

Scheme of Learning Year Overview

The Big Picture—Intent: The first year of the Chemistry provides a strong background and progression pathway in the transition from GCSE to A-Level. The course builds on the fundamental concepts and develops essential knowledge and understanding of core modules learnt at GCSE. Practical activities are embedded throughout the course to encourage practical activities in the laboratory, enhancing students' understanding of chemical theory and practical skills.				Year 12 Chemistry
Content / Units	Skills	Knowledge	Prior— Year 11	Next
OCR A Chemistry H032 Module 1: Development of practical skills in Chemistry Module 2: Foundations in Chemistry Module 3: Periodic Table and Energy Module 4: Core Organic Chemistry	AO1: demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures; periodic table, elements and physical chemistry, synthesis and analytical techniques. Maths skills including arithmetic and numerical computation, handling data, algebra, graphs, geometry and trigonometry. A02 : Application of knowledge and understanding; in a theoretical context, in a practical context, when handling qualitative data and when handling quantitative data. A03: analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to; make judgements and reach conclusions, develop and refine practical design and procedures.	Develop knowledge and understanding of: Practical skills (planning, implementing, analysis and evaluation). Module 1: Development of practical skills in chemistry. Practical skills assessed in a written examination Module 2: Foundations in chemistry Atoms, compounds, molecules and equations, amount of substance, acid–base and redox reactions and electrons, bonding and structure Module 3: Periodic table and energy The periodic table and periodicity, group 2 and the halogens, qualitative analysis, enthalpy changes and reaction rates and equilibrium (qualitative) Module 4: Core organic chemistry Basic concepts, hydrocarbons, alcohols and haloalkanes, organic synthesis and analytical techniques (IR and MS)	Pupils studied practical skills, atoms, compounds, molecules, equations, amount of substance, acid-base, reactions, redox reactions, bonding and structure, periodicity, halogens, qualitative analysis, enthalpy changes, reaction rates, equilibrium, basic concepts in organic chemistry, hydrocarbons. Maths skills including arithmetic and numerical computation, handling data, algebra, graphs, geometry and trigonometry.	A2 Chemistry Apprenticeships Work
Implementation		Marches Futures Links		Summative Assessment
Five 55 minute lessons per week, split between two teaching staff – one three times, the other, twice. Most tasks are completed independently, but there are opportunities for class discussions, paired discussions and small group practical work. Lessons and homework tasks also build initiative, research skills, retrieval practice, organisation, mathematical and literacy skills. Practical sessions are completed to help consolidate understanding, and to develop new skills and techniques. Many of these are PAG tasks and so count towards the practical endorsement at the end of the full A level course. Past paper questions are used throughout the topics to assess understanding. Mark schemes are also used to help stress the need to use A level specific terminology. A01 and A02 are embedded within the lessons with A03 tasks and discussions covered as appropriate.		University degrees in chemistry, medical, health, veterinary, nursing, natural sciences, biochemistry, biomedical sciences, chemical engineering, pharmacy, radiography and medical imaging and energy and environmental engineering Apprenticeship opportunities in engineering and manufacturing, veterinary nursing, clinical sciences, clinical pharmacology, forensics, midwifery, dental technician and physician associate.		Each topic has an end of unit test which contains a mixture of multiple choice, short and long answer questions. The tests are made using past paper questions and contain a range of AO1, AO2 and AO3 questions. Two exams: Breadth in Chemistry (all 4 modules) (1 hr 30 mins), Depth in Chemistry (all 4 modules) (1hrs 30 mins)
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.Students gain the knowledge and skills outlined and go on to further study at A2 and graduate level.				

Scheme of Learning Year Overview

The Big Picture—Intent: The second year of the Chemistry course builds on the foundations of the first year. It provides students with detailed knowledge and understanding of some more challenging concepts and through these explanations students develop a love of Chemistry and refine their questioning skills. It takes a deep dive into physical chemistry, transition elements, organic chemistry and analysis.

**Year 13
Chemistry**

Content / Units	Skills	Knowledge	Prior— Year 12	Next
OCR A Chemistry H432 Physical Chemistry and transition metals. organic chemistry and analysis.	AO1: demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures; periodic table, elements and physical chemistry, synthesis and analytical techniques. Maths skills including arithmetic and numerical computation, handling data, algebra, graphs, geometry and trigonometry. AO2 : Application of knowledge and understanding; in a theoretical context, in a practical context, when handling qualitative data and when handling quantitative data. AO3: analyse, interpret and evaluate scientific information, ideas and evidence, including in relation to issues, to; make judgements and reach conclusions, develop and refine practical design and procedures.	Develop knowledge and understanding of: Practical skills (planning, implementing, analysis and evaluation). Physical Chemistry and transition metals which includes: reaction rates, equilibrium, pH, buffers, enthalpy, entropy, free energy, redox, electrode potentials and transition elements. Organic chemistry and analysis which includes: Aromatic compounds, carbonyl compounds, carboxylic acids, esters, nitrogen compounds, polymers, organic synthesis, chromatography and spectroscopy (NMR).	Pupils studied practical skills, atoms, compounds, molecules, equations, amount of substance, acid-base, reactions, redox reactions, bonding and structure, periodicity, group 2, the halogens, qualitative analysis, enthalpy changes, reaction rates, equilibrium, basic concepts in organic chemistry, hydrocarbons, alcohols, haloalkanes, organic synthesis and analytical techniques (IR and MS). Maths skills including arithmetic and numerical computation, handling data, algebra, graphs, geometry and trigonometry.	Degree courses Apprenticeships Work

Implementation	Marches Futures Links	Summative Assessment
Five 55 minute lessons per week, split between two teaching staff – one three times, the other, twice. Most tasks are completed independently, but there are opportunities for class discussions, paired discussions and small group practical work. Lessons and homework tasks also build initiative, research skills, retrieval practice, organisation, mathematical and literacy skills. Practical sessions are completed to help consolidate understanding, and to develop new skills and techniques. Many of these are PAG tasks and so count towards the practical endorsement at the end of the full A level course. Past paper questions are used throughout the topics to assess understanding. Mark schemes are also used to help stress the need to use A level specific terminology. AO1 and AO2 are embedded within the lessons with AO3 tasks and discussions covered as appropriate.	Links to careers and further studies are signposted throughout the course. These include university degrees in chemistry, medical, health, veterinary, nursing, natural sciences, biochemistry, biomedical sciences, chemical engineering, pharmacy, radiography and medical imaging and energy and environmental engineering. Apprenticeship opportunities in engineering and manufacturing, veterinary nursing, clinical sciences, clinical pharmacology, forensics, midwifery, dental technician and physician associate. Practical work and PAGs give students opportunities to work collaboratively and develop their LORIC skills. There are explicit links throughout the course for students to evaluate how the subject matter relates to society and enables them to understand contemporary issues as responsible citizens. Independent study enables students to develop research skills and become responsible for closing knowledge gaps.	Each topic has an end of unit test which contains a mixture of multiple choice, short and long answer questions. The tests are made using past paper questions and contain a range of AO1, AO2 and AO3 questions. Three exams: Periodic table, elements and physical chemistry (2 hr 15 mins), Synthesis and analytical techniques (2hrs 15 mins) and Unified chemistry (1 hr 30 mins).
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. By the end of the Year students will be confident to pursue a Chemistry degree and career. Practical skills and fundamental knowledge of the subject will be secure and they will have developed into complete Chemists.