



# CHEMISTRY

## Y12 Chemistry Bridging Work 2022-23

The tasks and reading below are designed to support you in your transition from GCSE Chemistry to A-Level Chemistry-

### Task 1 – GCSE Chemistry Background reading

Use the information below to guide your revision around key topics from GCSE to ensure your knowledge and skills are secure for you to be successful as you start at A Level Chemistry.

The [AQA GCSE specification](#) and [A-Level specifications](#) are a useful starting point to help your consolidation of GCSE and planning for a smooth transition onto your A-Level. The following table details areas to focus your consolidation of GCSE work. In preparation for your baseline test in the first few weeks of term the key areas are- 4.1 Atomic structure, 4.2 Bonding and 4.3 Quantitative Chemistry.

.Note: Click the main topic link to go to the free science lessons playlist for that unit....

Revision topics AQA GCSE Chemistry	Topics not covered in AQA trilogy(combined) but would help transition to A-Level.
<p><b>4.1 Atomic structure and the periodic table</b>            Elements and compounds- <a href="#">Elements, compounds and mixtures - BBC Bitesize</a>            Structure of the atom – <a href="#">Structure of the atom - BBC Bitesize</a>            Electronic structure - <a href="#">Electronic structure - AQA - BBC Bitesize</a></p>	<p>Properties of transition metals- <a href="#">Physical properties of transition elements AQA - BBC Bitesize</a></p>
<p><b>4.2 Bonding, structure, and the properties of matter</b>            Ionic bonding - <a href="#">Ionic bonding - AQA- BBC Bitesize</a>            Covalent bonding - <a href="#">Covalent bonds - Small molecules - AQA - BBC Bitesize</a>            Giant covalent structures - <a href="#">Substances with many covalent bonds - Giant covalent molecules - AQA - BBC Bitesize</a>            Metallic structures- <a href="#">Structure and bonding in metals - Metals and alloys - AQA -BBC Bitesize</a>            Polymers- <a href="#">Polymers - AQA - BBC Bitesize</a></p>	<p>Nanoparticles- <a href="#">Nanoscience - AQA (bbc.co.uk)</a></p>
<p><b>4.3 Quantitative chemistry</b>            Calculating Mr, moles and reacting masses- <a href="#">Calculations in chemistry - AQA (bbc.co.uk)</a>            -</p>	<p>Percentage yield, Atom economy and gas volumes - <a href="#">Atom economy, percentage yield and gas calculations - AQA (bbc.co.uk)</a>            Using concentrations of solutions - <a href="#">Concentration of solutions - AQA - BBC Bitesize</a></p>

<p><b>4.4 Chemical Changes</b>  Redox- <a href="#">Reactions of metals and REDOX - AQA - BBC Bitesize</a>  Reactions of acids and acid strength - <a href="#">Acidic and alkaline solutions - AQA - BBC Bitesize</a>  Electrolysis- <a href="#">Electrolysis - AQA (bbc.co.uk)</a></p>	<p>Titration- <a href="#">Titrations - AQA (bbc.co.uk)</a></p>
<p><b>4.5 Energy Changes</b>  Exo and endothermic reactions- <a href="#">Exothermic and endothermic reactions - AQA (bbc.co.uk)</a>  Energy profiles- <a href="#">Reaction profiles - AQA - BBC Bitesize</a></p>	<p>Chemical cells and fuel cells- <a href="#">Chemical cells - AQA (bbc.co.uk)</a></p>
<p><b>4.6 Rate and extent of Chemical Change</b>  Calculating rates- <a href="#">Rates of reaction - AQA (bbc.co.uk)</a>  Collision theory- <a href="#">Collision theory - BBC Bitesize</a>  Reversible reactions- <a href="#">Reversible reactions - AQA (bbc.co.uk)</a></p>	
<p><b>4.7 Organic Chemistry</b>  Alkanes- <a href="#">Alkanes - AQA - BBC Bitesize</a>  Alkenes- <a href="#">Alkenes - AQA - BBC Bitesize</a></p>	<p>Reactions of alcohols and alkenes- <a href="#">Alcohols - AQA - BBC Bitesize</a>  Polymerisation- <a href="#">Addition polymerisation - AQA - BBC Bitesize</a>  Biochemistry- <a href="#">Biological polymers - AQA - BBC Bitesize</a></p>
<p><b>4.8 Chemical Analysis</b>  Chromatography- <a href="#">Chromatography - BBC Bitesize</a></p>	<p>Ion tests- <a href="#">Testing for ions and gases - BBC Bitesize</a></p>
<p><b>Essential skills for successful start to A-Level Chemistry-</b>  Working out formulae- <a href="#">Ionic formulae - BBC Bitesize</a>  Calculating Mr- <a href="#">Relative formula mass - - BBC Bitesize</a>  Balancing equations- <a href="#">Balancing equations - - BBC Bitesize</a>  Rearranging equations- <a href="#">Changing the subject of a formula - - BBC Bitesize</a></p>	

### Some things to learn –

#### Positive ions

Name	Formula
Hydrogen	H <sup>+</sup>
Sodium	Na <sup>+</sup>
Silver	Ag <sup>+</sup>
Potassium	K <sup>+</sup>
Lithium	Li <sup>+</sup>
Ammonium	NH <sub>4</sub> <sup>+</sup>
Barium	Ba <sup>2+</sup>
Calcium	Ca <sup>2+</sup>
Copper(II)	Cu <sup>2+</sup>
Magnesium	Mg <sup>2+</sup>
Zinc	Zn <sup>2+</sup>
Lead	Pb <sup>2+</sup>
Iron(II)	Fe <sup>2+</sup>
Iron(III)	Fe <sup>3+</sup>
Aluminium	Al <sup>3+</sup>

#### Negative ions

Name	Formula
Chloride	Cl <sup>-</sup>
Bromide	Br <sup>-</sup>
Fluoride	F <sup>-</sup>
Iodide	I <sup>-</sup>
Hydroxide	OH <sup>-</sup>
Nitrate	NO <sub>3</sub> <sup>-</sup>
Oxide	O <sup>2-</sup>
Sulfide	S <sup>2-</sup>
Sulfate	SO <sub>4</sub> <sup>2-</sup>
Carbonate	CO <sub>3</sub> <sup>2-</sup>

### Extension and further interest.....

The following sites are great for A-Level Chemistry reference: [Chemguide](#), [Physics and maths tutor](#), [s-cool](#) and [savemyexams](#).

These are just some really great chemistry sites: [Compound Chemistry](#), [Crash Course Chemistry](#), [Chem Talk](#), [Chemix](#), and [Chem Elements](#) periodic table.

## Task 2 – Folder preparation

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Being well organised is vital for success at A-Level. So you are ready for September please get yourself two folders. One a smaller ring binder, this will be your day-to-day folder that you must bring to each and every lesson, and a larger A4 lever arch file, this will be for the long term storage of your notes.

### Day to Day folder-

Should contain the following-

- Your student record sheet – this should be filled out as you go through the year
- Assessments - stepping stones and milestone assessments for the current academic year
- Your **current** work books and associated notes – with a divider between the two sections for your two teachers.

### Y12 'Storage' Folder Organisation

Please order your folder in the following way with dividers between each section:

**Physical chemistry**(blue covers) study and question booklets in the following order:

- 3.1.1 Atomic structure
- 3.1.2 Amount of substance
- 3.1.3 Bonding
- 3.1.4 Energetics
- 3.1.5 Kinetics
- 3.1.6 Chemical equilibria, Le Chatelier's principle and  $K_c$
- 3.1.7 Oxidation, reduction and redox equations
- 3.1.10 Equilibrium constant  $K_p$  for homogeneous systems (A-level only)

**Inorganic chemistry**(grey covers)study and question booklets in the following order

- 3.2.1 Periodicity
- 3.2.2 Group 2, the alkaline earth metals
- 3.2.3 Group 7(17), the halogens

**Organic chemistry**(green covers) study and question booklets in the following order

- 3.3.1 Introduction to organic chemistry
- 3.3.2 Alkanes
- 3.3.3 Halogenoalkanes
- 3.3.4 Alkenes
- 3.3.5 Alcohols
- 3.3.6 Organic analysis
- 3.3.7 Optical isomerism (A-level only)
- 3.3.8 Aldehydes and ketones (A-level only)

## Task 3 – Written Work

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Please complete the tasks and bring them into your chemistry lessons in the first week of the coursework.