

GCSE Chemistry on a Page 2024 / 2025

GCSE Chemistry

601/8757/8

Subject Leader: Pam Sutliff

CURRICULUM INTENT:

Our Chemistry curriculum is sequenced so that students build an increasingly deep knowledge. All students learn the 3 science disciplines, biology, chemistry and physics at KS3 and KS4 but the most able scientists are selected to study for the three single science GCSEs rather than GCSE Combined Science (Trilogy) equivalent to two GCSEs. In chemistry, new content is introduced in small steps, and students are supported to develop their understanding by connecting this new content with their prior knowledge. Knowledge is revisited over the years to restimulate memory in new contexts. Where appropriate, meaningful links are made with other subjects, particularly geography and mathematics.

Our curriculum links learning to real-life contexts and highlights the relevance of chemistry to everyday situations. Curiosity is nurtured through a practical approach and students develop confidence in the skills and security in the knowledge needed to achieve the highest aspirations. Students continue to study chemical science courses at university including medicine, dentistry, veterinary sciences and nursing.

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Key Stage 4

Year 10	The year 10 chemistry curriculum builds on the National Curriculum for KS3 and covers the KS4 GCSE content. Students learn through direct instruction, modelling, practical work and independent research. Required practicals are an important part of the exam assessment and allow students to learn through hands on exploration while developing working scientifically skills including planning, recording data, graph skills, analysis and evaluation. Homework is integral to our curriculum and provides a structured opportunity for students to consolidate their learning through the use of online tools eg. Seneca and past paper questions.											
	Term 1	Atomic structure and periodic table	Term 2	Bonding structure and the properties of matter	Term 3	Quantitative Chemistry	Term 4	Chemical Change	Term 5	Energy Changes	Term 6	Rates and extent of chemical reaction
	The topics are sequenced so that content builds on previously learned concepts. Topics on paper 1 of the GCSE are delivered first to maximise revision time prior to the year 10 exams and scaffold the progress to GCSE. Do now tasks are used to check recall and understanding of previously taught topics that are then developed within the lesson. eg. Students need to understand atomic structures before they study bonding and then energy changes in reactions. Quantitative chemistry is taught as a separate topic but is embedded into other topics as it can appear on paper 1 and 2. Homework is used to consolidate learning and practise skills required eg. numeracy and extended writing.											

Year 11	The year 11 chemistry curriculum completes the National Curriculum for KS4 and the GCSE content. Students learn through direct instruction, modelling, practical work and independent research. Required practicals are an important part of the exam assessment and allow students to learn through hands on exploration while developing working scientifically skills including planning, recording data, graph skills, analysis and evaluation. Homework is integral to our curriculum and provides a structured opportunity for students to consolidate their learning through the use of online tools eg. Seneca and past paper questions.											
	Term 1	Rates	Term 2	Organic Chemistry	Term 3	Chemical Analysis Using resources	Term 4	Chemical Analysis Using resources	Term 5	Revision and consolidation	Term 6	Year 11 New Knowledge will be complete by 3/31/2025 Year 11 Coursework deadline is
	Rates, Organic Chemistry and Chemical Analysis build on knowledge from the paper 1 content. Thorough understanding is dependent on understanding of fundamental concepts previously taught eg. properties of elements and compounds is required to describe chemical reactions and bonding explanations are needed to describe homologous series and properties in organic chemistry. Do now tasks are used to check recall and understanding of previously taught topics that are then developed within the lesson. Homework is used to consolidate learning and practise skills required eg. numeracy and extended writing. A structured revision programme is used on completion of first teaching to ensure that students have plenty of opportunity to consolidate their understanding through topic reviews, knowledge checks and past paper questions.											

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Key Stage 5

Year 12	<p>The A level Chemistry curriculum builds on knowledge and understanding from GCSE. Induction work always students a taster of a chemistry practical when they study different functional groups and the qualitative tests used to identify them. Students are taught by direct instruction, modelling and practical work. Successful students will be awarded a certificate of practical competence in chemistry demonstrating their ability to use a range of apparatus including a quick fit glass wear and melting point apparatus as well as plan investigations, record accurate data, analyse data and evaluate their method. These are recorded for monitoring in PAG folders. Students also develop skills including research skills, risk assessments and chemical calculations.</p>											
	Term 1	Development of practical skills in chemistry including atoms, ions and compounds and amount of substance	Term 2	Acids and redox, Electrons and bonding, shapes of molecules, Alkenes and Alcohols	Term 3	Periodic Table and energy including Periodicity, Haloalkanes	Term 4	Reactivity trends and Enthalpy, Organic synthesis	Term 5	Reaction rates and equilibrium and Spectroscopy with additional PAG tasks	Term 6	Rates of Reactions, Aromatic Chemistry
	<p>The A level Chemistry curriculum starts with the fundamental concepts atomic structure and calculations of amount of substance that are built from GCSE level and leads to the main Foundations in chemistry topics and Periodic table and energy. Organic content starts from nomenclature representing formulae to using this information to describe reactions using mechanisms and preparation of organic products in practical activities. We foster curiosity in students through practical work and use flipped learning where students are required to read about a topic before a lesson therefore allowing students practice key concepts more during lessons. Do now tasks are used to check recall of prior learning. Homework is integral to the A level chemistry course as we develop students as independent learners who are confident to discuss, question and express their own views.</p>											
Year 13	<p>The A level Chemistry curriculum is completed in year 13, building on knowledge and understanding from GCSE and year 12. Students are taught by direct instruction, modelling and practical work. Revision of prior learning is integrated throughout the course through do now tasks and synoptic links building the full jigsaw of the A level Chemistry specification. Students use lots of resources to aid consolidation of their knowledge including Uplearn, MaChem Guy and booklets of past exam questions on each topic to check their knowledge and recall but also develop exam skills in interpretation and use of correct chemical terminology. Students complete their Practical Activity Group (PAG) folder and demonstrate their competence in the twelve sections within their PAG folders.</p>											
	Term 1	Rates of Reaction, Equilibrium, Carbonyls and Carboxylic acids	Term 2	Enthalpy and Entropy, Amines, Amino acids and polymers, organic synthesis	Term 3	Redox and electrode potentials, chromatography and spectroscopy	Term 4	Transition elements, acids, bases and pH, buffers and neutralisation	Term 5	revision and consolisation	Term 6	Year 13 New Knowledge will be complete by 3/31/2025 Year 13 Coursework deadline is 4/30/2025
	<p>The year 13 A level Chemistry curriculum builds prior learning eg physical chemistry and transition elements build on the basic inorganic chemistry from year 12 and knowledge of functional groups and mechanisms enables students to describe more complicated processes in year 13. We foster curiosity in students through practical work, in year 13 students design their own investigation in order to determine the copper content in brass screws or the iron content in iron tablets for example. Do now tasks are used to check recall of prior learning. Homework is integral to the A level Chemistry course as we develop students as independent learners who are confident to discuss, question and express their own views. many resources including a bank of past exam questions by topic are set to facilitate revision.</p>											

