

Moles



The key areas of study in this topic are:

- how to measure amount of substance in moles
- how to calculate the amount of reactant needed to get a desired quantity of product
- how to calculate percentage yields and atom economies

By the end of this topic I should be able to:

	Start	End
1.43 Calculate relative formula mass given relative atomic masses		
1.44 Calculate the formulae of simple compounds from reacting masses and understand that these are empirical formulae		
1.45 Deduce: <ul style="list-style-type: none"> • the empirical formula of a compound from the formula of its molecule • the molecular formula of a compound from its empirical formula and its relative molecular mass 		
1.46 Describe an experiment to determine the empirical formula of a simple compound such as magnesium oxide		
1.47 Explain the law of conservation of mass applied to both a closed system and a non-enclosed (open) system.		
1.48 Calculate masses of reactants and products from balanced equations, given the mass of one substance		
1.49 Calculate the concentration of solutions in g dm^{-3}		
1.50 Recall that one mole of particles of a substance is defined as: <ul style="list-style-type: none"> • the Avogadro constant number of particles (6.02×10^{23} atoms, molecules, formulae or ions) of that substance • a mass of 'relative particle mass' g 		
1.51 Calculate the number of: <ul style="list-style-type: none"> • moles of particles of a substance in a given mass and vice versa • particles of a substance in a given number of moles and vice versa • particles of a substance in a given mass and vice versa 		
1.52 Explain why, in a reaction, the mass of product formed is controlled by the mass of the reactant which is not in excess		
1.53 Deduce the stoichiometry of a reaction from the masses of the reactants and products		
5.11C Calculate the percentage yield of a reaction from the actual yield and the theoretical yield		
5.12C Describe that the actual yield of a reaction is usually less than the theoretical yield and that the causes of this include: <ul style="list-style-type: none"> • incomplete reactions • practical losses during the experiment • competing, unwanted reactions (side reactions) 		
5.13C Recall the atom economy of a reaction forming a desired product		
5.14C Calculate the atom economy of a reaction forming a desired product		