Y12 AQA Chemistry- Sixth form at Yate Academy

A-Level Chemistry

Welcome to A-level chemistry. This a very challenging but equally rewarding course. You will build on your knowledge from GCSE but expand that knowledge in a myriad of ways. You will become expert at applying mathematical skills to chemical processes. You will learn how organic chemistry can be used to produce an almost infinite number of biological molecules and you will delve into the world of inorganic chemistry that contributes to the efficiency and profitability of so many industrial processes. I hope you enjoy the subject as much I have done throughout my life.

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Understanding the course

Specification	AQA Chemistry A Level http://www.aqa.org.uk/subjects/science/as-and-a-level/chemistry-7404-7405/specification-at-a-glance
Exams	All exams are at the end of Y13 Paper 1 Relevant physical chemistry topics (sections 3.1.1 to 3.1.4, 3.1.6 to 3.1.8 and 3.1.10 to 3.1.12) Inorganic chemistry (section 3.2) Relevant practical skills written exam: 2 hours 105 marks 35% of A-level (105 marks of short and long answer questions) Paper 2 Relevant physical chemistry topics (sections 3.1.2 to 3.1.6 and 3.1.9) Organic chemistry (section 3.3) Relevant practical skills written exam: 2 hours 105 marks 35% of A-level (105 marks of short and long answer questions) Paper 3 Any content Any practical skills written exam: 2 hours 90 marks 30% of A-level (40 marks of questions on practical techniques and data analysis 20 marks of questions testing across the specification 30 marks of multiple choice questions) 12 required practicals to be carried out, written up and analysed

Course requirements

Please come prepared to your first lesson with the following materials:

- Pencil case with black pens, pencils, ruler, rubber
- A scientific calculator
- 2 lever arch folders
- 1 blank, lined exercise book for independent study
- A diary or planner

Summer bridging work

To ensure you start the year as successfully as possible, please come to your first lesson having completed the following tasks.

Produce a mini-writeup that covers your answers to the three key questions above

Task	Time expected	Complete
Consolidate At GCSE you have studied the evolution of the Model of the Atom, from Dalton to Chadwick. At A-level there is an expectation that you understand this development. TASK: **Describe the evolution of the Model of the Atom, from Dalton to Chadwick.** History of the Atomic Model https://www.youtube.com/watch?v=NSAgLvKOPLQ	1 hour	
Apply At GCSE you calculated the relative atomic mass of an element from the masses and relative abundances of its isotopes. This data comes from Time of Flight Spectroscopy. TASK: **What is Time of Flight Spectroscopy; what does it do and how does it work.** Time of Flight Spectrometry https://www.youtube.com/watch?v=E6OCZeSb0fs	1 hour	
Extend At GCSE you learned that simple covalent molecules have weak intermolecular forces. Intermolecular force is a general term and you are expected to be able to describe different types. TASK: **What are van der Waals forces? What are hydrogen bonds? How do their strengths compare to each other and to covalent bonds?** Intermolecular forces https://www.youtube.com/watch?v=6EePsoVMO_4	1 hour	

SOMETHING TO READ: These are proper books only read them if you can borrow them from a library or get them very cheap second hand.	Molecules at an Exhibition - John Emsley Brief History of Nearly Everything - Bill Bryson Stuff Matters – Mark Miodownik Periodic Tales – Hugh Aldersey-Williams Napoleon's Buttons: How 17 Molecules Changed History - Penny Le Couteur Jay Burreson

SOMETHING TO READ:	Using Plastics in the Body https://www.stem.org.uk/resources/elibrary/resource/382317/using-plastics-body This Catalyst article looks at how scientists are learning to use polymers for many medical applications, including implants and bone repairs Microplastics and the Oceans https://www.stem.org.uk/system/files/elibraryresources/2016/11/Catalyst27_1_microplastics_%20and_the_oceans.pdf This Catalyst article looks at microplastics. Microplastics are tiny particles of polymer used in many products. They have been found to be an environmental pollutant especially in oceans. Topic 3: Diamond: More than just a gemstone https://www.stem.org.uk/system/files/elibraryresources/2017/02/Diamond%20more%20than%20just%20a%20gemstone.pdf This Catalyst article looks at diamond and graphite which are allotropes of carbon. Their properties, which depend on the bonding between the carbon atoms, are also examined.
SOMETHING TO READ:	**Just how small is an atom?** https://www.ted.com/talks/just_how_small_is_an_atom Just how small are atoms? Really, really, really small. This fast-paced animation from TED-Ed uses metaphors (imagine a blueberry the size of a football stadium!) to give a visceral sense of just how small atoms are. **Battling Bad Science** https://www.ted.com/talks/ben_goldacre_battling_bad_science#t-44279 Every day there are news reports of new health advice, but how can you know if they're right? Doctor and epidemiologist Ben Goldacre shows us, at high speed, the ways evidence can be distorted, from the blindingly obvious nutrition claims to the very subtle tricks of the pharmaceutical