

# Year 10: ASK Yourself!

Subject: Chemistry

Unit: 3 – Chemical Quantities and Calculations

	Launching 1-2	Developing 3-4	Progressing 5-6	Mastering 7-9
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	To be able to describe what the relative formula mass ( $M_r$ ) of a compound is and calculate the relative formula mass of a compound, given its formula.	To be able to calculate the relative formula masses of reactants and products to prove that mass is conserved in a balanced chemical equation. To be able to calculate the mass of solute in a given volume of solution of known concentration. To be able to use the relative formula mass of a substance to calculate the number of moles in a given mass of the substance.	To be able to calculate the theoretical amount and percentage yield of a product. To be able to calculate the percentage atom economy of a reaction to form a desired product. To be able to calculate the amount of solute in a solution from its concentration in $\text{mol/dm}^3$ . To be able to use moles to write a balanced equation when given the masses of reactants and products.	To be able to calculate the volume of a gas at rtp from its mass and relative formula mass. To be able to describe how to carry out titrations of acids and alkalis and calculate quantities in titrations involving concentrations in $\text{mol/dm}^3$ and $\text{g/dm}^3$ . To be able to calculate the concentration of a solution when it reacts completely with another solution of a known concentration.
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	To be able to state that mass is conserved and explain why, including describing balanced equations in terms of conservation of mass.	To be able to explain observed changes of mass during chemical reactions in non-enclosed systems using the particle model when given the balanced symbol equation. To be able to explain what the	To be able to explain what the volume of 1 mole of any gas at room temperature is. To be able to describe atom economy as a measure of the amount of reactants that end	To be able to explain why it is not always possible to obtain the calculated or expected amount of a product. To be able to explain how the concentration of a solution in $\text{mol/dm}^3$ is related to the

		volume of one mole of any gas at room temperature is.	up as useful products. To be able to explain the effect of limiting the quantity of a reactant on the amount of products in terms of moles or masses.	mass of the solute and the volume of the solution. To be able to explain why whenever a measurement is made there is always some uncertainty about the result obtained.
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