Science Department	Key Stage 4 Curriculum Plan	Year 10 (Combined Chemistry GCSE)

Exam Board:	*AQA*
Qualification:	*GCSE Combined Science: Trilogy 8464*
Assessment Information:	*6 exams (2 biology, 2 chemistry, and 2 physics), each 75 minutes*
Link to official specification:	*https://www.aqa.org.uk/subjects/science/gcse/combined-science-trilogy-8464/specification-at-a-glance*

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 Combined Science Trilogy course will receive 9 hours of science each fortnight, 3 of which will be chemistry lessons. 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 for Combined Science (Trilogy) textbook (available online via Kerboodle), Oxford University Press GCSE Chemistry for Combined Science (Trilogy) revision guide, Oxford University Press GCSE Chemistry for Combined Science (Trilogy) 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 for Combined Science (Trilogy) 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	**C11: The Earth's atmosphere**	The major aims of this unit are for students to understand: • The composition of the earth's current and early atmosphere • The evolution of the earth's atmosphere • The greenhouse effect • Human impact on the atmosphere • Common atmospheric pollutants, their causes and impacts	This topic's pioneer is Inge Lehmann, whose versatility led her to use her knowledge of physics and waves to discover the Earth's solid inner core.	Mid-topic 6 mark practice exam question and end of topic assessment.	The ability to understand and study the atmosphere underpins environmental science.
2	**C10: Chemical analysis**	The major aims of this unit are for students to understand: • The concept of pure substances and mixtures. • Chromatography and how to perform it. The tests for hydrogen, oxygen, carbon dioxide, and chlorine gases.	This topic's pioneers are Ada Yonarth & Venki Ramakrishnan whose collaboration won them the 2009 Nobel prize for the structure and function of ribosomes.	Mid-topic 6 mark practice question and end of topic written assessment.	The ability to identify substances is crucial to forensic science and quality assurance.
3	**C7: Energy changes**	The major aims of this unit are for students to: • 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.	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 method 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**	The major aims of this unit are for students to: • 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. • Describe the collision theory and its role in reaction rates. • Interpret and analyse data from experiments related to reaction rates.	This topic's pioneer is Ahmed Zewail. His ambition for greater detail in chemistry led to his Nobel prize for measuring chemical reactions on a femtosecond scale.	Mid-topic 6 mark practice exam question and end of topic assessment.	All industries require some ability to control the speed of reactions. Measure speed of reactions also enables the ageing of artifacts in archaeology.
5	**C8: Rates and equilibrium**				

		• Define the term reversible reactions and dynamic equilibrium			
6	**C4: Chemical calculations**	The major aims of this unit are for students to understand: • The concept of relative atomic and molecular masses. • Balancing chemical equations to reflect the conservation of mass. • The ability to predict the mass of reactants needed or product formed for a given chemical reaction using a balanced symbol equation.	This topic's pioneer is Gertrude Elion. Her ambition to improve drug design method led to greater collaboration to the fight against AIDS.	End of topic written assessment.	These calculations are fundamental for all chemical careers, the example given is dosages in pharmacology.