

# HIGHFIELDS SCHOOL

CURRICULUM OVERVIEW 2023-2024



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**SUBJECT: A LEVEL CHEMISTRY**

**EXAMINATION BOARD: OCR**

AUTUMN TERM - YEAR 12	SPRING TERM - YEAR 12	SUMMER TERM - YEAR 12
<p><b>H032</b> <b>Module 1 - Development of practical skills</b></p> <p><b>Module 2 - Foundation in Chemistry</b></p> <ul style="list-style-type: none"> <li>2.1 - Atomic structure, isotopes, formulae, equations, moles, acids, redox</li> <li>2.2 - Electron structure, bonding and structure</li> </ul> <p><b>Module 3 - Periodic table and Energy</b></p> <ul style="list-style-type: none"> <li>3.1 - Periodicity, groups 2 and 7, qualitative analysis</li> <li>3.2 - Enthalpy changes reaction rates, equilibrium</li> </ul> <p><b>Module 4 - Core Organic Chemistry</b></p> <ul style="list-style-type: none"> <li>4.1 - Basic concepts, alkanes, alkenes</li> </ul> <p><b>Potential Practical Activity</b></p> <ul style="list-style-type: none"> <li>Moles determination</li> <li>Acid-alkali titrations</li> <li>Reactions involving Group 2 and Group 7</li> <li>Qualitative analysis of ions</li> </ul>	<p><b>Module 1 - Development of practical skills</b></p> <p><b>Module 4 - Core Organic Chemistry continued</b></p> <ul style="list-style-type: none"> <li>4.1 - Basic concepts, alkanes, alkenes</li> <li>4.2 - Alcohols, haloalkanes, organic synthesis, analytical synthesis (IR, MS)</li> </ul> <p><b>Revision and Exam preparation (4Rs)</b></p> <ul style="list-style-type: none"> <li>Mini-tests and quizzes</li> <li>Past examination questions</li> <li>Structured and multiple-choice questions</li> </ul> <p><b>Potential Practical Activity</b></p> <ul style="list-style-type: none"> <li>Measuring enthalpy change</li> <li>Alkane/Alkene reactions</li> <li>Oxidation reactions</li> <li>Preparing haloalkanes</li> <li>Synthesis of esters</li> </ul>	<p><b>H432</b> <b>Module 1 - Development of practical skills</b></p> <p><b>Module 5 - Physical Chemistry, Transition elements</b></p> <ul style="list-style-type: none"> <li>5.1 - How far, how fast</li> <li>5.3 - Transition elements</li> </ul> <p><b>Module 6 - Organic Chemistry and analysis</b></p> <ul style="list-style-type: none"> <li>6.1 - Aromatic compounds, carbonyls</li> </ul> <p><b>Potential Practical Activity</b></p> <ul style="list-style-type: none"> <li>Rates: continuous monitoring and initial rates</li> <li>pH measurements</li> <li>Iodine clock; Thiosulfate clock</li> <li>Acid-base titrations</li> <li>Redox titrations</li> <li>Transition metal precipitation and ligand substitution</li> </ul>
<p><b>ASSESSMENT</b></p> <ul style="list-style-type: none"> <li>Transition GCSE exams C1-C3 and C4-C6.</li> <li>2.1.1 Atomic structure and isotopes.</li> <li>2.1.3/2.1.4 amount, acids and bases.</li> <li>2.1.5 Redox.</li> <li>2.2.1/2.2.2 electron, bonding and structure.</li> <li>4.1 Basic concepts and hydrocarbons.</li> </ul>	<p><b>ASSESSMENT</b></p> <ul style="list-style-type: none"> <li>3.1 Periodic table.</li> <li>3.2.1 Enthalpy changes.</li> <li>4.2 Alcohols, Halogenoalkanes and analysis.</li> <li>3.2.2/3.2.3 reaction rates and equilibrium.</li> </ul> <p><b>Practice exam:</b> H032 Paper 1 (50%, 70 marks, 90mins)</p>	<p><b>ASSESSMENT</b></p> <ul style="list-style-type: none"> <li>5.3.1 Transition elements.</li> <li>6.1.1 Aromatic compounds.</li> </ul> <p><b>School exams</b> H032 Paper 1 (50%, 70 marks, 90mins) H032 Paper 2 (50%, 70 marks, 90mins)</p> <p><b>Re-sit exam</b> HO32/01 paper 1 (50%, 70 marks, 90mins)</p>

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AUTUMN TERM - YEAR 13	SPRING TERM - YEAR 13	SUMMER TERM - YEAR 13
<p><b>H432</b>  <b>Module 1 - Development of practical skills</b></p> <p><b>Module 5 - Physical Chemistry, Transition elements</b></p> <ul style="list-style-type: none"> <li>5.1 - How far, how fast, acid bases and buffers</li> <li>5.2 - Lattice enthalpy, enthalpy and entropy, redox, electrode potentials</li> <li>5.3 - Transition elements, qualitative analysis</li> </ul> <p><b>Module 6 - Organic Chemistry and analysis</b></p> <ul style="list-style-type: none"> <li>6.1 - Aromatic compounds, carbonyls, carboxylic acids and esters</li> <li>6.2 - Amines, amino acids, amides and chirality, polyesters and polyamides, carbon-carbon bond formation, organic synthesis</li> <li>6.3 - Chromatography, qualitative analysis, spectroscopy</li> </ul> <p><b>Potential Practical Activities</b></p> <ul style="list-style-type: none"> <li>Rates: continuous monitoring and initial rates</li> <li>pH measurements</li> <li>Iodine clock; Thiosulfate clock</li> <li>Acid-base titrations</li> <li>Measuring enthalpy change</li> <li>Electrochemical cells</li> </ul>	<p><b>Module 1 - Development of practical skills</b></p> <p><b>Module 5 - Physical Chemistry, Transition elements</b></p> <ul style="list-style-type: none"> <li>5.2 - Lattice enthalpy, enthalpy and entropy, redox, electrode potentials</li> </ul> <p><b>Module 6 - Organic Chemistry and analysis</b></p> <ul style="list-style-type: none"> <li>6.2 - Amines, amino acids, amides and chirality, polyesters and polyamides, carbon-carbon bond formation, organic synthesis</li> <li>6.3 - Chromatography, qualitative analysis, spectroscopy</li> </ul> <p><b>Revision and Exam preparation (4Rs)</b></p> <ul style="list-style-type: none"> <li>Mini-tests and quizzes for all modules</li> <li>Past examination questions</li> <li>Structured and multiple-choice questions</li> <li>H032 paper 1 and paper 2 resources</li> </ul> <p><b>Potential Practical Activities</b></p> <ul style="list-style-type: none"> <li>Transition metal precipitation and ligand substitution</li> <li>Redox titrations</li> <li>Qualitative analysis: identifying functional groups</li> <li>Synthesis of organic solids</li> <li>Preparing 2,4-DNPH derivatives</li> <li>Synthesis of Paracetamol</li> </ul>	<p><b>Revision and Exam preparation (4Rs)</b></p> <ul style="list-style-type: none"> <li>Mini-tests and Seneca quizzes</li> <li>Past examination question booklets</li> <li>Structured and multiple-choice questions</li> <li>H432 past exam papers</li> </ul>
<p><b>ASSESSMENT</b></p> <ul style="list-style-type: none"> <li>5.1 rates equilibrium and pH.</li> <li>5.3 Transition elements.</li> <li>6.1 Aromatic compounds, carbonyls, acids.</li> </ul> <p><b>Practice exam:</b> H032 Paper 1</p>	<p><b>ASSESSMENT</b></p> <ul style="list-style-type: none"> <li>5.2 Energy</li> <li>6.2 Nitrogen compounds, polymers, synthesis</li> <li>6.3 Analysis</li> </ul> <p><b>School exams:</b> H432 Paper 1 and Paper 2                      Practice exams: H432 Paper 1, Paper 2, Paper 3</p>	<p><b>ASSESSMENT</b></p> <ul style="list-style-type: none"> <li>Practice exams: H432 Paper 1, Paper 2 and Paper 3</li> </ul> <p><b>Final examinations</b>                      H432/01 Paper 1 (37%, 100 marks, 135mins)                      H432/02 Paper 2 (37%, 100 marks, 135mins)                      H432/03 Paper 3 (26%, 70 marks, 90mins)</p>