Formulae of compounds from ion charges

- Symbols: capital first letter, small second letter (Co cobalt, CO carbon monoxide).
- H_2, N_2, O_2, F_2, Cl_2, Br_2, I_2 are two-atom molecules.
- Group I +1, II +2, III +3, V −3, VI −2, VII −1. Roman numeral = charge of a transition-metal ion.
- A compound has **no overall charge**: take enough of each ion to make the charges cancel. Charges are not written in the formula.
- Two or more polyatomic ions go in **brackets**: $Ca(OH)_2$, $(NH_4)_2SO_4$, $Al_2(SO_4)_3$.
- Model: count the atoms. Lattice: simplest ratio of the ions.

Ions to learn

positive	negative
Na^+, K^+, Ag^+, NH_4^+	Cl^-, Br^-, I^-, OH^-, NO_3^-, HCO_3^-, CH_3COO^-
Mg^{2+}, Ca^{2+}, Cu^{2+}, Zn^{2+}, Fe^{2+}	O^{2-}, S^{2-}, CO_3^{2-}, SO_4^{2-}
Al^{3+}, Fe^{3+}	N^{3-}, PO_4^{3-}