons.<br>-Explain the process of cracking and why it is useful. |        | <b>C8 - Explain a variety of instrumental methods can be used to analyse substances.</b><br>-Use melting point and boiling point data to distinguish pure from impure substances.<br>-Explain how paper chromatography separates mixtures and calculate retention factor.<br>-RP 6 Investigate how paper chromatography can be used to separate and tell the difference between coloured substances.<br>-Explain the tests for a variety of gases, including oxygen and chlorine. |        |        |        |
| Inspire Opportunities                              | C7 - Determine name and therefore properties from chemical formula.                                                                                                                                                                                                                                                                                                                                                                                                                                                        |        | C8 - Identification of ions by chemical and spectroscopic means.                                                                                                                                                                                                                                                                                                                                                                                                                  |        |        |        |
| Assessment Opportunities                           | End of Topic Tests                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |        |        |        |

SUMMER