

# Balancing chemical equations

Chemical equation	Reactant atoms	Product atoms
$\text{HCl(aq)} + \text{Mg(s)} \rightarrow \text{MgCl}_2\text{(aq)} + \text{H}_2\text{(g)}$	Cl = 1 Mg = 1 H = 1	Cl = 2 Mg = 1 H = 2
Balanced equation $2\text{HCl(aq)} + \text{Mg(s)} \rightarrow \text{MgCl}_2\text{(aq)} + \text{H}_2\text{(g)}$	Cl = 2 Mg = 1 H = 2	Cl = 2 Mg = 1 H = 2
$\text{Na}_2\text{CO}_3\text{(s)} + \text{HCl(aq)} \rightarrow \text{NaCl(aq)} + \text{CO}_2\text{(g)} + \text{H}_2\text{O(l)}$	Cl = 1 Na = 2 H = 1 O = 3 C = 1	Cl = 1 Na = 1 H = 2 O = 3 C = 1
Balanced equation $\text{Na}_2\text{CO}_3\text{(s)} + 2\text{HCl(aq)} \rightarrow 2\text{NaCl(aq)} + \text{CO}_2\text{(g)} + \text{H}_2\text{O(l)}$	Cl = 2 Na = 2 H = 2 O = 3 C = 1	Cl = 2 Na = 2 H = 2 O = 3 C = 1
$\text{C}_3\text{H}_8\text{(g)} + \text{O}_2\text{(g)} \rightarrow \text{CO}_2\text{(g)} + \text{H}_2\text{O(l)}$	H = 8 O = 2 C = 3	H = 2 O = 3 C = 1
Balanced equation $\text{C}_3\text{H}_8\text{(g)} + 5\text{O}_2\text{(g)} \rightarrow 3\text{CO}_2\text{(g)} + 4\text{H}_2\text{O(l)}$	H = 8 O = 10 C = 3	H = 8 O = 10 C = 3
$\text{C}_2\text{H}_6\text{(g)} + \text{O}_2\text{(g)} \rightarrow \text{CO}_2\text{(g)} + \text{H}_2\text{O(l)}$	H = 6 O = 2 C = 2	H = 2 O = 3 C = 1
Balanced equation $2\text{C}_2\text{H}_6\text{(g)} + 7\text{O}_2\text{(g)} \rightarrow 4\text{CO}_2\text{(g)} + 6\text{H}_2\text{O(l)}$	H = 12 O = 14 C = 4	H = 12 O = 14 C = 4
$\text{N}_2\text{(g)} + \text{H}_2\text{(g)} \rightarrow \text{NH}_3\text{(g)}$	N = 2 H = 2	N = 1 H = 3
Balanced equation $\text{N}_2\text{(g)} + 3\text{H}_2\text{(g)} \rightarrow 2\text{NH}_3\text{(g)}$	N = 2 H = 6	N = 2 H = 6
$\text{H}_2\text{SO}_4\text{(aq)} + \text{Al}_2\text{O}_3\text{(aq)} \rightarrow \text{Al}_2\text{(SO}_4\text{)}_3\text{(aq)} + \text{H}_2\text{O(l)}$	H = 2 O = 7 S = 1 Al = 2	H = 2 O = 13 S = 3 Al = 2
Balanced equation $3\text{H}_2\text{SO}_4\text{(aq)} + \text{Al}_2\text{O}_3\text{(aq)} \rightarrow \text{Al}_2\text{(SO}_4\text{)}_3\text{(aq)} + 3\text{H}_2\text{O(l)}$	H = 6 O = 15 S = 3 Al = 2	H = 6 O = 15 S = 3 Al = 2
$\text{Ag(s)} + \text{H}_2\text{S(g)} + \text{O}_2\text{(g)} \rightarrow \text{Ag}_2\text{S(s)} + \text{H}_2\text{O(l)}$	Ag = 1 H = 2 S = 1 O = 2	Ag = 2 H = 2 S = 1 O = 1
Balanced equation $4\text{Ag(s)} + 2\text{H}_2\text{S(g)} + \text{O}_2\text{(g)} \rightarrow 2\text{Ag}_2\text{S(s)} + 2\text{H}_2\text{O(l)}$	Ag = 4 H = 4 S = 2 O = 2	Ag = 4 H = 4 S = 2 O = 2