

Stepping Up To Post-16 Chemistry

Three things to watch

1. Ions for A Level Chemistry

https://www.youtube.com/watch?v=VMfUM21LnPg&ab_channel=MaChemGuy

You need to be aware of some key simple and polyatomic ions for A Level Chemistry. Your first topic will be about learning and using these so you will be needing to learn them.

It is a good idea to learn these, the best way is via flashcards for each one (formula one side, name the other) Do one per formula not multiple one formula on one card.

Formulae of molecules you need to learn

Oxygen	O ₂	Water	H ₂ O
Nitrogen	N ₂	Ammonia	NH ₃
Ozone	O ₃	Hydrogen chloride	HCl _(g)
Hydrogen	H ₂	Hydrochloric acid	HCl _(aq)
Chlorine	Cl ₂	Sulphuric acid	H ₂ SO ₄
Bromine	Br ₂	Nitric acid	HNO ₃
Iodine	I ₂	Hydrofluoric Acid	HF _(aq)
		Hydrogen Bromide	HBr _(g)
		Hydrogen Iodide	HI _(g)
		Phosphoric acid	H ₃ PO ₄

Formulae of ions you need to learn

Cations

Hydrogen	H ⁺
Lithium	Li ⁺
Sodium	Na ⁺
Potassium	K ⁺
Silver	Ag ⁺
Copper (I)	Cu ⁺
Magnesium	Mg ²⁺
Calcium	Ca ²⁺
Lead	Pb ²⁺
Zinc	Zn ²⁺
Copper (II)	Cu ²⁺
Iron (II)	Fe ²⁺
Aluminium	Al ³⁺
Iron (III)	Fe ³⁺
Ammonium	NH ₄ ⁺
Strontium	Sr ²⁺
Barium	Ba ²⁺

Anions

Fluoride	F ⁻
Chloride	Cl ⁻
Bromide	Br ⁻
Iodide	I ⁻
Oxide	O ²⁻
Sulphide	S ²⁻
Hydroxide	OH ⁻
Hydrogencarbonate	HCO ₃ ⁻
Nitrate	NO ₃ ⁻
Carbonate	CO ₃ ²⁻
Sulphate	SO ₄ ²⁻
Phosphate	PO ₄ ³⁻
Hydrogen Sulphate	HSO ₄ ⁻
Dichromate (VI)	Cr ₂ O ₇ ²⁻
Chlorate (I)	ClO ⁻

Some of these can be worked out using the periodic table (e.g. all group 2 metals have a ²⁺ charge. All group 7 halogens have a ¹⁻ charge).

Others you just need to learn. Make sure you learn them exactly as given here - the position of the numbers is of vital importance!

2. Your brain is more than a bag of Chemicals

<https://ed.ted.com/lessons/your-brain-is-more-than-a-bag-of-chemicals-david-anderson--2>

3. The incredible Chemistry powering your smartphone

https://www.ted.com/talks/cathy_mulzer_the_incredible_chemistry_powering_your_smartphone

Three things to read

1. History overlooked these women scientists but not anymore:

<https://ideas.ted.com/history-overlooked-these-women-scientists-but-not-anymore/>

2. Primo Levi and the other periodic table

<https://www.chemistryworld.com/features/primo-levi-and-the-other-periodic-table/3010512.article>

3. Making recyclable plastics from CO₂ to slow climate change

<https://www.sciencenews.org/article/plastic-carbon-dioxide-capture-recycling-climate-change>

Three things to listen to

1. When Rutherford Split the atom

<https://www.thenakedscientists.com/articles/interviews/when-rutherford-split-atom>

2. Aspirins anniversary

<https://www.thenakedscientists.com/podcasts/naked-scientists-podcast/aspirins-anniversary>

3. Fireworks, explosions and Chemistry

<https://www.thenakedscientists.com/podcasts/naked-scientists-podcast/fireworks-explosions-and-chemistry>