## Balancing chemical equations

| Chemical equation (the first is done for you) | Reactant atoms | Product atoms |
| :---: | :---: | :---: |
| $\mathrm{HCl}(\mathrm{aq})+\mathrm{Mg}(\mathrm{s}) \rightarrow \mathrm{MgCl}_{2}(\mathrm{aq})+\mathrm{H}_{2}(\mathrm{~g})$ | $\begin{aligned} & \mathrm{Cl}=1 \\ & \mathrm{Mg}=1 \\ & \mathrm{H}=1 \end{aligned}$ | $\begin{aligned} & \mathrm{Cl}=2 \\ & \mathrm{Mg}=1 \\ & \mathrm{H}=2 \end{aligned}$ |
| Balanced equation $2 \mathrm{HCl}(a q)+\mathrm{Mg}(s) \rightarrow \mathrm{MgCl}_{2}(a q)+\mathrm{H}_{2}(g)$ | $\begin{aligned} & \mathrm{Cl}=2 \\ & \mathrm{Mg}=1 \\ & \mathrm{H}=2 \end{aligned}$ | $\begin{aligned} & \mathrm{Cl}=2 \\ & \mathrm{Mg}=1 \\ & \mathrm{H}=2 \end{aligned}$ |
| $\mathrm{Na}_{2} \mathrm{CO}_{3}(\mathrm{~s})+\mathrm{HCl}(\mathrm{aq}) \rightarrow \mathrm{NaCl}(\mathrm{aq})+\mathrm{CO}_{2}(\mathrm{~g})+\mathrm{H}_{2} \mathrm{O}(\mathrm{l})$ | $\begin{aligned} & \mathrm{Cl}= \\ & \mathrm{Na}= \\ & \mathrm{H}= \\ & \mathrm{O}= \\ & \mathrm{C}= \end{aligned}$ | $\begin{aligned} & \mathrm{Cl}= \\ & \mathrm{Na}= \\ & \mathrm{H}= \\ & \mathrm{O}= \\ & \mathrm{C}= \end{aligned}$ |
| Balanced equation | $\begin{aligned} & \mathrm{Cl}= \\ & \mathrm{Na}= \\ & \mathrm{H}= \\ & \mathrm{O}= \\ & \mathrm{C}= \end{aligned}$ | $\begin{aligned} & \mathrm{Cl}= \\ & \mathrm{Na}= \\ & \mathrm{H}= \\ & \mathrm{O}= \\ & \mathrm{C}= \end{aligned}$ |
| $\mathrm{C}_{3} \mathrm{H}_{8}(\mathrm{~g})+\mathrm{O}_{2}(\mathrm{~g}) \rightarrow \mathrm{CO}_{2}(\mathrm{~g})+\mathrm{H}_{2} \mathrm{O}(\mathrm{l})$ | $\begin{aligned} & H= \\ & O= \\ & C= \end{aligned}$ | $\begin{aligned} & H= \\ & O= \\ & C= \end{aligned}$ |
| Balanced equation | $\begin{aligned} & H= \\ & O= \\ & C= \end{aligned}$ | $\begin{aligned} & H= \\ & O= \\ & C= \end{aligned}$ |
| $\mathrm{C}_{2} \mathrm{H}_{6}(\mathrm{~g})+\mathrm{O}_{2}(\mathrm{~g}) \rightarrow \mathrm{CO}_{2}(\mathrm{~g})+\mathrm{H}_{2} \mathrm{O}(\mathrm{l})$ | $\begin{aligned} & H= \\ & O= \\ & C= \end{aligned}$ | $\begin{aligned} & H= \\ & O= \\ & C= \end{aligned}$ |
| Balanced equation | $\begin{aligned} & H= \\ & O= \\ & C= \end{aligned}$ | $\begin{aligned} & H= \\ & O= \\ & C= \end{aligned}$ |
| $\mathrm{N}_{2}(\mathrm{~g})+\mathrm{H}_{2}(\mathrm{~g}) \rightarrow \mathrm{NH}_{3}(\mathrm{~g})$ | $\begin{aligned} & N= \\ & H= \end{aligned}$ | $\begin{aligned} & N= \\ & H= \end{aligned}$ |
| Balanced equation | $\begin{aligned} & N= \\ & H= \end{aligned}$ | $\begin{aligned} & N= \\ & H= \end{aligned}$ |
| $\left.\mathrm{H}_{2} \mathrm{SO}_{4} \mathrm{aq}\right)+\mathrm{Al}_{2} \mathrm{O}_{3}(\mathrm{aq}) \rightarrow \mathrm{Al}_{2}\left(\mathrm{SO}_{4}\right)_{3}(\mathrm{aq})+\mathrm{H}_{2} \mathrm{O}(\mathrm{l})$ | $\begin{aligned} & H= \\ & O= \\ & S= \\ & A I= \end{aligned}$ | $\begin{aligned} & H= \\ & O= \\ & S= \\ & A I= \end{aligned}$ |
| Balanced equation | $\begin{aligned} & H= \\ & O= \\ & S= \\ & A I= \end{aligned}$ | $\begin{aligned} & H= \\ & O= \\ & S= \\ & A I= \end{aligned}$ |
| $\mathrm{Ag}(\mathrm{s})+\mathrm{H}_{2} \mathrm{~S}(\mathrm{~g})+\mathrm{O}_{2}(\mathrm{~g}) \rightarrow \mathrm{Ag}_{2} \mathrm{~S}(\mathrm{~s})+\mathrm{H}_{2} \mathrm{O}(\mathrm{l})$ | $\begin{aligned} & A g= \\ & H= \\ & S= \\ & O= \end{aligned}$ | $\begin{aligned} & A g= \\ & H= \\ & S= \\ & O= \end{aligned}$ |
| Balanced equation | $\begin{aligned} & A g= \\ & H= \\ & S= \\ & O= \end{aligned}$ | $\begin{aligned} & A g= \\ & H= \\ & S= \\ & O= \end{aligned}$ |

