Chemistry

Brief Overview of the Course
(for further details, please see our Sixth Form Prospectus https://strschool.co.uk/sixthform/prospectus)

Exam Board: OCR A

Specification web link: https://www.ocr.org.uk/qualifications/as-and-a-level/chemistry-a-h032-h432-from-2015/

Topics Covered:
Year 12

Teacher 1		
Module	Chapter	Topic
2	2	Atoms, ions and compounds
	3	Amount of substance
	4	Acids & redox
4	11	Basic concepts of organic
	12	Alkanes
	13	Alkenes
	14	Alcohols
	15	Haloalkanes
	16	Organic synthesis
	17	Spectroscopy
Year 12 Exam		
6	25	Aromatic chemistry

Teacher 2		
Module	Chapter	Topic
2	5	Electrons & bonding
	6	Shapes of molecules and intermolecular forces
3	7	Periodicity
	8	Reactivity trends
	9	Enthalpy
	10	Reaction rates and equilibrium
Year 12 Exam		
5	19	Equilibrium

Topics Covered:
Year 13

Teacher 1		
Module	Chapter	Topic
6	25	Aromatic chemistry
	26	Carbonyls and carboxylic acids
	27	Amines, amino acids and proteins
	28	Organic synthesis
	29	Chromatography and spectroscopy

Teacher 2		
Module	Chapter	Topic
5	18	Rates of reaction
	23	Redox
	24	Transition elements
	20	Acids, bases and pH
	21	Buffers and neutralisation
	22	Enthalpy and entropy

Please follow the instructions in the boxes below. The aim of these activities is to introduce you to the study of this subject at Advanced Level by:

- reinforcing your core knowledge and understanding of your chosen subject;
- encouraging you to think more deeply about your subject;
- supporting you to develop a deeper understanding of and appreciation for your subject as an academic discipline.

Core Knowledge and Understanding Task

Whether you have studied this subject before or not, there are elements of core knowledge and understanding that you must have prior to starting the A Level course.

Please provide a written answer to each of the following questions. There are links below to help you discover the answers.

The embedded links below contain the welcome booklet for A Level Chemistry. This will provide you with an overview of the course, the modules, the assessments, and the crossover between the content you have studied at GCSE and the A level content.

Open the embedded link, and complete the GCSE Revision questions in the Welcome booklet. These should be brought to your Chemistry lessons at the start of Year 12. A mark scheme is also attached.

Welcome Booklet for A Level Chemistry

Yr 12 GCSE Answers

The document below provides you with a further series of activities that cover content that you have seen at GCSE, that is covered again in Year 12.
Open the link, there are notes pages to revise the topics, then answer the questions at different points. A mark scheme is also attached.

Bridging the Gap

Bridging the Gap Answers

Links to support:

http://chemguide.co.uk/
http://www.docbrown.info/
https://www.physicsandmathstutor.com/chemistry-revision/
http://www.a-levelchemistry.co.uk/
https://www.freesciencelessons.co.uk/a-level-videos/a-level-chemistry/

The Bigger Picture Task

As well as reinforcing your core knowledge and understanding, our A Level curriculum will expose you to what are called the 'established orthodoxies' within each subject, which can include key research, important people who have contributed to the field, as well as broader methods and theories that exist within the subject.

Prior to starting the A Level course, it is important that you are aware of the following themes and topics so that you can develop an understanding of how they contribute to some of the established orthodoxies within Chemistry.

How has the current model of the atom developed? Many scientists contributed to the sequence of gathering knowledge about the atom, but some made particularly important discoveries – they include:

- Joseph J. Thomson (key discovery 1897–1899)
- Hans Geiger, Ernest Marsden and Ernest Rutherford (key discovery 1909)
- Henry Moseley (key discovery 1913)
- James Chadwick (key discovery 1932).

1 Research the contribution of these scientists

2 In addition, research the evidence for electron shells that comes from ionisation energies and from atomic emission spectra.

3 You should cover the following points:

- when the work was carried out
- what the scientists did
- what they found out
- what conclusions they drew from their results.

Links to support:

https://www.compoundchem.com/2016/10/13/atomicmodels/
https://www.chemistrygcse.co.uk/1%20-%20Core%20Chemistry/Atoms/historyoftheatom.html
https://azchemistry.com/development-atomic-theory
https://chem.libretexts.org/Under_Construction/Purgatory/Essential_Chemistry_(Curriki)/Unit_1%3A_Atomic_and_Molecular_Structure/1.2%3A_Atomic_Models

Recommended Reading List and the Department's 'Top Pick' Title

As an A Level student, we want you to value academic endeavour (scholarship) and develop a thirst for learning in your chosen subject. Our curriculum will help you to understand that scholarship is not just about learning facts, it is about nurturing powerful knowledge.

We will help you with this by directing you to resources that will not only deepen your knowledge and strengthen your understanding of the A Level content, but also broaden it beyond that of the exam board specification.

Please find the full subject reading list alongside our prospectus on the Sixth Form section of the STRS website here: https://strschool.co.uk/sixthform/prospectus. We would encourage you to explore as many of these titles as you can.

From the published reading list, the most highly recommended book(s)/article(s) to read before September are:

Head of Department's 'top pick' book:

Calculations in AS/A Level Chemistry – Jim Clark
(Use this alongside the website – www.chemguide.co.uk)

Once you have read the recommended book/chapter/article, consider the following:

- What did you learn from the reading?
- Have you identified any patterns or made any connections?
- What unanswered questions has the reading left you with?
- Did you agree entirely with what you have read? If so, why? If not, why not?
- Are there any themes or topics that you would like to explore further?

Other Recommended Activities

Please find below a selection of suggested additional activities that the department feel it would be useful for you to explore prior to starting the A Level course in September.

Any of these links would give an insight into Chemistry in everyday life.

https://www.ted.com/talks/jakob_magolan_a_crash_course_in_organic_chemistry
Will give a useful introduction to the sort of organic chemistry you should be familiar with prior to A level study.
Some background reading will help you see where chemistry is relevant to our everyday lives. Try these links:

www.chemistryworld.com
https://www.york.ac.uk/chemistry/schools/chemrev/
https://www.newscientist.com/
https://edu.rsc.org/student