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## Subject: Chemistry (Triple Higher) Year 9 Curriculum Map 2020 – 2021

### Resources:

Week Commencing	Topic (including links to additional resources)	Links to Additional Resources
1 <sup>st</sup> September	<p><u>5.1.1 A simple model of the atom, symbols, relative atomic mas, electronic charge and isotopes.</u> What is an atom? How do you use the mass number and proton number to deduce numbers of each subatomic particle? What are the three subatomic particles and what are the charges on them? What are the masses of the three subatomic particles? Where are they located in an atom?</p>	<p><a href="https://www.omerascience.co.uk/year-9-chemistry-topics">https://www.omerascience.co.uk/year-9-chemistry-topics</a> <a href="https://www.bbc.co.uk/bitesize/topics/zcckk2p">https://www.bbc.co.uk/bitesize/topics/zcckk2p</a> <a href="https://www.my-gcscience.com/aqa/chemistry/atoms-elements-compounds-mixtures/">https://www.my-gcscience.com/aqa/chemistry/atoms-elements-compounds-mixtures/</a> <a href="https://www.my-gcscience.com/aqa/chemistry/atomic-structure/">https://www.my-gcscience.com/aqa/chemistry/atomic-structure/</a></p>
7 <sup>th</sup> September	<p><u>5.1.1 A simple model of the atom, symbols, relative atomic mas, electronic charge and isotopes.</u> How are electrons arranged in an atom? What is the relationship between position in the Periodic Table, number of electrons in the outer shell and number of shells?</p>	<p><a href="https://www.omerascience.co.uk/year-9-chemistry-topics">https://www.omerascience.co.uk/year-9-chemistry-topics</a> <a href="https://www.bbc.co.uk/bitesize/topics/zcckk2p">https://www.bbc.co.uk/bitesize/topics/zcckk2p</a> <a href="https://www.my-gcscience.com/aqa/chemistry/electronic-structure/">https://www.my-gcscience.com/aqa/chemistry/electronic-structure/</a></p>
14 <sup>th</sup> September	<p><u>5.1.1 A simple model of the atom, symbols, relative atomic mas, electronic charge and isotopes.</u> What is a formula and what does it tell you? What is a compound? What is a mixture?</p>	<p><a href="https://www.omerascience.co.uk/year-9-chemistry-topics">https://www.omerascience.co.uk/year-9-chemistry-topics</a> <a href="https://www.bbc.co.uk/bitesize/topics/zcckk2p">https://www.bbc.co.uk/bitesize/topics/zcckk2p</a> <a href="https://www.my-gcscience.com/aqa/chemistry/separating-mixtures/">https://www.my-gcscience.com/aqa/chemistry/separating-mixtures/</a></p>
21 <sup>st</sup> September	<p><u>5.1.1 A simple model of the atom, symbols, relative atomic mas, electronic charge and isotopes.</u> What are some methods of separating a mixture into the elements from which it is made? <b>Practical-</b> Distillation/chromatography/filtration Uses of separation techniques</p>	<p><a href="https://www.omerascience.co.uk/year-9-chemistry-topics">https://www.omerascience.co.uk/year-9-chemistry-topics</a> <a href="https://www.bbc.co.uk/bitesize/topics/zcckk2p">https://www.bbc.co.uk/bitesize/topics/zcckk2p</a></p>
28 <sup>th</sup> September	<p><u>5.1.1 A simple model of the atom, symbols, relative atomic mas, electronic charge and isotopes.</u> History of the atom- development of ideas in the last 2000 years. Evidence that has led us to the current model of the atom. How the Periodic Table was developed and how it is arranged.</p>	<p><a href="https://www.omerascience.co.uk/year-9-chemistry-topics">https://www.omerascience.co.uk/year-9-chemistry-topics</a> <a href="https://www.bbc.co.uk/bitesize/topics/zcckk2p">https://www.bbc.co.uk/bitesize/topics/zcckk2p</a> <a href="https://www.my-gcscience.com/aqa/chemistry/scientific-models-of-the-atom/">https://www.my-gcscience.com/aqa/chemistry/scientific-models-of-the-atom/</a></p>
5 <sup>th</sup> October	<p><u>5.1.1 A simple model of the atom, symbols, relative atomic mas, electronic charge and isotopes.</u> How to use the Periodic Table. What is a group in the Periodic Table?</p>	<p><a href="https://www.omerascience.co.uk/year-9-chemistry-topics">https://www.omerascience.co.uk/year-9-chemistry-topics</a> <a href="https://www.bbc.co.uk/bitesize/topics/zcckk2p">https://www.bbc.co.uk/bitesize/topics/zcckk2p</a></p>

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	What is a period in the Periodic Table?	<a href="https://www.my-gcscience.com/aqa/chemistry/the-periodic-table/">https://www.my-gcscience.com/aqa/chemistry/the-periodic-table/</a>
12 <sup>th</sup> October	<u>5.1.1 A simple model of the atom, symbols, relative atomic mas, electronic charge and isotopes.</u> What is an isotope and how is a Relative Atomic Mass calculated for an element? How do elements in group 1 behave? (Demonstration) How do elements in group 2 behave? (Practical)	<a href="https://www.omerascience.co.uk/year-9-chemistry-topics">https://www.omerascience.co.uk/year-9-chemistry-topics</a> <a href="https://www.bbc.co.uk/bitesize/topics/zcckk2p">https://www.bbc.co.uk/bitesize/topics/zcckk2p</a> <a href="https://www.my-gcscience.com/aqa/chemistry/relative-atomic-mass/">https://www.my-gcscience.com/aqa/chemistry/relative-atomic-mass/</a> <a href="https://www.my-gcscience.com/aqa/chemistry/group-1-the-alkali-metals/">https://www.my-gcscience.com/aqa/chemistry/group-1-the-alkali-metals/</a>
19 <sup>th</sup> October (inset Friday 22 <sup>nd</sup> )	<u>5.1.2 The Periodic Table</u> Consolidation on the Periodic Table and investigation of trends and patterns in groups, linked to electronic structures.	<a href="https://www.omerascience.co.uk/year-9-chemistry-topics">https://www.omerascience.co.uk/year-9-chemistry-topics</a> <a href="https://www.bbc.co.uk/bitesize/topics/zcckk2p">https://www.bbc.co.uk/bitesize/topics/zcckk2p</a>
Half Term		
2 <sup>nd</sup> November	<u>5.1.2 The Periodic Table</u> 18. How do elements in group 7 behave? 19. How do elements in group 0 behave? 20. How do Transition Metals behave?	<a href="https://www.omerascience.co.uk/year-9-chemistry-topics">https://www.omerascience.co.uk/year-9-chemistry-topics</a> <a href="https://www.bbc.co.uk/bitesize/topics/zcckk2p">https://www.bbc.co.uk/bitesize/topics/zcckk2p</a> <a href="https://www.my-gcscience.com/aqa/chemistry/group-0-the-noble-gases/">https://www.my-gcscience.com/aqa/chemistry/group-0-the-noble-gases/</a> <a href="https://www.my-gcscience.com/aqa/chemistry/1-2-4-group-7-halogens/">https://www.my-gcscience.com/aqa/chemistry/1-2-4-group-7-halogens/</a> <a href="https://www.my-gcscience.com/aqa/chemistry/1-3-1-transition-elements-chemistry-only/">https://www.my-gcscience.com/aqa/chemistry/1-3-1-transition-elements-chemistry-only/</a>
9 <sup>th</sup> November	<u>5.2.1 Chemical Bonds: Ionic, Covalent and Metallic</u> What is meant by bonding, and why do bonds form? What is ionic bonding? What is a giant ionic substance, and what are their properties?	<a href="https://www.omerascience.co.uk/bonding-structure-and-properties">https://www.omerascience.co.uk/bonding-structure-and-properties</a> <a href="https://www.bbc.co.uk/bitesize/topics/z33rrwx">https://www.bbc.co.uk/bitesize/topics/z33rrwx</a> <a href="https://www.my-gcscience.com/aqa/chemistry/ionic-bonding/">https://www.my-gcscience.com/aqa/chemistry/ionic-bonding/</a>
16 <sup>th</sup> November	<u>5.2.1 Chemical Bonds: Ionic, Covalent and Metallic</u> What is covalent bonding? What is a simple covalent substance, and what properties do they (generally) have? What is a giant covalent substance, and what properties do they have?	<a href="https://www.omerascience.co.uk/bonding-structure-and-properties">https://www.omerascience.co.uk/bonding-structure-and-properties</a> <a href="https://www.bbc.co.uk/bitesize/topics/z33rrwx">https://www.bbc.co.uk/bitesize/topics/z33rrwx</a> <a href="https://www.my-gcscience.com/aqa/chemistry/covalent-bonding/">https://www.my-gcscience.com/aqa/chemistry/covalent-bonding/</a>
23 <sup>rd</sup> November		AR 1 ASSESSMENTS
30 <sup>th</sup> November		AR 1 ASSESSMENTS
7 <sup>th</sup> December	<u>5.2.1 Chemical Bonds: Ionic, Covalent and Metallic</u> What is metallic bonding? How does the structure of a metal link to the properties of a metal? Investigation (optional) into different metals.	<a href="https://www.omerascience.co.uk/bonding-structure-and-properties">https://www.omerascience.co.uk/bonding-structure-and-properties</a> <a href="https://www.bbc.co.uk/bitesize/topics/z33rrwx">https://www.bbc.co.uk/bitesize/topics/z33rrwx</a> <a href="https://www.my-gcscience.com/aqa/chemistry/metallic-bonding/">https://www.my-gcscience.com/aqa/chemistry/metallic-bonding/</a>
14 <sup>th</sup> December	<u>5.2.1 Chemical Bonds: Ionic, Covalent and Metallic</u> What are the properties of metals? What are common uses of metals and how do their properties link to these uses?	<a href="https://www.omerascience.co.uk/bonding-structure-and-properties">https://www.omerascience.co.uk/bonding-structure-and-properties</a> <a href="https://www.bbc.co.uk/bitesize/topics/z33rrwx">https://www.bbc.co.uk/bitesize/topics/z33rrwx</a>

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		<a href="https://www.my-gcsescience.com/aga/chemistry/properties-of-ionic-covalent-and-metallic-structures/">https://www.my-gcsescience.com/aga/chemistry/properties-of-ionic-covalent-and-metallic-structures/</a>
Christmas Holiday		
4 <sup>th</sup> January	<u>5.2.2 How bonding and structure are related to the properties of substances.</u> How do you determine the type of bonding in a substance? Investigation into different substances.	<a href="https://www.omerascience.co.uk/bonding-structure-and-properties">https://www.omerascience.co.uk/bonding-structure-and-properties</a> <a href="https://www.bbc.co.uk/bitesize/topics/z33rrwx">https://www.bbc.co.uk/bitesize/topics/z33rrwx</a>
11 <sup>th</sup> January	<u>5.2.2 How bonding and structure are related to the properties of substances.</u> What are nanoparticles/ what is nanoscience? How do nanoparticles differ in size to atoms? What are some potential uses of nanoscience?	<a href="https://www.omerascience.co.uk/bonding-structure-and-properties">https://www.omerascience.co.uk/bonding-structure-and-properties</a> <a href="https://www.bbc.co.uk/bitesize/topics/z33rrwx">https://www.bbc.co.uk/bitesize/topics/z33rrwx</a> <a href="https://www.my-gcsescience.com/aga/chemistry/2-4-1-nanoparticles-chemistry-only/">https://www.my-gcsescience.com/aga/chemistry/2-4-1-nanoparticles-chemistry-only/</a>
18 <sup>th</sup> January	<u>5.2.3 Structure and Bonding in Carbon</u> What is the structure of diamond? What is the structure of graphite? What is the structure of a fullerene?	<a href="https://www.omerascience.co.uk/bonding-structure-and-properties">https://www.omerascience.co.uk/bonding-structure-and-properties</a> <a href="https://www.bbc.co.uk/bitesize/topics/z33rrwx">https://www.bbc.co.uk/bitesize/topics/z33rrwx</a> <a href="https://www.my-gcsescience.com/aga/chemistry/2-3-3-graphene-and-fullerenes/">https://www.my-gcsescience.com/aga/chemistry/2-3-3-graphene-and-fullerenes/</a>
25 <sup>th</sup> January	<u>5.2.3 Structure and Bonding in Carbon</u> What are the properties of diamond, graphite and fullerenes? How do these properties link to their structures? What are some uses of diamond, graphite and fullerenes?	<a href="https://www.omerascience.co.uk/bonding-structure-and-properties">https://www.omerascience.co.uk/bonding-structure-and-properties</a> <a href="https://www.bbc.co.uk/bitesize/topics/z33rrwx">https://www.bbc.co.uk/bitesize/topics/z33rrwx</a> <a href="https://www.my-gcsescience.com/aga/chemistry/2-3-3-graphene-and-fullerenes/">https://www.my-gcsescience.com/aga/chemistry/2-3-3-graphene-and-fullerenes/</a>
1 <sup>st</sup> February	<u>5.3.1 Conservation of Mass, Quantitative Interpretation of Chemical Equations.</u> What is a word equation, and what does it tell you? What is a symbol equation, and why might we use one? How do you balance a symbol equation?	<a href="https://www.bbc.co.uk/bitesize/topics/zsnvy4j">https://www.bbc.co.uk/bitesize/topics/zsnvy4j</a>
8 <sup>th</sup> February (Inset 12 <sup>th</sup> February)	<u>5.3.1 Conservation of Mass, Quantitative Interpretation of Chemical Equations.</u> What is meant by conservation of mass? Investigation into conservation of mass for the combustion of magnesium in air. How do you analyse results from an investigation?	<a href="https://www.bbc.co.uk/bitesize/topics/zsnvy4j">https://www.bbc.co.uk/bitesize/topics/zsnvy4j</a>
February Half Term		
22 <sup>nd</sup> February	<u>5.3.2 Use of amount of substances in relation to masses of pure substances.</u> What does Relative Atomic Mass ( $M_r$ ) mean? How do you use a formula to calculate Relative Formula Mass? What is a balanced equation and how do we use them?	<a href="https://www.bbc.co.uk/bitesize/topics/zsnvy4j">https://www.bbc.co.uk/bitesize/topics/zsnvy4j</a> <a href="https://www.my-gcsescience.com/aga/chemistry/3-1-2-relative-formula-mass/">https://www.my-gcsescience.com/aga/chemistry/3-1-2-relative-formula-mass/</a> <a href="https://www.my-gcsescience.com/aga/chemistry/3-1-1-conservation-of-mass-and-balanced-chemical-equations/">https://www.my-gcsescience.com/aga/chemistry/3-1-1-conservation-of-mass-and-balanced-chemical-equations/</a>
1 <sup>st</sup> March	<u>5.3.2 Use of amount of substances in relation to masses of pure substances.</u> What is meant by the term "mole" in Chemistry? How do you calculate the number of moles of a substance? How does this link to a balanced symbol equation?	<a href="https://www.bbc.co.uk/bitesize/topics/zsnvy4j">https://www.bbc.co.uk/bitesize/topics/zsnvy4j</a> <a href="https://www.my-gcsescience.com/aga/chemistry/3-2-1-the-mole/">https://www.my-gcsescience.com/aga/chemistry/3-2-1-the-mole/</a>
8 <sup>th</sup> March	<u>5.3.1 Conservation of Mass, Quantitative Interpretation of Chemical Equations.</u>	<a href="https://www.bbc.co.uk/bitesize/topics/zsnvy4j">https://www.bbc.co.uk/bitesize/topics/zsnvy4j</a>

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	Mole calculation practice from a balanced symbol equation.	<a href="https://www.my-gcscience.com/aqa/chemistry/3-1-3-mass-changes-in-reactions/">https://www.my-gcscience.com/aqa/chemistry/3-1-3-mass-changes-in-reactions/</a>
15 <sup>th</sup> March	<u>5.3.2 Use of amount of substances in relation to masses of pure substances</u> Using mole calculations to calculate percentage yield of an experiment. How do you calculate atom economy of a reaction?	<a href="https://www.bbc.co.uk/bitesize/topics/zsnvy4j">https://www.bbc.co.uk/bitesize/topics/zsnvy4j</a> <a href="https://www.my-gcscience.com/aqa/chemistry/yield-and-atom-economy-chemistry-only/">https://www.my-gcscience.com/aqa/chemistry/yield-and-atom-economy-chemistry-only/</a>
22 <sup>nd</sup> March	<u>5.3.2 Use of amount of substances in relation to masses of pure substances.</u> How do you calculate the number of moles in a solution (concentration)? How do you use titration to calculate the concentration of a solution?	<a href="https://www.bbc.co.uk/bitesize/topics/zsnvy4j">https://www.bbc.co.uk/bitesize/topics/zsnvy4j</a> <a href="https://www.my-gcscience.com/aqa/chemistry/3-2-3-concentration/">https://www.my-gcscience.com/aqa/chemistry/3-2-3-concentration/</a> <a href="https://www.my-gcscience.com/aqa/chemistry/concentration-chemistry-only/">https://www.my-gcscience.com/aqa/chemistry/concentration-chemistry-only/</a> <a href="https://www.my-gcscience.com/aqa/chemistry/titration-chemistry-only/">https://www.my-gcscience.com/aqa/chemistry/titration-chemistry-only/</a>
29 <sup>th</sup> March	<u>5.4.3 Chemical Changes</u> What is meant by the terms "acid" and "alkali"? How do acids and alkalis behave? What is meant by an indicator?	<a href="https://www.my-gcscience.com/aqa/chemistry/strong-and-weak-acids/">https://www.my-gcscience.com/aqa/chemistry/strong-and-weak-acids/</a> <a href="https://www.my-gcscience.com/aqa/chemistry/reactions-of-acids/">https://www.my-gcscience.com/aqa/chemistry/reactions-of-acids/</a> <a href="https://www.my-gcscience.com/aqa/chemistry/the-ph-scale-and-neutralisation/">https://www.my-gcscience.com/aqa/chemistry/the-ph-scale-and-neutralisation/</a>
Easter Holiday		
19 <sup>th</sup> April	<u>5.4.3 Chemical Changes</u> What does electrolysis mean? What happens during the electrolysis of aluminium oxide (bauxite)? What is a half equation?	<a href="https://www.my-gcscience.com/aqa/chemistry/electrolysis-of-molten-salts/">https://www.my-gcscience.com/aqa/chemistry/electrolysis-of-molten-salts/</a> <a href="https://www.my-gcscience.com/aqa/chemistry/using-electrolysis-to-extract-metals/">https://www.my-gcscience.com/aqa/chemistry/using-electrolysis-to-extract-metals/</a>
26 <sup>th</sup> April	<u>5.4.3 Chemical Changes</u> What is a REDOX reaction? What happens in the electrolysis of aqueous sodium chloride (brine)? Investigation into the electrolysis of brine.	<a href="https://www.my-gcscience.com/aqa/chemistry/electrolysis-of-aqueous-salts/">https://www.my-gcscience.com/aqa/chemistry/electrolysis-of-aqueous-salts/</a>
3 <sup>rd</sup> May	<u>5.4.3 Chemical Changes</u> How is electrolysis used in industry? What is electroplating and how does it work? Investigation into electroplating of copper.	<a href="https://www.my-gcscience.com/aqa/chemistry/using-electrolysis-to-extract-metals/">https://www.my-gcscience.com/aqa/chemistry/using-electrolysis-to-extract-metals/</a>
10 <sup>th</sup> May	<u>5.4.3 Chemical Changes</u> How is electrolysis examined at GCSE? Looking at past paper questions and address issues.	
17 <sup>th</sup> May		AR 2 ASSESSMENTS
24 <sup>th</sup> May		AR 2 ASSESSMENTS
7 <sup>th</sup> June	<u>5.5.1 Exothermic and Endothermic Reactions</u> What do the terms "exothermic" and "endothermic" mean? Investigation into exothermic and endothermic reactions. How do you analyse data from a reaction to calculate enthalpy change? <b>Required Practical</b>	<a href="https://www.my-gcscience.com/aqa/chemistry/exothermic-and-endothermic-reactions/">https://www.my-gcscience.com/aqa/chemistry/exothermic-and-endothermic-reactions/</a> <a href="https://www.bbc.co.uk/bitesize/topics/z27xxfr">https://www.bbc.co.uk/bitesize/topics/z27xxfr</a>

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14 <sup>th</sup> June	<p><u>5.5.1 Exothermic and Endothermic Reactions</u>            What are some applications of exothermic and endothermic reactions?            What is meant by activation energy, and what are some examples?            What is an energy profile, and how do you analyse one?</p>	<p><a href="https://www.my-gcscience.com/aqa/chemistry/reaction-profile-diagrams/">https://www.my-gcscience.com/aqa/chemistry/reaction-profile-diagrams/</a>  <a href="https://www.bbc.co.uk/bitesize/topics/z27xxfr">https://www.bbc.co.uk/bitesize/topics/z27xxfr</a></p>
21 <sup>st</sup> June	<p><u>5.5.1 Exothermic and Endothermic Reactions</u>            How do you calculate enthalpy change from bond energies?  <b>HT</b> How do you calculate enthalpy change from an experiment?            Why might a calculated enthalpy change value be different to an experimental value?</p>	<p><a href="https://www.my-gcscience.com/aqa/chemistry/calculating-energy-changes/">https://www.my-gcscience.com/aqa/chemistry/calculating-energy-changes/</a>  <a href="https://www.bbc.co.uk/bitesize/topics/z27xxfr">https://www.bbc.co.uk/bitesize/topics/z27xxfr</a></p>
28 <sup>th</sup> June	<p><u>5.5.1 Exothermic and Endothermic Reactions</u>            Investigation; calculating the enthalpy change of a reaction.            Analysing results from an investigation and suggesting improvements to a method.</p>	<p><a href="https://www.bbc.co.uk/bitesize/topics/z27xxfr">https://www.bbc.co.uk/bitesize/topics/z27xxfr</a></p>
5 <sup>th</sup> July	<p><u>5.5.1 Exothermic and Endothermic Reactions</u>            What is a fuel cell?</p>	<p><a href="https://www.bbc.co.uk/bitesize/topics/z27xxfr">https://www.bbc.co.uk/bitesize/topics/z27xxfr</a>  <a href="https://www.my-gcscience.com/aqa/chemistry/chemical-cells/">https://www.my-gcscience.com/aqa/chemistry/chemical-cells/</a></p>
12 <sup>th</sup> July	<p><u>5.6.1 Rates of Reaction</u>            What is Collision Theory?  <b>Required Practical:</b> How does changing concentration affect the rate of a reaction? (Investigation)            How does changing temperature affect the rate of a reaction? (Investigation)</p>	<p><a href="https://www.my-gcscience.com/aqa/chemistry/collision-theory-and-activation-energy-including-catalysts/">https://www.my-gcscience.com/aqa/chemistry/collision-theory-and-activation-energy-including-catalysts/</a>  <a href="https://www.bbc.co.uk/bitesize/topics/zwdqghv">https://www.bbc.co.uk/bitesize/topics/zwdqghv</a>  <a href="https://www.omerascience.co.uk/rates-of-reaction">https://www.omerascience.co.uk/rates-of-reaction</a>  <a href="https://www.my-gcscience.com/aqa/chemistry/factors-affecting-rates-of-reaction/">https://www.my-gcscience.com/aqa/chemistry/factors-affecting-rates-of-reaction/</a></p>
19 <sup>th</sup> July (School closed from 22 <sup>nd</sup> )	Consolidation of topics taught in Year 9	

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