Balancing chemical equations

AQA 8462 Separate Chemistry · Foundation and Higher

Show your working where needed.

Name _____ Date _____

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

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4. Check a formula

Aluminium burns in oxygen to form aluminium oxide, Al_2O_3. A student submits the equation $Al + O_2 \rightarrow AlO_2$ 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

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7. Oxygen from a compound

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

8. Check a proposed equation

A student writes $2Fe_2O_3 + 2CO \rightarrow 2Fe + 2CO_2$. 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 · Complete an extraction equation

Aluminium reacts with iron(III) oxide, Fe_2O_3, to make Al_2O_3 and iron. Write a balanced symbol equation. A student changes iron(III) oxide to FeO to simplify the balancing. Explain why that changes what the equation means. Show the number of each type of atom on both sides.

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