

# Introduction to AS Level Chemistry

Powerpoint can be downloaded  
from  
[www.drwainwright.weebly.com](http://www.drwainwright.weebly.com)

# Chemistry: The **Good**, the Bad and the Ugly

## The Good:

- Well respected by employers and universities as a 'good' A level
- Challenging and stimulating
- More problem based and application of knowledge rather than memory recall

# Chemistry: The Good, the **Bad** and the Ugly

The Bad:

- One of the toughest A levels to do well in
- You will not do your best **unless** you:
  - Work hard in lessons
  - Complete all homework to the best of your ability
  - Do independent study outside of formal homework
  - Ask for help when you are stuck, inside and outside of lessons
  - Revise effectively and for a longer period than for GCSE

- The specification that you will be following is the AQA GCE (AS & A Level) Chemistry specification. You will need to download the specifications for the units of the course from the AQA Website
- Keep this in your file so you can refer to it in lessons and at home. The specifications tell you what the exam board expects you to know and do.

## 2.2 AS

At the end of year 12  
(Does not count towards A2)

### Assessments

Paper 1	+	Paper 2
<b>What's assessed</b> <ul style="list-style-type: none"><li>• Relevant Physical chemistry topics (sections 3.1.1 to 3.1.4, 3.1.6 and 3.1.7)</li><li>• Inorganic chemistry (Section 3.2.1 to 3.2.3)</li><li>• Relevant practical skills</li></ul>		<b>What's assessed</b> <ul style="list-style-type: none"><li>• Relevant Physical chemistry topics (sections 3.1.2 to 3.1.6)</li><li>• Organic chemistry (Section 3.3.1 to 3.3.6)</li><li>• Relevant practical skills</li></ul>
<b>How it's assessed</b> <ul style="list-style-type: none"><li>• written exam: 1 hour 30 minutes</li><li>• 80 marks</li><li>• 50% of the AS</li></ul>		<b>How it's assessed</b> <ul style="list-style-type: none"><li>• written exam: 1 hour 30 minutes</li><li>• 80 marks</li><li>• 50% of the AS</li></ul>
<b>Questions</b> <p>65 marks of short and long answer questions 15 marks of multiple choice questions</p>		<b>Questions</b> <p>65 marks of short and long answer questions 15 marks of multiple choice questions</p>

## 2.3 A-level

At the end of year 13  
(Does not combine with AS)

### Assessments

Paper 1	+	Paper 2	+	Paper 3
<b>What's assessed</b> <ul style="list-style-type: none"><li>• 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)</li><li>• Inorganic chemistry (Section 3.2)</li><li>• Relevant practical skills</li></ul>		<b>What's assessed</b> <ul style="list-style-type: none"><li>• Relevant Physical chemistry topics (sections 3.1.2 to 3.1.6 and 3.1.9)</li><li>• Organic chemistry (Section 3.3)</li><li>• Relevant practical skills</li></ul>		<b>What's assessed</b> <ul style="list-style-type: none"><li>• Any content</li><li>• Any practical skills</li></ul>
<b>How it's assessed</b> <ul style="list-style-type: none"><li>• written exam: 2 hours</li><li>• 105 marks</li><li>• 35% of A-level</li></ul>		<b>How it's assessed</b> <ul style="list-style-type: none"><li>• written exam: 2 hours</li><li>• 105 marks</li><li>• 35% of A-level</li></ul>		<b>How it's assessed</b> <ul style="list-style-type: none"><li>• written exam: 2 hours</li><li>• 90 marks</li><li>• 30% of A-level</li></ul>
<b>Questions</b> <p>105 marks of short and long answer questions</p>		<b>Questions</b> <p>105 marks of short and long answer questions</p>		<b>Questions</b> <p>40 marks of questions on practical techniques and data analysis</p> <p>20 marks of questions testing across the specification</p> <p>30 marks of multiple choice questions</p>

# Homework / Test schedule

- Homework booklets – 5 across the year per teacher (roughly at the end of each topic)
- Tests – 5 across the year per teacher (roughly at the end of each topic)
- Marks for both of these will be recorded on our tracking spreadsheet

- The following are a list of websites that contain information to help you with homework, review work or revision. I have not vetted all of these web sites so when using them read for understanding – if they don't make sense then check the chemistry.
- [www.s-cool.co.uk/a-level/chemistry](http://www.s-cool.co.uk/a-level/chemistry)
- [www.chemguide.co.uk](http://www.chemguide.co.uk)
- [www.alevelchem.com](http://www.alevelchem.com)
- [www.docbrown.info](http://www.docbrown.info)
- [www.chembook.co.uk](http://www.chembook.co.uk)
- <http://www.knockhardy.org.uk/ppoints.htm>



# Learn these ions

(you will be tested on them)

Positive ions		Negative ions	
H <sup>+</sup>	Hydrogen ion	F <sup>-</sup>	Fluoride ion
Li <sup>+</sup>	Lithium ion	Cl <sup>-</sup>	Chloride ion
K <sup>+</sup>	Potassium ion	Br <sup>-</sup>	Bromide ion
Mg <sup>2+</sup>	Magnesium ion	I <sup>-</sup>	Iodide ion
Ca <sup>2+</sup>	Calcium ion	O <sup>2-</sup>	Oxide ion
Zn <sup>2+</sup>	Zinc ion	S <sup>2-</sup>	Sulfide ion
Cu <sup>2+</sup>	Copper (II) ion	OH <sup>-</sup>	Hydroxide ion
Fe <sup>2+</sup>	Iron (II) ion	NO <sub>3</sub> <sup>-</sup>	Nitrate (V) ion
Co <sup>2+</sup>	Cobalt ion	NO <sub>2</sub> <sup>-</sup>	Nitrate (III) ion
Al <sup>3+</sup>	Aluminium ion	HCO <sub>3</sub> <sup>-</sup>	Hydrogencarbonate ion
Fe <sup>3+</sup>	Iron (III) ion	CO <sub>3</sub> <sup>2-</sup>	Carbonate ion
Cr <sup>3+</sup>	Chromium ion	SO <sub>4</sub> <sup>2-</sup>	Sulphate ion
NH <sub>4</sub> <sup>+</sup>	Ammonium ion	CrO <sub>4</sub> <sup>2-</sup>	Chromate (VI) ion
Pb <sup>2+</sup>	Lead ion	Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>	Dichromate (VI) ion
		MnO <sub>4</sub> <sup>-</sup>	Manganate (VII) ion
		C <sub>2</sub> O <sub>4</sub> <sup>2-</sup>	Ethandioate ion

# Learn these molecules

(you will be tested on them)

Formula	Name
H <sub>2</sub>	Hydrogen
F <sub>2</sub>	Fluorine
Cl <sub>2</sub>	Chlorine
Br <sub>2</sub>	Bromine
I <sub>2</sub>	Iodine
O <sub>2</sub>	Oxygen
N <sub>2</sub>	Nitrogen
CH <sub>4</sub>	Methane
NH <sub>3</sub>	Ammonia
SO <sub>2</sub>	dioxide
NO	Nitrogen monoxide
NO <sub>2</sub>	Nitrogen dioxide
CO	Carbon monoxide
CO <sub>2</sub>	Carbon dioxide

- Learn definitions as you come across them
- Learn them word for word
- One extra word or one omitted word can cost you the mark

# Expectations

- **Classroom behaviour expectations are the same as lower school**
- Show respect to everyone
- Complete work to the best of your ability
- **The only differences are:**
- You need to be more independent  
(Roughly spend 1 hour per lesson in independent study)

- Textbooks are issued
- Numbered
- Failure to return them at the end means you will not get an A2 book
- Bring a folder and lined paper to each lesson
- Hand your homework in on time or it will **not be marked**

- <http://drwainwright.weebly.com/>
- Youtube channel – flipped chemistry classroom

# One Minute Monologue



Be prepared, you will be asked to do this at the start of **every** lesson

# Y12 entry test next week – topics to revise

- **Atomic structure**

- Protons, neutrons and electrons
  - Charges, masses and locations
  - Working out how many there are from the periodic table
- Isotopes

- **Amount of substance**

- Calculating moles from mass
- Working out empirical formulae from molecular formulas
- Calculating concentration of a solution in both  $\text{g/dm}^3$  and  $\text{moles/dm}^3$
- Conservation of mass calculations
- Atom economy
- Percentage yield
- Gas volume calculations

- **Rates of reaction**

- Measuring rates of reaction
- Using graphs to calculate rates of reaction
- Factors affecting rate of reaction

- **Equilibrium**

- Definition of dynamic equilibrium

- **Energetics**

- Reaction profiles
- Endothermic and exothermic reactions
- Bond enthalpy calculations

- **Redox reactions**

- Oxidation and reduction in terms of electrons
- Oxidising and reducing agents