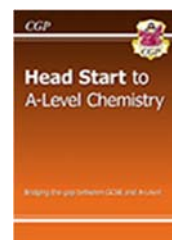


# A level Chemistry Summer Preparation Work

Name: .....

You need to complete this work as preparation for starting the course in September. It is expected that you complete this work and return it to your teacher at the start of the course.

If you are finding this difficult or want a bit more practice it is recommended that you purchase the 'Head Start to A-Level Chemistry' book from CGP. The ISBN is: 978 1 78294 280 1. Cost: £4.95.



**Please complete the following questions including filling in the blanks in any tables:**

Particle	Relative Mass	Relative Charge
Proton		
Neutron		
Electron		

Balance the following equations:

- $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$
- $\text{F}_2 + \text{KBr} \rightarrow \text{KF} + \text{Br}_2$
- $\text{Al} + \text{O}_2 \rightarrow \text{Al}_2\text{O}_3$
- $\text{Na} + \text{Cl}_2 \rightarrow \text{NaCl}$
- $\text{CuCO}_3 \rightarrow \text{CuO} + \text{CO}_2$
- $\text{K} + \text{O}_2 \rightarrow \text{K}_2\text{O}$
- $\text{C}_4\text{H}_8 + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$
- $\text{Ba}(\text{OH})_2 + \text{H}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + \text{H}_2\text{O}$
- $\text{FeCl}_3 + \text{NaOH} \rightarrow \text{Fe}(\text{OH})_3 + \text{NaCl}$
- $\text{HCl} + \text{Ba}(\text{OH})_2 \rightarrow \text{BaCl}_2 + \text{H}_2\text{O}$

Complete the following table:

Element or Ion	Symbol	Relative Atomic Mass	Number of Protons	Number of Electrons	Number of Neutrons
Sodium		12.0	6		
			12		12
Chlorine		35.5			
Lithium				3	
Lithium Ion	$\text{Li}^+$				
Fluorine Ion	$\text{F}^-$		9		

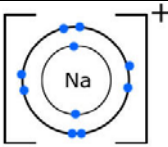
What is an ion? .....

Complete the following word equations:

- Lead oxide + nitric acid  $\rightarrow$  \_\_\_\_\_ + \_\_\_\_\_
- Magnesium carbonate + hydrochloric acid  $\rightarrow$  \_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_
- \_\_\_\_\_ + hydrochloric acid  $\rightarrow$  potassium chloride + \_\_\_\_\_ + \_\_\_\_\_
- \_\_\_\_\_ + \_\_\_\_\_  $\rightarrow$  lead sulphate + hydrogen
- Hydrochloric acid + potassium  $\rightarrow$  \_\_\_\_\_ + \_\_\_\_\_
- Sulphuric acid + \_\_\_\_\_  $\rightarrow$  Iron sulphate + \_\_\_\_\_

# A level Chemistry Summer Preparation Work

Name: .....

Atom	Number of Electrons in Atom	Number of Electrons in the Outer Shell	Number of electrons either gained or lost	Overall Charge of Ion	Ion Symbol	Ionic Structure
Sodium	11	1	1 lost	+	Na <sup>+</sup>	
Chlorine						
Oxygen						
Potassium						
Calcium						
Aluminium						

Work out the ionic formulae of the following:

- Silver nitrate .....
- Iron (III) hydroxide .....
- Ammonium chloride.....
- Lithium oxide .....
- Copper carbonate .....
- Sodium sulphate .....
- Iron (II) sulphate .....
- Calcium hydroxide .....

Positive ions	Negative ions
Silver, Ag <sup>+</sup>	Nitrate, NO <sub>3</sub> <sup>-</sup>
Ammonium, NH <sub>4</sub> <sup>+</sup>	Hydroxide, OH <sup>-</sup>
Lithium, Li <sup>+</sup>	Chloride, Cl <sup>-</sup>
Sodium, Na <sup>+</sup>	Oxide, O <sup>2-</sup>
Copper, Cu <sup>2+</sup>	Carbonate, CO <sub>3</sub> <sup>2-</sup>
Calcium, Ca <sup>2+</sup>	Sulphate, SO <sub>4</sub> <sup>2-</sup>
Iron (II), Fe <sup>2+</sup>	
Iron (III), Fe <sup>3+</sup>	





# The Periodic Table of the Elements

	1	2	3	4	5	6	7	0										
	6.9 <b>Li</b> lithium 3	9.0 <b>Be</b> beryllium 4	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">                     1.0 <b>H</b> hydrogen 1                 </div>					10.8 <b>B</b> boron 5	12.0 <b>C</b> carbon 6	14.0 <b>N</b> nitrogen 7	16.0 <b>O</b> oxygen 8	19.0 <b>F</b> fluorine 9	4.0 <b>He</b> helium 2					
	23.0 <b>Na</b> sodium 11	24.3 <b>Mg</b> magnesium 12	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <b>Key</b> relative atomic mass <b>atomic symbol</b> name atomic (proton) number                 </div>					27.0 <b>Al</b> aluminium 13	28.1 <b>Si</b> silicon 14	31.0 <b>P</b> phosphorus 15	32.1 <b>S</b> sulfur 16	35.5 <b>Cl</b> chlorine 17	20.2 <b>Ne</b> neon 10					
	39.1 <b>K</b> potassium 19	40.1 <b>Ca</b> calcium 20	45.0 <b>Sc</b> scandium 21	47.9 <b>Ti</b> titanium 22	50.9 <b>V</b> vanadium 23	52.0 <b>Cr</b> chromium 24	54.9 <b>Mn</b> manganese 25	55.8 <b>Fe</b> iron 26	58.9 <b>Co</b> cobalt 27	58.7 <b>Ni</b> nickel 28	63.5 <b>Cu</b> copper 29	65.4 <b>Zn</b> zinc 30	69.7 <b>Ga</b> gallium 31	72.6 <b>Ge</b> germanium 32	74.9 <b>As</b> arsenic 33	79.0 <b>Se</b> selenium 34	79.9 <b>Br</b> bromine 35	83.8 <b>Kr</b> krypton 36
	85.5 <b>Rb</b> rubidium 37	87.6 <b>Sr</b> strontium 38	88.9 <b>Y</b> yttrium 39	91.2 <b>Zr</b> zirconium 40	92.9 <b>Nb</b> niobium 41	95.9 <b>Mo</b> molybdenum 42	[98] <b>Tc</b> technetium 43	101.1 <b>Ru</b> ruthenium 44	102.9 <b>Rh</b> rhodium 45	106.4 <b>Pd</b> palladium 46	107.9 <b>Ag</b> silver 47	112.4 <b>Cd</b> cadmium 48	114.8 <b>In</b> indium 49	118.7 <b>Sn</b> tin 50	121.8 <b>Sb</b> antimony 51	127.6 <b>Te</b> tellurium 52	126.9 <b>I</b> iodine 53	131.3 <b>Xe</b> xenon 54
	132.9 <b>Cs</b> caesium 55	137.3 <b>Ba</b> barium 56	138.9 <b>La*</b> lanthanum 57	178.5 <b>Hf</b> hafnium 72	180.9 <b>Ta</b> tantalum 73	183.8 <b>W</b> tungsten 74	186.2 <b>Re</b> rhenium 75	190.2 <b>Os</b> osmium 76	192.2 <b>Ir</b> iridium 77	195.1 <b>Pt</b> platinum 78	197.0 <b>Au</b> gold 79	200.6 <b>Hg</b> mercury 80	204.4 <b>Tl</b> thallium 81	207.2 <b>Pb</b> lead 82	209.0 <b>Bi</b> bismuth 83	[209] <b>Po</b> polonium 84	[210] <b>At</b> astatine 85	[222] <b>Rn</b> radon 86
	[223] <b>Fr</b> francium 87	[226] <b>Ra</b> radium 88	[227] <b>Ac*</b> actinium 89	[261] <b>Rf</b> rutherfordium 104	[262] <b>Db</b> dubnium 105	[266] <b>Sg</b> seaborgium 106	[264] <b>Bh</b> bohrium 107	[277] <b>Hs</b> hassium 108	[268] <b>Mt</b> meitnerium 109	[271] <b>Ds</b> darmstadtium 110	[272] <b>Rg</b> roentgenium 111	Elements with atomic numbers 112–116 have been reported but not fully authenticated						
				140.1 <b>Ce</b> cerium 58	140.9 <b>Pr</b> praseodymium 59	144.2 <b>Nd</b> neodymium 60	144.9 <b>Pm</b> promethium 61	150.4 <b>Sm</b> samarium 62	152.0 <b>Eu</b> europium 63	157.2 <b>Gd</b> gadolinium 64	158.9 <b>Tb</b> terbium 65	162.5 <b>Dy</b> dysprosium 66	164.9 <b>Ho</b> holmium 67	167.3 <b>Er</b> erbium 68	168.9 <b>Tm</b> thulium 69	173.0 <b>Yb</b> ytterbium 70	175.0 <b>Lu</b> lutetium 71	
				232.0 <b>Th</b> thorium 90	[231] <b>Pa</b> protactinium 91	238.1 <b>U</b> uranium 92	[237] <b>Np</b> neptunium 93	[242] <b>Pu</b> plutonium 94	[243] <b>Am</b> americium 95	[247] <b>Cm</b> curium 96	[245] <b>Bk</b> berkelium 97	[251] <b>Cf</b> californium 98	[254] <b>Es</b> einsteinium 99	[253] <b>Fm</b> fermium 100	[256] <b>Md</b> mendelevium 101	[254] <b>No</b> nobelium 102	[257] <b>Lr</b> lawrencium 103	