

**Exam Board:** OCR  
**Qualification:** H432  
**Assessment Information:** 3 exams, 2 x 135 minutes, 1 x 90 minutes

[Link to official specification](#)

**Department Information:**

*Chemistry is a highly successful subject at Furze Platt, regularly attracting around 30 students in each sixth form year group, equivalent to two classes each year. The Department aims to provide a supportive, stimulating, dynamic and academically challenging experience for all students. Over recent years, the Department has consistently achieved high outcomes for students in both the academic work and their practical endorsement.*

**ACHIEVE in the curriculum:**

*The curriculum has been designed with the ACHIEVE values at its core. Lessons have been written to encourage ambition and endurance with the level of challenge included. They have also been written with the intent of being enjoyable and giving opportunities for students to celebrate their own successes. Collaboration and versatility are two key aspects of the scientific method and students will develop these through the completion of their practical endorsement in the subject, something that will require them to plan, complete, and evaluate their own investigations. Students will develop integrity through their completion of independent home learning and through self-marking and peer-marking their work.*

**Curriculum Aims & Intent:**

*The course is designed to develop students' appreciation and understanding of how chemistry and science underpin our everyday lives, with the aspiration of inspiring the next generation of chemists and innovators. Over the full course, students will learn things such as how the different types of chemical bonds and structures influence a material's properties and uses, how the speed of chemical reactions can be controlled to enable greater efficiencies and economical viability, and how chemical analysis enables forensic identification of unknown substances. A significant number of chemistry students continue to study the subject or a related science at university and the aim of the department is to ensure that students have the necessary knowledge, understanding, study skills, and independence to succeed in higher education.*

**Resources:**

*Textbook: Oxford University Press A-Level Chemistry for OCR A textbook (available online via Kerboodle)  
 Revision guide and workbooks: Oxford University Press A-Level Chemistry for OCR A revision guide, Pearson Revise OCR AS/A Level Chemistry Revision Workbook, Illuminate Publishing Mathematics for A Level Chemistry: A Course Companion  
 Websites: Physics and Maths Tutor*

**How we keep parents informed:**

*Year 13 - Progress reports are published 4 times per year, in October, November and February, with a face-to-face parents' evening in December.*

**How parents can help their child:**

*Check Class Charts to keep track of homework that has been set and the dates of upcoming assessments.  
 Encouraging students to develop a habit of continual cyclic revision of prior learning, in which students are always revising prior content along with their current learning. They may wish to use flash cards or mind maps, but should also attempt past paper questions via websites such as Physics and Maths Tutor.  
 Liaise with teachers and attend Parents' evening.  
 Secure copies of the textbooks, revision guides, and workbooks listed above.*

What we study and when:					
Term	Unit, Topic Or Summary Of Work Covered	Knowledge, Understanding & Skills Developed	ACHIEVE / Personal Development Focus	How The Work Is Assessed	Careers Links
1	<b>Module 5 (Chapter 20)</b> <b>Module 6 (Chapters 26, 27 and 29)</b>	<p>The major aims of this unit are for students to understand:</p> <ul style="list-style-type: none"> <li>• The Bronsted-Lowry model of acids, bases, and conjugate acid-base pairs</li> <li>• The acid dissociation constant, <math>K_a</math></li> <li>• How pH values can be calculated for strong acids, weak acids, and strong bases</li> <li>• The assumptions used when calculating pH values</li> <li>• The reactions of the carbonyl bonds within aldehydes and ketones, including the chemical test for these bonds</li> <li>• The reactions and properties of carboxylic acids</li> <li>• The structures and reactions of acid anhydrides, esters, acyl chlorides, amines, amides, and amino acids</li> <li>• The concept of chirality within stereoisomerism</li> <li>• The structure and formation of polyesters and polyamides, and their hydrolysis by acids and bases</li> <li>• The application of TLC and GC as types of chromatography used to separate mixtures</li> <li>• The principles behind NMR and its use of TMS, deuterated solvents, and deuterium oxide</li> <li>• The use of <math>^1\text{H}</math> and <math>^{13}\text{C}</math> NMR to reveal structural information</li> </ul> <p>The use of NMR along with mass spectrometry and infrared spectroscopy to identify the structure of unknown molecules</p>	<p>The ACHIEVE will be present throughout all terms of year 12, most notably in the following ways:</p> <p><b>Ambition</b> will be modelled through the references to the previous science pioneers whose work much of our learning is based upon and demonstrated by students when they seek out additional practice and revision materials to work on.</p> <p><b>Collaboration</b> is required through paired work in both theory and practical activities.</p>	<p>Each chapter taught will have an end of chapter written assessment.</p>	<p>Careers most linked to these topics of the course include pharmaceutical chemist, polymer scientist, environmental chemist, materials engineer, and analytical chemist.</p>
2	<b>Module 5 (Chapter 21)</b> <b>Module 6 (Chapter 28)</b>	<p>The major aims of this unit are for students to understand:</p> <ul style="list-style-type: none"> <li>• What buffers are, their applications in biology, and how they make use of le Chatelier's principle to minimise pH changes</li> <li>• How to calculate the pH of a buffer from its concentrations, or needed to achieve a specific pH</li> <li>• The shape of the different neutralisation curves produced by combinations of strong and weak acids and bases</li> <li>• The difference between the end point and equivalence point of a titration</li> <li>• Why conjugate acid-bases pairs mean that the pH at the equivalence point is not always 7</li> <li>• How to create new carbon-carbon bonds within a molecule</li> </ul>	<p><b>Happiness</b> will be celebrated through the progression of learning, the improvement of grades, and the enjoyment of practical work.</p> <p><b>Integrity</b> will be required when</p>	<p>Each chapter taught will have an end of chapter written assessment.</p>	<p>Careers most linked to these topics of the course include pharmaceutical chemist, synthetic chemist, biochemist, food scientist, and analytical chemist.</p>

		<ul style="list-style-type: none"> <li>Recrystallisation as a method of purifying a solid</li> </ul> <p>How to use synthetic routes to create a target molecule</p>			
3	<b>Module 5 (Chapters 22 and 23)</b>	<p>The major aims of this unit are for students to understand:</p> <ul style="list-style-type: none"> <li>The definitions of new enthalpy changes such as atomisation, hydration, solution, and lattice enthalpy</li> <li>The use of Born-Haber cycles to determine enthalpy changes</li> <li>The factors that effect the magnitude of enthalpy changes</li> <li>The concept of entropy</li> <li>Calculating Free energy and entropy changes</li> <li>How Free energy can be used to predict the feasibility of reactions at different temperatures</li> <li>Redox reactions and how to write redox equations</li> <li>The redox reactions of manganate (VII) ions and of iodine with thiosulfate ions</li> <li>The calculations required within redox titrations</li> <li>Electrode potentials and electromotive force</li> <li>How to use electrode potentials to predict reaction feasibility</li> </ul> <p>The use and application of fuel cells and storage cells</p>	<p>completing home learning, self-marking work, and attending academic support clinics. <b>Endurance</b> will be required as students stay on top of the academic demands of the course and persevere when they find content challenging, asking their teachers for additional guidance at support clinics. <b>Versatility</b> will be demonstrated as they simultaneously build their understanding of the three main threads of chemistry: organic, inorganic, and physical, as well as they develop numerous transferable skills such as analysis, problem solving, and lateral thinking.</p>	<p>Each chapter taught will have an end of chapter written assessment. Content from modules 2, 3, 4, and 6 will be assessed in the January PPE.</p>	<p>Careers most linked to these topics of the course include electrochemical engineer, physical chemist, materials scientist, energy engineer, and analytical chemist.</p>
4	<b>Module 5 (Chapter 24)</b>	<p>The major aims of this unit are for students to understand:</p> <ul style="list-style-type: none"> <li>The difference between d-block elements and transition metals</li> <li>The formation and shapes of transition metal complex ions</li> <li>Stereoisomerism within complex ions</li> <li>The ligand substitution reactions of complex ions, including those within biologically active ions</li> <li>The observations involved in the qualitative analysis of metal ions in solution</li> </ul>		<p>Each chapter taught will have an end of chapter written assessment.</p>	<p>Careers most linked to these topics of the course include pharmaceutical chemist, catalyst developer, biochemist, and materials scientist.</p>
5	<b>Revision</b>	<p>In the final term students will consolidate their understanding for their written examinations. They will refine their timings through the completion of timed PPE, as well as completing analysis work on their past work and that of their peers to identify strengths and weaknesses so that they may focus their revision for maximum impact.</p>		<p>A final round of PPE will be completed during this term.</p>	
6					

\* Practical skills required for the practical endorsement in chemistry are assessed throughout the year through practical activities. There are currently 5 such tasks planned to take place within year 13.