



	Lessons Sequence					
<b>TOPIC (S)</b> <b>QUANTITATIVE CHEMISTRY</b>	1. Conservation of mass 2. Balancing chemical equations 3. Relative formula mass 4. Chemical measurements		5. Moles 6. Amounts of substance in chemical equations 7. Limiting reactants		8. Concentrations of solutions 9. <b>Percentage yield</b> 10. <b>Atom economy</b> 11. <b>Concentrations in mol/dm<sup>3</sup></b> 12. <b>Volumes of gases</b>	
<b>Knowledge &amp; Skills development</b>	<ul style="list-style-type: none"> <li>Understanding of how mass is conserved in all chemical reactions even when a gas is formed</li> <li>Balancing chemical equations for a variety of reactions</li> <li>Calculating relative formula mass for different molecules</li> <li>Calculate uncertainty using the range of a set of repeat readings</li> <li>Using moles as a measure of the amounts of a substance</li> <li>Calculating the masses of reactants and products from the balanced symbol equation and the mass of a given reactant or product</li> </ul>			<ul style="list-style-type: none"> <li>Knowledge of using excess in chemical reactions and limiting reactants limit the amount of product made</li> <li>Recall, use and rearrange the equation for concentration of a chemical</li> <li><b>Understand the terms percentage yield and atom economy and recall and use equations to calculate them</b></li> <li><b>Calculate and use concentration values in the units mol/dm<sup>3</sup></b></li> <li><b>Use balanced symbol equations to determine the volume of gas at standard temperature and pressure</b></li> </ul>		
<b>Assessment / Feedback Opportunities</b>	Targeted questioning throughout topic	Teacher assessment of practical skills during investigation - verbal	Knowledge Recall Quizzes	Deep marking of written task in students books	Topic Test	Targeted exam questions – teacher or self-assessed
<b>Cultural Capital</b>	<ul style="list-style-type: none"> <li>Possible visit from university outreach chemistry departments</li> </ul>					
<b>SMSC / Promoting British Values</b> (Democracy, Liberty, Rule of Law, Tolerance & Respect)	<ul style="list-style-type: none"> <li>Listening to others during presentations</li> <li>Working in groups during practical work or research tasks</li> </ul>					
<b>Reading opportunities</b>	<ul style="list-style-type: none"> <li>Recommended Read: Bonding, Structure and Properties of Matter and Quantitative Chemistry: AQA GCSE 9-1 (Collins GCSE)</li> <li>Recommended Read: All About Chemistry (Big Questions) (Robert Winston)</li> </ul>					
<b>Key Vocabulary</b>	Independent Variable, Dependent Variable, Control Variables, Method, Conclusion, Precaution, Evaluation, Reliable, Precision, Valid, Anomaly, Describe, Explain, Compare, Analyse, Calculate, Suggest  Conservation, Mass, Atom, Particle, Molecule, Reaction, Reactant, Product, Relative, Uncertainty, Range, Mean, Mole, Limiting, Concentration, Volume, Yield, Percentage, Economy					
<b>Digital Literacy</b>	SharePoint resources including topic quizzes Possible use of excel to plot graphs and analyse data, powerpoint, word, etc to present information, internet for research					
<b>Cross-Curricular Links</b>	Numeracy/Maths – averages (means), reading scales, graph plotting, lines of best fit, using and rearranging equations, using scientific calculators					

<b>Careers</b>	Chemist, Pharmacist, Drugs developers, Chemical manufacturers (e.g. cleaning products)