

Exam Board: AQA
Qualification: GCSE Chemistry 8462
Assessment Information: 2 exams, each 105 minutes

[Link to official specification](#)

Department Information:

Physics, Biology and Chemistry are popular and successful subjects at Furze Platt. The Department aims to provide a supportive, stimulating, dynamic and academically challenging experience for all students. Over recent years, the Department has gone from strength to strength, and standards and students' results are high. In Year 10, those students studying the separate chemistry GCSE course will receive 4 hours of chemistry each fortnight. Students sit the AQA exam board for GCSE Science examinations.

ACHIEVE in the curriculum:

The curriculum has been designed with the ACHIEVE values at its core. Lessons have been written to encourage ambition through careers links and highlighting historic role models and pioneers in science. They have also been written with the intent of being enjoyable and giving opportunities for students to celebrate their own successes. Collaboration is a key aspect of the scientific method and students will develop this and their versatility through the use of class practical activities, as well as through paired and group theory work. 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.

Resources:

*Textbooks and revision guides: Oxford University Press GCSE Chemistry textbook (available online via Kerboodle), Oxford University Press GCSE Chemistry revision guide, Oxford University Press GCSE Chemistry workbook (Foundation and higher tier editions available).
 Websites: BBC Bitesize, GCSEPod, Focus eLearning, Physics and Maths Tutor*

How we keep parents informed:

Year 10 - Progress reports are published 4 times per year, in October, November, March and July, with a face-to-face parents' evening in March.

How parents can help their child:

*Regularly check Class Charts to keep track of homework that has been set and make sure that test dates are noted.
 Assist with homework where possible and make sure that students are revising for tests using revision guides, Kerboodle and BBC Bitesize.
 Liaise with teachers and attend Parents' evening.
 Secure copies of the Oxford University Press GCSE Chemistry revision guide and workbook, available through the school via parentmail.
 Encourage students to create and use revision resources for their current and previous learning, such as flash cards, and to source and attempt past paper questions via the Physics and Maths Tutor website.*

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	C5: Chemical changes	<p>The major aims of this unit are for students to:</p> <ul style="list-style-type: none"> Understand the reactivity series and use it predict how different metals will react. Describe the extraction of metals from ores depending on the position of the metal in the reactivity series. Describe how acids react with metals, bases, and carbonates using word and symbol equations. Explain the concept of pH and ionisation with regards the neutralisation reactions of acids and alkalis. Understand the process of making soluble and insoluble salts and how to purify these salts using crystallisation. 	This topic's pioneer is Jabir ibn Hayyan, whose ambition and versatility led him to develop the earliest known systematic classification system of chemical substances.	Mid-topic 6 mark practice question and end of topic assessment.	The ability to design materials reactivity is essential to a career in chemical engineering.
2	C4: Chemical calculations	<p>The major aims of this unit are for students to understand:</p> <ul style="list-style-type: none"> The concept of relative atomic and molecular masses. Balancing chemical equations to reflect the conservation of mass. Yield and atom economy calculations. The titration methodology. Avogadro's law for the volume of gases. 	This topic's pioneer is Gertrude Elion. Her ambition to improve drug design method led to greater collaboration to the fight against AIDS.	Mid-topic 6 mark practice question and end of topic assessment.	These calculations are fundamental for all chemical careers, the example given is dosages in pharmacology.
3	C7: Energy changes	<p>The major aims of this unit are for students to:</p> <ul style="list-style-type: none"> Define and understand exothermic and endothermic reactions. Recalling examples of each. Draw and interpret energy profile diagrams. Explain activation energy and its role in reactions. Calculate the energy changes of a reaction using bond energy data. Describe the use of chemical cells and fuel cells to produce electricity through chemical reactions. 	This topic's pioneer is Akira Yoshino, Nobel prize winning developer of the lithium-ion battery. His ambition led to this highly versatile form of energy storage.	Mid-topic 6 mark practice question and end of topic assessment.	Electrical engineering is the example used in this chapter, though it underpins all areas of the energy network.
4	C8: Rates and equilibrium	<p>The major aims of this unit are for students to:</p> <ul style="list-style-type: none"> Understand the concept of reaction rates and how they are measured. Identify and explain the factors affecting the rate of reactions, such as temperature, concentration, surface area, and catalysts. 	This topic's pioneer is Ahmed Zewail. His ambition for greater detail in chemistry led to his Nobel prize	Mid-topic 6 mark practice exam question and end of topic assessment.	All industries require some ability to control the speed of reactions. Measure

		<ul style="list-style-type: none"> Describe the collision theory and its role in reaction rates. Interpret and analyse data from experiments related to reaction rates. Define the term reversible reactions and dynamic equilibrium 	for measuring chemical reactions on a femtosecond scale.		speed of reactions also enables the ageing of artifacts in archaeology.
5	C8: Rates and equilibrium				
6	C10: Organic reactions C11: Polymers	<p>The major aims for C10: Organic reactions are for students to:</p> <ul style="list-style-type: none"> Name organic molecules based on their structural formula Recognize and describe different types of organic reactions, such as addition, substitution, and combustion. Identify the reactants and products of significant organic reactions. Apply knowledge of organic reactions to synthesize specific compounds. Evaluate the importance and applications of organic reactions in industry and daily life. <p>The major aims for C11: Polymers are for students to understand:</p> <ul style="list-style-type: none"> What polymers and monomers are. What addition polymerization is. What condensation polymerization is. What common natural polymers there are. What DNA is and its biological function. 	<p>C10's pioneer is Alice Ball, the ambition of this pioneering African American scientist led her to develop the most effective leprosy treatment of the early 20th Century.</p> <p>C11's pioneer's are Emmanuelle Charpentier & Jennifer Doudna, whose collaboration enable them to win the 2020 Nobel prize for their work on editing DNA.</p>	These topics are assessed in a joint end-of topic test. They will be assessed again within their Year 11 PPE.	<p>C10 links to careers associated with medicine such as dentistry and pharmacology.</p> <p>C11 links to careers associated with biochemistry such as food scientist and agrochemist.</p>