



		Year:	10	Subject:	Triple Chemistry	Spring 2	Summer 1	Summer 2
Intent	Subject Concepts (Substantive knowledge)	<ul style="list-style-type: none"> <li>Chemistry</li> </ul>		<p><b>(C7) Energy Changes</b></p> <p><u>Practical opportunities</u> Investigating temperature change (RP)</p> <ul style="list-style-type: none"> <li>Investigating chemical cells</li> </ul> <p><b>Begin rates and equilibrium (C8)</b></p>	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> <li>State how to identify a chemical reaction               <ul style="list-style-type: none"> <li>Describe the Properties of metals</li> <li>Describe how to use the pH scale</li> </ul> </li> </ul> <p>Takeaway Learning:</p> <ul style="list-style-type: none"> <li>Identifying endo and exothermic reactions               <ul style="list-style-type: none"> <li>Calculate bond energy</li> <li>Describe reaction profiles</li> <li>Use energy transfer diagrams appropriately</li> </ul> </li> </ul>	<p><b>(C8) Rates and equilibrium</b></p> <p><u>Practical opportunities</u> Investigating the effect of concentration on rate of reaction (RP)</p> <p>Concentration and rate of reaction (RP)</p> <ul style="list-style-type: none"> <li>Measuring the decreasing mass of a reaction mixture</li> <li>Measuring the increasing volume of gas given off</li> <li>Thiosulphate cross – Demo?</li> <li>Effect of temperature on rate of reaction</li> <li>Investigating catalysts</li> <li>Heating ammonium chloride</li> <li>Energy changes in a reversible reaction</li> <li>Observing equilibrium</li> </ul>	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> <li>Explain the differences between heat and temperature for the collision theory               <ul style="list-style-type: none"> <li>Describe how you know a chemical reaction is taking place</li> <li>Write word and symbol equations</li> </ul> </li> </ul> <p>Takeaway Learning:</p> <ul style="list-style-type: none"> <li>Explain the collision theory               <ul style="list-style-type: none"> <li>Describe what activation energy is</li> <li>Explain the factors affecting the rate of a chemical reaction</li> <li>Define equilibrium and reversible reactions.</li> <li>Practical application of rate of reaction industry</li> </ul> </li> </ul>	<p><b>(C9, C10, C11) Organic chemistry</b></p> <ul style="list-style-type: none"> <li>Distillation of crude oil</li> <li>Products of complete combustion</li> <li>Comparing the reaction of alcohols</li> <li>Properties of ethanoic acid and solution</li> <li>Making esters</li> <li>Making nylon</li> </ul> <p>Prior Knowledge:</p> <ul style="list-style-type: none"> <li>Show bonding and structure of molecules</li> <li>Explain covalent bonding</li> <li>Describe what a simple molecule and giant covalent molecule is, giving example</li> <li>Name and describe the structure of different allotropes of carbon.</li> </ul> <p>Takeaway Learning:</p> <ul style="list-style-type: none"> <li>State the names of the different hydrocarbons</li> <li>Describe the functional groups i.e. alkanes, alkenes, carboxylic acids and alcohols</li> <li>Describe the reactions of alkanes and alkenes</li> <li>Explain what cracking and polymerisation is</li> </ul>
	Disciplinary Knowledge	<ul style="list-style-type: none"> <li>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.</li> </ul>		<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> </ul>		
Implementation	Common Misconceptions							
	Enabling or Adapting the Curriculum	SEND Students	<ul style="list-style-type: none"> <li>6 mark question writing frame support</li> <li>Vocabulary sheets</li> <li>Scaffolding – writing frames/use of booklets</li> <li>Teach keyword vocabulary and break down ie photo – light, lysis to split</li> <li>Breaking text into chunks on powerpoints</li> <li>Dual coding - visual clues</li> <li>Scaffolding for long text, graphing</li> <li>Use coloured slides</li> <li>Modelling</li> <li>Subtitles on any videos</li> <li>Provide writing frames and support for answer 6 mark questions</li> </ul>	<ul style="list-style-type: none"> <li>Blue bottle demo – showing reversible reaction</li> <li>6 mark question writing frame support</li> <li>Vocabulary sheets</li> <li>Scaffolding – writing frames/use of booklets</li> <li>Teach keyword vocabulary and break down ie photo – light, lysis to split</li> <li>Breaking text into chunks on powerpoints</li> <li>Dual coding - visual clues</li> <li>Scaffolding for long text, graphing</li> <li>Use coloured slides</li> <li>Modelling</li> <li>Subtitles on any videos</li> <li>Provide writing frames and support for answer 6 mark questions</li> </ul>	<ul style="list-style-type: none"> <li>6 mark question writing frame support</li> <li>Vocabulary sheets</li> <li>Scaffolding – writing frames/use of booklets</li> <li>Teach keyword vocabulary and break down ie photo – light, lysis to split</li> <li>Breaking text into chunks on powerpoints</li> <li>Dual coding - visual clues</li> <li>Scaffolding for long text, graphing</li> <li>Use coloured slides</li> <li>Modelling</li> <li>Subtitles on any videos</li> <li>Provide writing frames and support for answer 6 mark questions</li> </ul>			
		Disadvantaged Students	<ul style="list-style-type: none"> <li>Bring career links into lessons (aspirational)</li> <li>External trips – linked with STEM co-ordinator?</li> <li>Access to revision guides</li> <li>Support with exam questions through use of displays and key terminology</li> <li>Support long answer questions with sentence starters</li> <li>Use of CGP books to support in PLC lessons</li> </ul>	<ul style="list-style-type: none"> <li>Bring career links into lessons (aspirational)</li> <li>External trips – linked with STEM co-ordinator?</li> <li>Access to revision guides</li> <li>Support with exam questions through use of displays and key terminology</li> <li>Support long answer questions with sentence starters</li> <li>Use of CGP books to support in PLC lessons</li> </ul>	<ul style="list-style-type: none"> <li>Bring career links into lessons (aspirational)</li> <li>External trips – linked with STEM co-ordinator?</li> <li>Access to revision guides</li> <li>Support with exam questions through use of displays and key terminology</li> <li>Support long answer questions with sentence starters</li> <li>Use of CGP books to support in PLC lessons</li> </ul>			



		<b>More Able Students</b>		<ul style="list-style-type: none"> <li>Build into lessons well-designed extension tasks</li> <li>promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge.</li> <li>Asking probing questions</li> <li>Encourage effective discussion between teacher and pupil</li> <li>open-ended tasks that do not have one right answer</li> <li>Set an independent task, such as a further investigation</li> <li>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.</li> </ul>		<ul style="list-style-type: none"> <li>Build into lessons well-designed extension tasks</li> <li>promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge.</li> <li>Asking probing questions</li> <li>Encourage effective discussion between teacher and pupil</li> <li>open-ended tasks that do not have one right answer</li> <li>Set an independent task, such as a further investigation</li> <li>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.</li> </ul>		<ul style="list-style-type: none"> <li>Build into lessons well-designed extension tasks</li> <li>promote higher-order skills such as speculation, inference, prediction, hypothesis and synthesis, as well as nurturing independence and self-knowledge.</li> <li>Asking probing questions</li> <li>Encourage effective discussion between teacher and pupil</li> <li>open-ended tasks that do not have one right answer</li> <li>Set an independent task, such as a further investigation</li> <li>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.</li> </ul>				
		<b>Literacy/Numeracy Skills</b> 	<b>LITERACY</b>	<ul style="list-style-type: none"> <li><u>Chemistry keywords</u></li> <li>Investigating fuel cells AQA task C7.6 Triple</li> </ul>		<ul style="list-style-type: none"> <li><u>Chemistry keywords</u></li> </ul>		<ul style="list-style-type: none"> <li><u>Chemistry keywords</u></li> <li>Use of prefixes meth, eth, pro, but</li> <li>Meaning of mon and poly (mers)</li> </ul>				
			<b>Reading:</b>	<ul style="list-style-type: none"> <li><b>Chemical and energy changes; The Day articles</b></li> <li><a href="https://theday.co.uk/stories/the-great-hydrogen-revolution-gathers-pace">https://theday.co.uk/stories/the-great-hydrogen-revolution-gathers-pace</a></li> <li>Class textbooks</li> <li>BBC bitesize</li> <li>Revision guides</li> </ul>		<ul style="list-style-type: none"> <li>Class textbooks</li> <li>BBC bitesize</li> <li>Revision guides</li> </ul>		<ul style="list-style-type: none"> <li>Uses of polymers - <a href="https://www.stem.org.uk/elibrary/resource/29478">https://www.stem.org.uk/elibrary/resource/29478</a></li> <li>Class textbooks</li> <li>BBC bitesize</li> <li>Revision guides</li> </ul>				
			<b>Writing:</b>	<ul style="list-style-type: none"> <li>Definition quizzes – all three key areas</li> <li>6 mark questions</li> <li>End of topic tests</li> </ul>		<ul style="list-style-type: none"> <li><b>Component Assessment- topic test on Rates of reactions</b></li> <li>Definition quizzes – all three key areas</li> <li>6 mark questions</li> <li>End of topic tests</li> </ul>		<ul style="list-style-type: none"> <li><b>Component Assessment - Test on organic chemistry</b></li> <li>Display formula</li> <li>Definition quizzes – all three key areas</li> <li>6 mark questions</li> <li>End of topic tests</li> </ul>				
			<b>Oracy:</b>	<ul style="list-style-type: none"> <li>Cold calling, answering questions in class</li> <li>Class discussion on topic areas being addressed</li> <li>Reading out loud</li> <li>Answering questions</li> </ul>		<ul style="list-style-type: none"> <li>Cold calling, answering questions in class</li> <li>Class discussion on topic areas being addressed</li> <li>Reading out loud</li> <li>Answering questions</li> </ul>		<ul style="list-style-type: none"> <li>Cold calling, answering questions in class</li> <li>Class discussion on topic areas being addressed</li> <li>Reading out loud</li> <li>Answering questions</li> </ul>				
			<b>NUMERACY</b>	<ul style="list-style-type: none"> <li>Symbol and word equations</li> <li>Writing half equations</li> <li>Data analysis</li> <li>Bond calculations</li> </ul>		<ul style="list-style-type: none"> <li>Calculating rates</li> <li>Analysis of data</li> <li>Graph drawing</li> <li>Use of standard form</li> <li>Word and symbol equations</li> <li>Calculating tangents on graphs</li> </ul>		<ul style="list-style-type: none"> <li>Writing formulae</li> <li>Moles and atomic mass</li> </ul>				
		<b>Digital Strategy</b> 		<ul style="list-style-type: none"> <li>Interactive whiteboards for ipads - <a href="https://whiteboard.fi/">https://whiteboard.fi/</a></li> <li>Use of ipads to complete forms quiz to support PLC and teacher assessment</li> <li>Interactive physics simulation and questions - <a href="#">physcis concept builder</a></li> <li><u>phet simulations - all three sciences</u></li> </ul>		<ul style="list-style-type: none"> <li>Interactive whiteboards for ipads - <a href="https://whiteboard.fi/">https://whiteboard.fi/</a></li> <li>Use of ipads to complete forms quiz to support PLC and teacher assessment</li> <li>Interactive physics simulation and questions - <a href="#">physcis concept builder</a></li> <li><u>phet simulations - all three sciences</u></li> </ul>		<ul style="list-style-type: none"> <li>Interactive whiteboards for ipads - <a href="https://whiteboard.fi/">https://whiteboard.fi/</a></li> <li>Use of ipads to complete forms quiz to support PLC and teacher assessment</li> <li>Interactive physics simulation and questions - <a href="#">physcis concept builder</a></li> <li><u>phet simulations - all three sciences</u></li> </ul>				
		<b>Home Learning</b>										
<b>Impact</b>	<b>Composite Assessment</b>		Date:	Content:	<b>Term 4-</b> Synoptic assessment on energy changes and rates of reactions	Date:	Content:	<b>Term 5-</b> Test on organic chemistry and rate of reaction	Date:	Content:	<b>Term 6 –</b> Year 10 Mocks	