SUMMER WORK CHEMISTRY

Head of Department
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Exam Board
AQA

Specification

7404/7405

COURSE DETAILS

Examination
The A-Level is examined as a whole at end of Y13. There is no coursework.

Year 1 Chemistry
Physical chemistry: Atomic structure, Amount of substance, Bonding, Energetics, Kinetics, Chemical equilibria, Le Chatelier's principle and Kc, oxidation, reduction and redox equations.

Inorganic chemistry: Groups 2 the alkaline earth metals, Group 7 the halogens, periodicity.

Organic chemistry: Introduction to organic chemistry, Alkanes, Halogenoalkanes, Alkenes, Alcohols, Organic analysis.

In Year 12 students complete 6 Required practicals. These will be assessed in the final exams.

Year 2 Chemistry
In addition to the above to the following topics will be studied:
Physical chemistry: Thermodynamics, Acids and Bases, Electrode potentials and electrochemical cells, Rate equations, Equilibrium constant Kp for homogeneous systems.

Inorganic chemistry: Transition metals, Reactions of ions in aqueous solution, Properties of Period 3 elements and their oxides.

Organic chemistry: Optical isomerism, Aldehydes and ketones, Carboxylic acids and derivatives, Aromatic chemistry, Amines, Polymers, Amino acids, proteins and DNA, Nuclear magnetic resonance spectroscopy, Chromatography, Organic synthesis.

In Year 13 students complete a further 6 Required practical's. These will be assessed in the exams and provide the evidence for the Practical Endorsement.

SUMMER WORK FOR INTRODUCTION TO YEAR 12

TASK	TOPIC	
1.	Atomic structure	**Research and write a short report about:** The isotopes of carbon and carbon-14 dating. **Revise and create a summary table about:**
2.	Bonding	The three types of bonding and three types of interactions (or forces) between molecules **Research and create a summary table or factsheet (to include functional groups) on:**
3.	Organic chemistry	The following homogenous series or "families" of molecules: alkanes, alkenes, halogenoalkanes, alcohols, aldehydes, ketones, carboxylic acids. **Create a voice-over PowerPoint presentation on:** Any area of science, technology or maths that really interests you. Here is a video of a very clever young lady explaining how to help you make your narrated PowerPoint: https://www.youtube.com/watch?v=Y5dgwwa5XRA
4.	General	**Write a short report about:** Why you have chosen to study chemistry. Do you have any career aspirations or areas of interest?
5.	General	What other A-levels and work experience are you doing alongside chemistry? This won't be shared with anyone else but may help you form the start of your personal statement whilst offering you a chance to reflect on your choices.

HOW WILL I BE ASSESSED?

Exam Papers Y13	% of A Level	**Y13 is assessed through three papers, including at least 20% assessment of mathematical skills and 15% assessment of practical skills**
Paper 1: Paper 1: Relevant Physical chemistry topics, Inorganic chemistry and relevant practical skills. 2 hours – 105 marks	35%	This paper is made up of: 105 marks with a mixture of short and long answer questions.
Paper 2: Relevant Physical chemistry topics, Organic chemistry and relevant practical skills. 2 hours – 105 marks	35%	This paper is made up of: 105 marks with a mixture of short and long answer questions.
Paper 3: Any content, any practical skills 2 hours – 90 marks	30%	40 marks of questions on practical techniques and data analysis, 20 marks of questions testing across the specification and 30 marks of multiple choice questions.

ADVISED READING TO PREPARE FOR COURSE

I recommend the following books; both are available on Amazon for around £5. These will help bridge the gap between GCSE and A-Level, and boost your confidence before the course begins.
Summer Start for A-Level Chemistry: Over 250 Questions and answers Paperback – 11 Jun 2017 by Primrose Kitten (Author)
Head Start to A-level Chemistry (CGP A-Level Chemistry) Paperback – 2 Mar 2015 by CGP Books

WIDER READING

Magazines and Journals:
Chemistry Review
The Mole
Nature
Scientific American
British Medical Journal (www.bmj.com)
New Scientist (available in the library or see www.newsscientist.com)

Books:
Why Chemical Reactions Happen, James Keeler
The Disappearing Spoon...and other true tales from the Periodic Table by Sam Kean
Napoleon's Buttons: How 17 Molecules Changed History by Penny Le Couteur, Jay Burreson
Made to Measure: New Materials for the 21st Century by Philip Ball
The Pleasure of Finding Things Out, Richard Feynman
Periodic Tales, Hugh Aldersey-Williams
Uncle Tungsten, Oliver Sachs
The Shocking History of Phosphorus: A Biography of the Devil's Element, John Emsley