Module 2: Foundations in Chemistry
2.1 Atoms and Reactions

2.1.2 Compounds, Formulae and Equations

Writing Formulae

You can work out the charge of most ions from the position in the Periodic Table.

Group Number	Charge	Group Number	Charge
1	+1	5	-3
2	+2	6	-2
3	+3	7	-1

To work out the formula of an ionic compound the charges must be balanced.

The transition elements can have different charges – the roman numeral after the name tells you the charge they have eg Iron (II) = +2, Iron (III) = +3.

Some ions you just have to learn:

Name	Ion	Name	Ion
Nitrate	NO_3^-	Ammonium	NH_4^+
Carbonate	CO_3^{2-}	Zinc	Zn^{2+}
Sulfate	SO_4^{2-}	Silver	Ag^+
Hydroxide	OH^-		

Chemical Equations

All symbol equations must be balanced to ensure that the same number of atoms are present on both sides of the equation.

e.g. $Na + Cl_2 \rightarrow NaCl$ needs to be balanced to give $2Na + Cl_2 \rightarrow 2NaCl$.

State Symbols

(s) = solid, (l) = liquid, (g) = gas

(aq) = aqueous (dissolved in water)