Balancing chemical equations

Pearson Edexcel 1CH0 Separate Chemistry · Foundation and Higher

Answer on your own paper. Show your working where needed.

1. Make magnesium oxide

Balance this equation: __ Mg + __ O_2 → __ MgO

Count the magnesium and oxygen atoms on each side of the balanced equation.

2. Make ammonia

Balance this equation: __ N_2 + __ H_2 → __ NH_3

3. Metal and acid

Balance this equation: __ Al + __ HCl → __ $AlCl_3$ + __ H_2

4. Check a formula

Aluminium burns in oxygen to form aluminium oxide, Al_2O_3. A student submits the equation Al + O_2 → AlO_2 because it has the same atom counts on each side.

Explain why it does not represent the reaction. Write the correct balanced equation.

5. Burn propane

Balance this equation: __ C_3H_8 + __ O_2 → __ CO_2 + __ H_2O

6. Neutralise sulfuric acid

Balance this equation: __ H_2SO_4 + __ KOH → __ K_2SO_4 + __ H_2O

7. Oxygen from a compound

Balance this equation: __ $KClO_3$ → __ KCl + __ O_2

8. Check a proposed equation

A student writes $2Fe_2O_3$ + 2CO → 2Fe + $2CO_2$. The student argues that the carbon balances, so the equation is correct.

Use iron and oxygen atom counts to assess that claim. Then write the correctly balanced equation using the smallest whole-number coefficients.

9. Extra challenge · Audit a combustion claim

A student writes C_3H_8 + $4O_2$ → $3CO_2$ + $4H_2O$ to show the complete combustion of propane. Identify the error by counting atoms. Write the smallest whole-number balanced equation and add state symbols for all substances after cooling, with water collected as a liquid.

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