
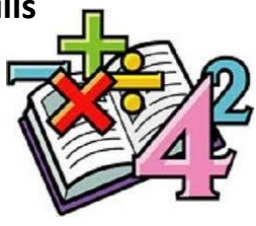



Year:		10	Subject:	Triple Chemistry	Autumn 1	Autumn 2	Spring 1		
Intent	Subject Concepts (Substantive knowledge)		•	<p>(C4) Quantitative chemistry</p> <p><u>Practical opportunities</u> Use titration to investigate reacting volumes.</p> <p>Carrying out a titration (RP)</p>	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> Draw and label the Structure of the atom. Calculate the numbers of protons, neutrons and electrons. Use the Periodic Table to find atomic mass. 	<p>(C5) Chemical reactions and energy changes</p> <p><u>Practical opportunities</u> Making a copper salt (RP)</p> <p>Making a salt from a metal carbonate (RP)</p> <ul style="list-style-type: none"> Metals and acids Predicting reactions Reduction by carbon Obtaining a pH curve Comparing ethanoic and hydrochloric acid 	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> Explain the differences between physical and chemical changes. Describe exothermic and endothermic reactions. 	<p>(C6) Electrolysis</p> <p><u>Practical opportunities</u> Investigate the electrolysis of a solution.</p> <p>Electrolysis of zinc chloride</p>	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> Describe neutralisation. Explain how to make salts State the reactions of acids with metals
				<p>Takeaway Learning:</p> <ul style="list-style-type: none"> Calculate Relative formula mass. Calculate Moles Calculate concentration. 	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> Explain the differences between physical and chemical changes. Describe exothermic and endothermic reactions. 	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> Identify redox reactions, displacement reactions and recall the reactivity series. State the elements in order for the reactivity series. Describe displacement reactions. Explain how to make a salt 	<p>Takeaway Learning:</p> <ul style="list-style-type: none"> Identify redox reactions, displacement reactions and recall the reactivity series. State the elements in order for the reactivity series. Describe displacement reactions. Explain how to make a salt 	<p>Takeaway Learning:</p> <ul style="list-style-type: none"> Explain electrolysis. Describe the differences between dissolved and molten, electrolysis of binary compounds. Identify substances formed at the cathode and anode in a reaction 	
				<p>(C5) Chemical reactions and energy changes</p> <p><u>Practical opportunities</u> Making a copper salt (RP)</p> <p>Making a salt from a metal carbonate (RP)</p> <ul style="list-style-type: none"> Metals and acids Predicting reactions Reduction by carbon Obtaining a pH curve Comparing ethanoic and hydrochloric acid 	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> Explain the differences between physical and chemical changes. Describe exothermic and endothermic reactions. 	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> Identify redox reactions, displacement reactions and recall the reactivity series. State the elements in order for the reactivity series. Describe displacement reactions. Explain how to make a salt 	<p>Takeaway Learning:</p> <ul style="list-style-type: none"> Identify redox reactions, displacement reactions and recall the reactivity series. State the elements in order for the reactivity series. Describe displacement reactions. Explain how to make a salt 	<p>Takeaway Learning:</p> <ul style="list-style-type: none"> Identify redox reactions, displacement reactions and recall the reactivity series. State the elements in order for the reactivity series. Describe displacement reactions. Explain how to make a salt 	
	Disciplinary Knowledge		<ul style="list-style-type: none"> Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts Representing distributions of results and make estimations of uncertainty. Use scientific vocabulary, terminology and definitions. Recognise the importance of scientific quantities and understand how they are determined. Use SI units (eg kg, g, mg; km, m, mm; kJ, J) and IUPAC chemical nomenclature unless inappropriate. Use prefixes and powers of ten for orders of magnitude (eg tera, giga, mega, kilo, centi, milli, micro and nano). Interconvert units. WS 4.6 Use an appropriate number of significant figures in calculation. 	<ul style="list-style-type: none"> Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts. 	<ul style="list-style-type: none"> Use a variety of models such as representational, spatial, descriptive, computational and mathematical to solve problems, make predictions and to develop scientific explanations and understanding of familiar and unfamiliar facts. 				

	Common Misconceptions	<ul style="list-style-type: none"> Understanding that the relative molecular (formula) mass is simply the sum of the relative atomic masses of the component elements. 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none">
Enabling or Adapting the Curriculum	SEND Students	<ul style="list-style-type: none"> Use molymod or molecular diagrams to count the number of atoms and therefore only represent the chemical formula without giving away any other information Formula card templates - https://edu.rsc.org/resources/molecular-model-misconceptions/2392.article Provide writing frames and support for answer 6 mark questions Teach keyword vocabulary and break down ie photo – light, lysis to split Breaking text into chunks on powerpoints Dual coding - visual clues Scaffolding for long text, graphing Use coloured slides Modelling Subtitles on any videos 	<ul style="list-style-type: none"> Provide writing frames and support for answer 6 mark questions Teach keyword vocabulary and break down ie photo – light, lysis to split Breaking text into chunks on powerpoints Dual coding - visual clues Scaffolding for long text, graphing Use coloured slides Modelling Subtitles on any videos 	<ul style="list-style-type: none"> Provide writing frames and support for answer 6 mark questions Teach keyword vocabulary and break down ie photo – light, lysis to split Breaking text into chunks on powerpoints Dual coding - visual clues Scaffolding for long text, graphing Use coloured slides Modelling Subtitles on any videos
	Disadvantaged Students	<ul style="list-style-type: none"> Bring career links into lessons (aspirational) External trips – linked with STEM co-ordinator? Access to revision guides Support with exam questions through use of displays and key terminology Support long answer questions with sentence starters Use of CGP books to support in PLC lessons 	<ul style="list-style-type: none"> Bring career links into lessons (aspirational) External trips – linked with STEM co-ordinator? Access to revision guides Support with exam questions through use of displays and key terminology Support long answer questions with sentence starters Use of CGP books to support in PLC lessons 	<ul style="list-style-type: none"> Bring career links into lessons (aspirational) External trips – linked with STEM co-ordinator? Access to revision guides Support with exam questions through use of displays and key terminology Support long answer questions with sentence starters Use of CGP books to support in PLC lessons
	More Able Students	<ul style="list-style-type: none"> Build into lessons well-designed extension tasks promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge. Asking probing questions Encourage effective discussion between teacher and pupil open-ended tasks that do not have one right answer Set an independent task, such as a further investigation invite students to decide how they would like to demonstrate their learning to you or the rest of the class after an agreed length of time. 	<ul style="list-style-type: none"> Do the practical puddle chemistry (will help with misconceptions) https://www.chemedx.org/system/files/learningtousesolubilityrules.pdf Build into lessons well-designed extension tasks promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge. Asking probing questions Encourage effective discussion between teacher and pupil open-ended tasks that do not have one right answer Set an independent task, such as a further investigation invite students to decide how they would like to demonstrate their learning to you or the rest of the class after an agreed length of time. 	<ul style="list-style-type: none"> Build into lessons well-designed extension tasks promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge. Asking probing questions Encourage effective discussion between teacher and pupil open-ended tasks that do not have one right answer Set an independent task, such as a further investigation invite students to decide how they would like to demonstrate their learning to you or the rest of the class after an agreed length of time.
Literacy/Numeracy Skills 	LITERACY	<ul style="list-style-type: none"> Chemistry keywords 	<ul style="list-style-type: none"> Chemistry keywords 	<ul style="list-style-type: none"> Chemistry keywords
	Reading:	<ul style="list-style-type: none"> Class textbooks BBC bitesize Revision guides 	<ul style="list-style-type: none"> Class textbooks BBC bitesize Revision guides 	<ul style="list-style-type: none"> Class textbooks BBC bitesize Revision guides
	Writing:	<ul style="list-style-type: none"> Definition quizzes – all three key areas 6 mark questions End of topic tests - atomic structure, atomic notation and relative formula mass and concentration and Mole calculations 	<ul style="list-style-type: none"> Definition quizzes – all three key areas 6 mark questions End of topic tests - Chemical changes including Mole calculations 	<ul style="list-style-type: none"> Definition quizzes – all three key areas 6 mark questions End of topic tests - electrolysis

		Oracy:	<ul style="list-style-type: none"> • Cold calling, answering questions in class • Class discussion on topic areas being addressed • Reading out loud • Answering questions • Feedback through discussion and debates 	<ul style="list-style-type: none"> • Cold calling, answering questions in class • Class discussion on topic areas being addressed • Reading out loud • Answering questions • Feedback through discussion and debates 	<ul style="list-style-type: none"> • Cold calling, answering questions in class • Class discussion on topic areas being addressed • Reading out loud • Answering questions • Feedback through discussion and debates 					
		NUMERACY	<ul style="list-style-type: none"> • Chemical calculations - Calculating, relative formula mass and moles • Ratios of atoms • Balancing equations • Using fractions • Conversion calculations cm³ into dm³ • Titration calculations • Half equations 	<ul style="list-style-type: none"> • Chemical calculations - Calculating, relative formula mass and moles • Ratios of atoms • Balancing equations • Using fractions • Conversion calculations cm³ into dm³ • Titration calculations • Half equations • PH values 	<ul style="list-style-type: none"> • Chemical calculations - Calculating, relative formula mass and moles • Ratios of atoms • Balancing equations • Using fractions • Half equations 					
	Digital Strategy		Cognito videos – all science subjects	<ul style="list-style-type: none"> • Interactive whiteboards for ipads - https://whiteboard.fi/ • Use of ipads to complete forms quiz to support PLC and teacher assessment • Interactive physics simulation and questions - physcis concept builder • <u>phet simulations - all three sciences</u> • 	<ul style="list-style-type: none"> • Interactive whiteboards for ipads - https://whiteboard.fi/ • Use of ipads to complete forms quiz to support PLC and teacher assessment • Interactive physics simulation and questions - physcis concept builder • <u>phet simulations - all three sciences</u> • 	<ul style="list-style-type: none"> • Interactive whiteboards for ipads - https://whiteboard.fi/ • Use of ipads to complete forms quiz to support PLC and teacher assessment • Interactive physics simulation and questions - physcis concept builder • <u>phet simulations - all three sciences</u> • 				
Home Learning		•	•	•						
Impact	Composite Assessment	Date:	Content:	Term 1- Synoptic assessment year 9 content	Date:	Content:	Term 2- Synoptic assessment on content covered in terms 1 and 2	Date:	Content:	Term 3- Synoptic assessment on chemical changes and electrolysis