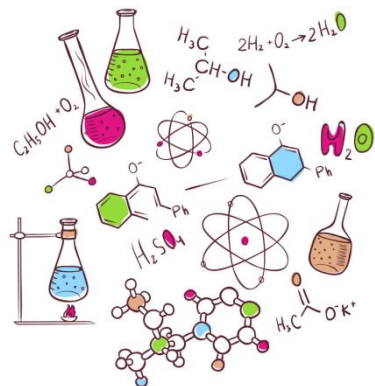
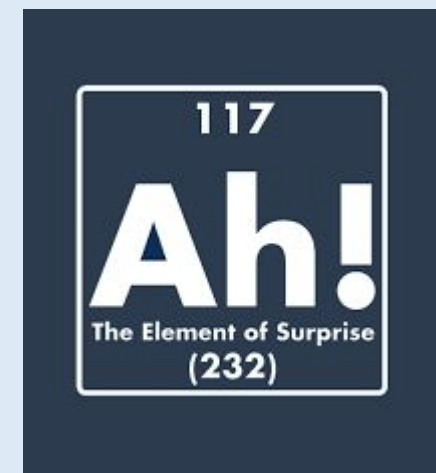


# Welcome to A-level Chemistry



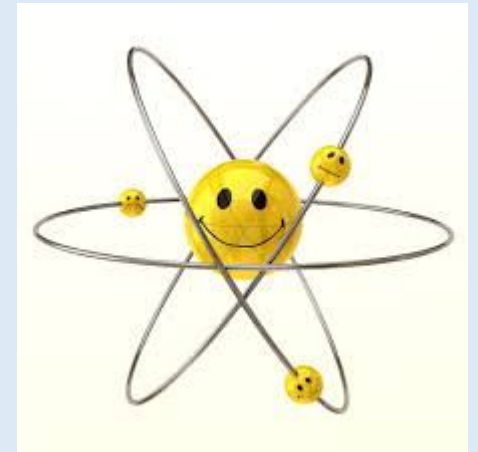
Mr Howard  
Head of Chemistry KS5



# Introduction

A-level chemistry is an excellent subject to study for many reasons.

- **Interesting**, diverse and is evident in everyday life
- Develops a wide range of **skills**
  - Analysis and problem-solving.
  - Time management and organisation.
  - Written and Oral communication.
  - Monitoring/maintaining records and data.
  - Team work and Independent thinking
  - Research and presentation
- **Opens doors** to a variety of careers/courses
  - 'Facilitating subject'
  - Needed for Medical and Veterinary courses (University)



# Introduction continued

But:

- Chemistry is a **demanding** A-level  
(often ranked in the top 5 subjects for A-level)
- GCSE Chemistry to A-level, will be one of the **biggest leaps** in your educational life.



# OCR A course structure & exams

Content Overview	Assessment Overview	
<p>Content is split into six teaching modules:</p> <ul style="list-style-type: none"><li>• Module 1 – Development of practical skills in chemistry</li><li>• Module 2 – Foundations in chemistry</li><li>• Module 3 – Periodic table and energy</li><li>• Module 4 – Core organic chemistry</li><li>• Module 5 – Physical chemistry and transition elements</li><li>• Module 6 – Organic chemistry and analysis</li></ul> <p>Component 01 assesses content from modules 1, 2, 3 and 5.</p> <p>Component 02 assesses content from modules 1, 2, 4 and 6.</p> <p>Component 03 assesses content from all modules (1 to 6).</p>	<p>Periodic table, elements and physical chemistry (01)</p> <p>100 marks</p> <p>2 hours 15 minutes written paper</p>	<p><b>37%</b></p> <p>of total A level</p>
	<p>Synthesis and analytical techniques (02)</p> <p>100 marks</p> <p>2 hours 15 minutes written paper</p>	<p><b>37%</b></p> <p>of total A level</p>
	<p>Unified chemistry (03)</p> <p>70 marks</p> <p>1 hour 30 minutes written paper</p>	<p><b>26%</b></p> <p>of total A level</p>
	<p>Practical Endorsement in chemistry (04)</p> <p>(non exam assessment)</p>	<p><b>Reported separately</b></p> <p>(see Section 5)</p>

# Topic Areas

- Atomic structure
- Amount of substance
- Bonding
- Energetics
- Kinetics
- Chemical equilibria, Le Chatelier's principle and  $K_c$
- Oxidation, reduction and redox equations
- Thermodynamics
- Rate equations
- Equilibrium constant  $K_p$  for homogeneous systems
- Electrode potentials and electrochemical cells
- Acids and bases
- Inorganic chemistry
- Periodicity
- Transition metals
- Reactions of ions in aqueous solution
- Introduction to organic chemistry
- Alkanes
- Halogenoalkanes
- Alkenes
- Alcohols
- Optical isomerism
- Aldehydes and ketones
- Carboxylic acids and derivatives
- Aromatic chemistry
- Amines
- Polymers
- Amino acids, proteins and DNA
- Organic synthesis
- NMR spectroscopy
- Chromatography

# Assessed Practicals (PAG's)

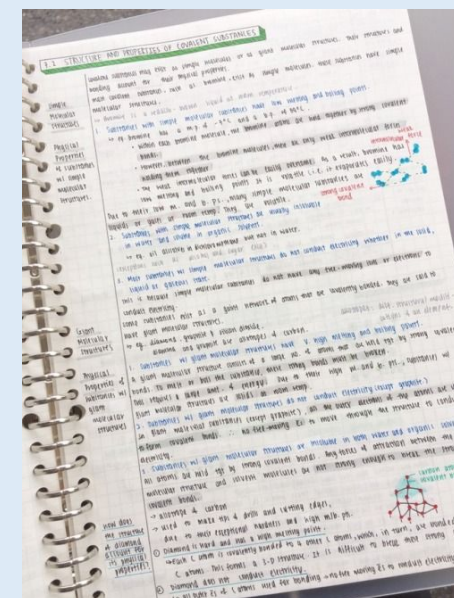
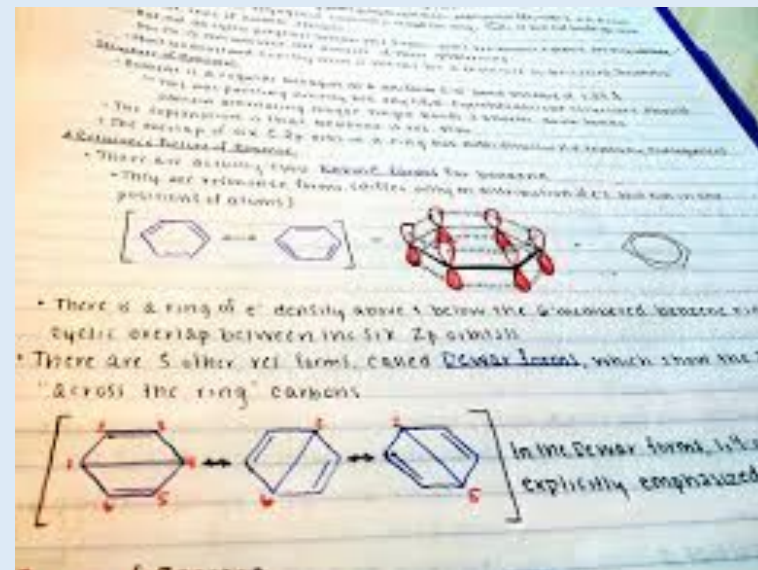
- These test your practical skills on a number of key experiments
- Lab books to record work
- Develop skills and techniques
- Runs throughout the course
- 12 key practicals (at least)





# Expectations

- Attendance needs to be good
  - Catching up on missed work is essential
- Attentive and focussed in lessons
- Organised
  - **Folder** and notes
    - Dates, subject, teacher
    - **Clear** and tidy (doesn't have to be pretty)
    - **Filed**
  - Punctuality
- Homework (Essential practise)



# Assessment

- Regular homework
  - Essential practise which identify strengths and weaknesses
- PLC's (Personal Learning Checklists)
  - Key ideas and concepts
  - RAG rated to track learning
- End of topic tests
  - Past exam questions
  - Assessed against your target grades
  - Feedback given to work on weaknesses

Oxford A Level Sciences  
OCR Chemistry A

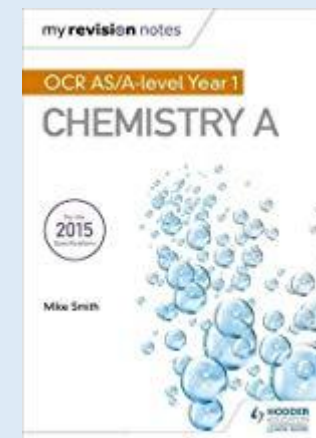
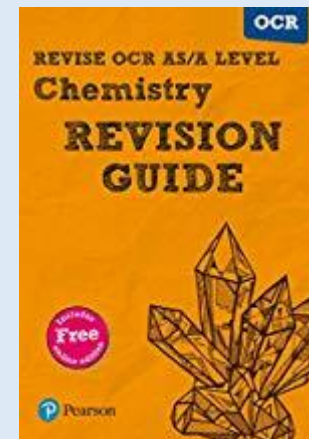
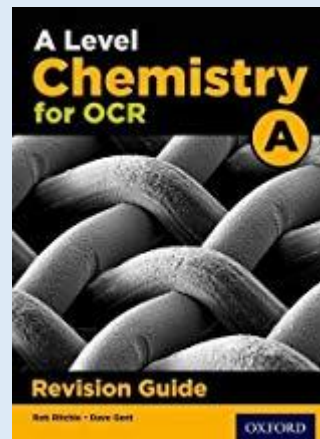
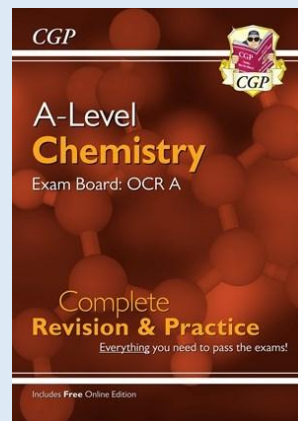
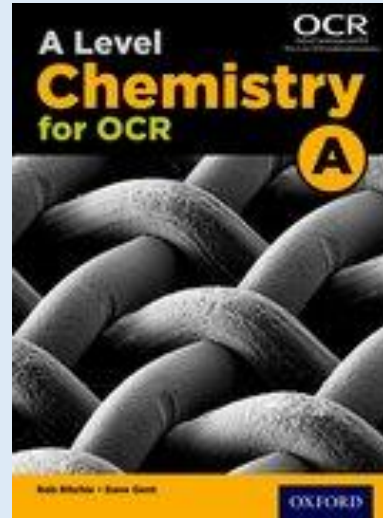
Atoms, ions, and compounds

Specification reference	Checklist questions	
2.1.1a	Can you describe isotopes as atoms of the same element with different numbers of neutrons and different masses?	<input type="checkbox"/>
2.1.1 b	Can you describe atomic structure in terms of the numbers of protons, neutrons and electrons for atoms and ions, given the atomic number, mass number and any ionic charge?	<input type="checkbox"/>
2.1.1 c	Can you explain the terms <i>relative isotopic mass</i> (mass compared with 1/12th mass of carbon-12) and <i>relative atomic mass</i> (weighted mean mass compared with 1/12th mass of carbon-12), based on the mass of a <sup>12</sup> C atom, the standard for atomic masses?	<input type="checkbox"/>
2.1.1 d	Can you use mass spectrometry?	<input type="checkbox"/>
2.1.1 d i	Can you use mass spectrometry to determine relative isotopic masses and relative abundances of the isotope?	<input type="checkbox"/>
2.1.1 d ii	Can you use mass spectrometry to calculate the relative atomic mass of an element from the relative abundances of its isotopes?	<input type="checkbox"/>
2.1.2 a	Can you write formulae of ionic compounds from ionic charges?	<input type="checkbox"/>
2.1.2 a i	Can you predict ionic charge from the position of an element in the periodic table?	<input type="checkbox"/>
2.1.2 a ii	Can you recall the names and formulae for the following ions: NO <sub>2</sub> <sup>-</sup> , CO <sub>3</sub> <sup>2-</sup> , SO <sub>4</sub> <sup>2-</sup> , OH <sup>-</sup> , NH <sub>4</sub> <sup>+</sup> , Zn <sup>2+</sup> , and Ag <sup>+</sup> ?	<input type="checkbox"/>
2.1.2 b	Can you construct balanced chemical equations (including ionic equations), including state symbols, for reactions studied and for unfamiliar reactions given appropriate information?	<input type="checkbox"/>



# Resources

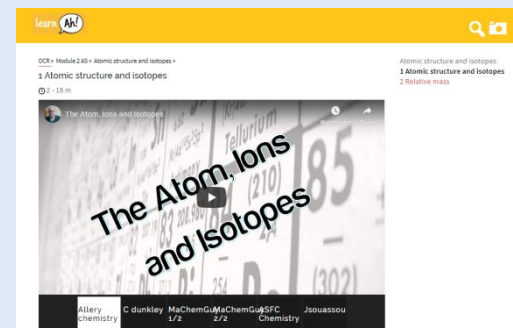
- Textbook
  - Oxford
- Revision guide
  - CGP
  - Oxford
  - Pearson
  - Hodder



# Resources continued

## • Websites

- Chemguide ([www.chemguide.co.uk](http://www.chemguide.co.uk))
- Learnah! (<https://learnah.org/>)
- S-cool ([www.s-cool.co.uk](http://www.s-cool.co.uk))
- A-level Chemistry ([www.a-levelchemistry.co.uk](http://www.a-levelchemistry.co.uk))
- Snaprevise (<https://snaprevise.co.uk>)
- A-Level Chemistry Revision Notes ([www.a-levelnotes.co.uk](http://www.a-levelnotes.co.uk))
- Physics and Maths tutor (<https://www.physicsandmathstutor.com/>)
- Studymind (<https://studymind.co.uk/resource/ocr-a-level-chemistry/>)




**chemguide**  
Helping you to understand Chemistry

MAIN MENU

<a href="#">Keyword searching</a>	I have removed the Google search box because it was giving problems. Follow this link to find out how you can still search Chemguide using keywords.
<a href="#">CIE syllabus support</a>	Support pages for CIE (Cambridge International) A level students and teachers.
<a href="#">Atomic Structure and Bonding</a>	Covers basic atomic properties (electronic structures, ionisation energies, electron affinities, atomic and ionic radii, and the atomic hydrogen emission spectrum), bonding (including intermolecular bonding) and structures (ionic, molecular, giant covalent and metallic).
<a href="#">Inorganic</a>	Includes essential ideas about redox reactions and

A-Level Chemistry

HOME SPECIFICATIONS CONTACT BOOKS VIDEOS (NEW)

 SNAPREVISE

**S-cool**  
the revision website



# Support

- Be prepared to ask questions (in and out of lessons)
- You can always email if you have an issue or a problem
- Work on problems together



support

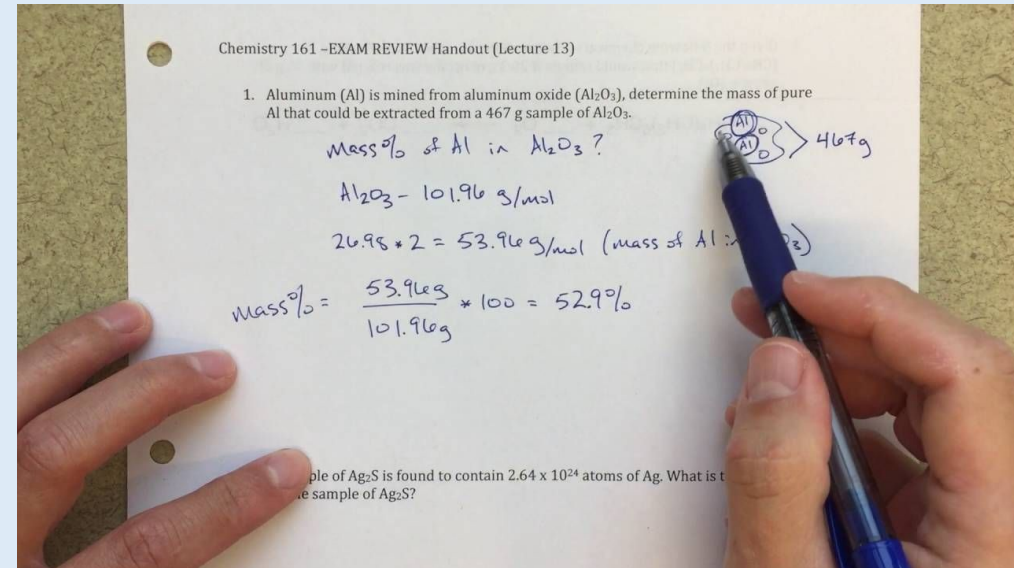
# Tips for success

- No substitute for **hard work** and **commitment**
  - Consistency is the key – not a last dash cramming session
  - Both years are important (Not only Yr13)
- **Read around the subject** (textbooks and Internet)
  - Before a lesson read the section of the textbook to get a head
  - After the lesson file your work and re-read it through (do you understand what it says?)
- **Questions** - When practising questions/re-reading material, make a note of these (post it, lists)



# Tips for success

- Practise, practise, practise!
  - Exam questions
  - Study the mark schemes (Exam technique)
- Get comfortable with the Maths
  - Ask for help if this is an area you struggle



- GCSE – Learn the material      A-Level – Understand and learn
- Regular revisiting/testing of your knowledge is essential



# Tips for success

- Do not give up and Persevere!!
- You will not get every topic first time



**"Don't be upset by  
the result you  
didn't get  
with the work  
you didn't do."**



# Any questions?

Email: <mailto:mhoward@queenelizabeths.com>

Or

Come and see me!