



In the Chemistry Department, we aim to develop students with an enthusiasm for both practical and theoretical aspects of chemistry. Students should complete each stage of the course with the skills, belief and self-motivation required to be successful at the next level.

Year 7	Enquiry Statement/Aim	Knowledge and Skills
Term 1	1. Introduction to chemistry 2. States of matter	Understand what is meant by "chemistry" and to learn how to operate safely in a chemistry laboratory. Understanding particle theory
Term 2 and 3	3. Solutions	Separation techniques Physical changes Dissolving and crystallisation Chemical Tests Aspects of rates of reaction
Term 4	4. Acids and Alkalis`	pH scale and indicators Properties of acids and alkalis Neutralisation reactions
Term 5	5. Chemical Reactions	Evidence of chemical changes Fuels
Term 6	6. Chemical Tests 7. Indigestion investigation	Developing laboratory techniques Planning and executing a scientific investigation

Year 8	Enquiry Statement/Aim	Knowledge and Skills
Term 1 and 2	1. Atoms and elements 2. Compounds and mixtures	Develop understanding of key chemical definitions. Understand what happens in chemical reactions Writing chemical equations
Term 3-4	3. Reactions of metals and their compounds	Carrying out and developing understanding of the reactions of metals, metal oxides, metal hydroxides and metal carbonates
Term 4-5	4. Rates of reaction	Introduction to collision theory and understand the effect of various factors on the rates of chemical reactions
Term 5-6	5. MYP study (acid rain)	Planning, undertaking, writing up and evaluating chemical investigations

Year 9	Enquiry Statement/Aim	Knowledge and Skills
Term 1	1. Metals and oxidation of metals	Introduction to redox Rusting Alloys

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<b>Term 2</b>	2. The reactivity series	Reactions of metals with water and acid Displacement reactions Extraction of metals from their ores
<b>Term 3</b>	3. Chemical Energy	Endothermic and exothermic reactions Catalysis
<b>Term 4</b>	4. MYP programme (rates of reaction)	Planning, undertaking, writing up and evaluating chemical investigations
<b>Term 5</b>	5. Fuels and pollution	Combustion, cracking, climate change and acid rain
<b>Term 6</b>	6. Separating Mixtures	Further separation techniques

<b>Year 10</b>	<b>Enquiry Statement/Aim</b>	<b>Knowledge and Skills</b>
<b>Term 1</b>	Atomic structure Chemical analysis	Deepen knowledge of the structure of atoms and link to position in the periodic table Learn how to undertake and analyse chemical tests
<b>Term 2</b>	Bonding, structure and properties	Ionic, covalent and metallic bonding. Link structure of substances to their physical properties
<b>Term 3</b>	Reactions of acids	Undertake reactions of acids with metals and their compounds Deepen understanding of the pH scale and neutralisation reactions
<b>Term 4</b>	Crude oil and fuels The periodic table in more depth	What are fuels? Combustion, cracking, separation of crude oil The environmental impact of use of hydrocarbon fuels
<b>Term 5</b>	Rates	Practical investigations into rates of reaction Deepening understanding of collision theory to explain rates
<b>Term 6</b>	Redox Using our resources	Extraction of metals from their ores Displacement reactions Electrolysis Purification of water Recycling and life cycle assessments

<b>Year 11</b>	<b>Enquiry Statement/Aim</b>	<b>Knowledge and Skills</b>
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<b>Term 1</b>	Quantitative chemistry	Masses, moles, concentration, titrations and other quantitative skills required in chemistry
<b>Term 2</b>	Energy changes	Exothermic and endothermic reactions Fuel cells and batteries
<b>Term 3</b>	Equilibrium	Reversible reactions The Haber process (fertiliser)
<b>Term 4</b>	Organic chemistry	Nomenclature and reactions of different homologous series Polymers
<b>Term 5</b>	Revision	Preparation for public examinations

<b>Year 12</b>	<b>Enquiry Statement/Aim</b>	<b>Knowledge and Skills</b>
<b>Term 1</b>	Quantitative chemistry Atomic Structure Periodicity	Moles calculations Detailed atomic and electronic structure Understanding periodic trends and properties
<b>Term 2</b>	Energetics Bonding	Investigating energy changes in reactions Advanced ionic, covalent and metallic bonding – linking structure to properties
<b>Term 3</b>	Rates Equilibria	Investigating and interpreting the factors which affect rates of chemical reactions Introduction to reversible reactions
<b>Term 4</b>	Redox Acids	Oxidation states, transition metals, oxidation reduction and electrochemical cells
<b>Term 5</b>	Internal Assessment	Planning, undertaking and evaluation of an independently devised experiment
<b>Term 6</b>	Data Processing Organic Chemistry	Uncertainties and errors Introduction to organic chemistry Spectroscopy

<b>Year 13</b>	<b>Enquiry Statement/Aim</b>	<b>Knowledge and Skills</b>
<b>Term 1</b>	Acids Periodicity	Quantitative analysis of strong and weak acids and bases Buffers Advanced periodicity (transition elements)

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<b>Term 2</b>	Organic Chemistry Bonding	Further organic reactions and mechanisms Shapes, hybridisation
<b>Term 3</b>	Redox Medicinal Chemistry	Electrochemical cells Dose, tolerance and addiction Bioavailability Case studies of medicines
<b>Term 4</b>	Energetics	Born-Haber cycles Solution and hydration enthalpy Entropy
<b>Term 5</b>	Revision	Preparation for public examinations