

Key Stage 3 Curriculum Map 2021-22

Term 2

Year Group: 7			Subject: Science - Chemistry	
Focus/Topic	Objectives	Key Skills/ UAE Links	HPL Links	Home Learning/ Recommended Reading
<ul style="list-style-type: none"> Revising atoms Electron arrangement Atoms into ions 	<ul style="list-style-type: none"> Use your knowledge to describe the subatomic particles found in an atom including location, mass and charge. Analyse the mass and atomic number to determine the number of each particle in different atoms. Construct a diagram to show the electrostatic forces occurring in an atom. Apply your knowledge to describe the relationship between group number and number of outer electrons Construct diagrams to show the arrangement of electrons in an atom Justify why the size of an atom increases as the number of electrons increases Use your knowledge to explain why atoms form ions Predict the type of ion formed from the position on the Periodic Table Construct diagrams to show the arrangement of electrons in an atom 	<ul style="list-style-type: none"> Recall, how science works, application of knowledge and mathematics UAE link: in UAE calcium supplements are commonly used to boost health systems, why a lot of people are taking it? 	<p>VAA: Empathetic Collaborative: <i>The ability to seek out opportunities to receive responses to your work; present your own views and ideas clearly and concisely; listen to the views of others; be willing and able to work in teams; take a variety of roles and be able to evaluate your own ideas and contributions.</i></p> <p>ACP: Analysing Critical thinking: <i>The ability to deduct, hypothesise, reason, seek supporting evidence</i></p>	<ul style="list-style-type: none"> Guided Reading
<ul style="list-style-type: none"> Reactivity 	<ul style="list-style-type: none"> Apply your knowledge to detail the observations made when alkali metals react with water. 	<ul style="list-style-type: none"> Recall, application, how science works and mathematics 		<ul style="list-style-type: none"> Guided Reading

<ul style="list-style-type: none"> Writing ionic formulae <p>Atoms into ions practice questions and feedback</p>	<ul style="list-style-type: none"> Compare the electron arrangement of the alkali metals. Derive the relationship between electron arrangement and reactivity Use your knowledge to write the molecular formula for a given ionic compound. Construct the ionic formula for a given ionic compound. Create a summary detailing the structure and bonding of ionic compounds 	<ul style="list-style-type: none"> UAE link: Which alkali metals are involved in Oil production in UAE? 		
<ul style="list-style-type: none"> Fossil fuels Fractional distillation Alkanes 	<ul style="list-style-type: none"> Analyse the structure of the molecules found in fossil fuel. Justify why fossil fuels can be classified as non-renewabl. Apply your knowledge to name the two processes involved in fractional distillation Apply your knowledge to name the two processes involved in fractional distillation Determine the relationship between the size of the molecule and boiling point Debate the usefulness of the different products formed as a result of fractional distillation Use your knowledge to name alkanes containing up to eight carbons Analyse the name to determine the molecular formulae of the alkanes and their general formula Construct displayed formula for different alkanes 	<ul style="list-style-type: none"> Recall, how science works, application of knowledge and mathematics UAE link: Summarise what attempts are implements by the UAE government. 		<ul style="list-style-type: none"> Guided Reading
<ul style="list-style-type: none"> Alkenes 	<ul style="list-style-type: none"> Apply your knowledge to explain the formation of alkenes from alkanes Write the names, construct the molecular formulae of the alkenes and their general formula 	<ul style="list-style-type: none"> Recall, how science works, application of knowledge and mathematics 		<ul style="list-style-type: none"> Guided Reading

<ul style="list-style-type: none"> Plastics Renewable energy 	<ul style="list-style-type: none"> Construct displayed formula for different alkenes Use your knowledge to define the terms monomer and polymer Construct a diagram to demonstrate the formation of a plastic and name the process Debate the use of biodegradable plastics Use your knowledge to discuss the disadvantages of using fossil fuels Analyse the use of bioethanol as an alternative energy source Compare and contrast different renewable energy sources 	<ul style="list-style-type: none"> UAE link: Research why plastics are not encouraged to be thrown on UAE beaches 		
<p>Atoms into ions practice questions and feedback</p> <ul style="list-style-type: none"> Combustion Calculating energy change Reporting reactivity investigation 	<ul style="list-style-type: none"> Use your knowledge to define the term combustion Compare complete and incomplete combustion of hydrocarbons Construct the chemical equations for the complete and incomplete combustion of hydrocarbons Use your knowledge to write the equation used to calculate energy change (Q) Calculate the energy change based on given results Evaluate the best fuel by calculating the mass of fuel needed ($n=m/RFM$) to release a specific amount of energy Apply your knowledge to determine the variables for an investigation Construct a table and/or graph to present your results 	<ul style="list-style-type: none"> Recall, how science works, application of knowledge and mathematics UAE link: What is the contribution of combustion to environmental pollution in the UAE ? 		<ul style="list-style-type: none"> Guided Reading

	<ul style="list-style-type: none"> Evaluate your results to write a valid conclusion supported by evidence 			
Half term				
<ul style="list-style-type: none"> Neutralisation Titration Redox reactions 	<ul style="list-style-type: none"> Use your knowledge to define neutralisation Analyse the reactants to name the salt formed as a result of a neutralisation Construct chemical equations for different neutralisation reactions Apply your knowledge to list the apparatus required for a titration Evaluate the use of different indicators for pH Justify the use of a burette, pipette, indicator and a white tile for a titration Use your knowledge to define key terms including oxidation, reduction and redox Write half-equations which demonstrate oxidation and reduction Construct simple redox equations for a given reaction 	<ul style="list-style-type: none"> Recall, how science works, application of knowledge and mathematics UAE link: Justify why probiotics are prescribed by doctors in UAE to neutralize indigestion? 	<p>VAA: Agile Open minded: <i>The ability to take an objective view of different ideas and beliefs; become more receptive to other ideas and beliefs based on the arguments of others; change ideas should there be compelling evidence to do so.</i></p> <p>ACP: Linking Connection finding: <i>The ability to use connections from past experiences to seek possible generalisations</i></p>	<ul style="list-style-type: none"> Guided reading
<ul style="list-style-type: none"> Electrolysis <p>Chemical reactions practice questions and feedback</p>	<ul style="list-style-type: none"> Apply your knowledge to describe why electrolysis is used Construct a diagram to show the set up required for simple electrolysis Debate the use of hydrogen fuel cells as a source of energy 	<ul style="list-style-type: none"> Recall, how science works, application of knowledge and mathematics UAE link: Summarise how electrolysis is used in the UAE. 		<ul style="list-style-type: none"> Guided Reading
<ul style="list-style-type: none"> Collision theory 	<ul style="list-style-type: none"> Use your knowledge to list signs of a chemical reaction Justify why some reactions may be unsuccessful Create a diagram which demonstrates the principles of collision theory 	<ul style="list-style-type: none"> Recall, how science works, application of knowledge and mathematics 		<ul style="list-style-type: none"> Guided Reading

<ul style="list-style-type: none"> Effect of temperature and surface area Effect of concentration 	<ul style="list-style-type: none"> Apply your knowledge to describe the relationship between surface area and rate of a reaction Interpret the results of an investigation to conclude the relationship between temperature and rate Justify your conclusions using collision theory to explain your observations Use your knowledge to compare the particles in a solution of high and low concentration Calculate the concentration of a given solution ($n = cv$) Predict the relationship between concentration and rate of reaction using collision theory 	<ul style="list-style-type: none"> UAE link: Justify the importance of using high temperature in UAE oil industries to increase oil production 		
<ul style="list-style-type: none"> Reporting rate of investigation Interpreting rate graphs Rates of reaction and industry 	<ul style="list-style-type: none"> Apply your knowledge to determine the variables for an investigation Construct a table and/or graph to present your results Evaluate your results to write a valid conclusion supported by evidence Use your knowledge to label key points on a rate graph Interpret the graph to calculate the average rate of a given reaction Predict the shape of rate graphs when different factors are changed Use your knowledge to explain why catalysts are commonly used in industry Analyse the use of high temperatures and determine any disadvantages when this method is used to increase yield Interpret data to calculate the percentage increase in profit for a given reaction under different conditions 	<ul style="list-style-type: none"> Recall, how science works, application of knowledge and mathematics UAE link: research which catalyst is often used in the UAE oil industry and justify why. 		<ul style="list-style-type: none"> Guided Reading

Rate of reactions practice questions and feedback				
Revision of all of the biology topics: cells, reproduction, variation and inheritance and ecology				<ul style="list-style-type: none"> • Guided Reading
Synoptic assessment which covers all the topics of biology studied.				<ul style="list-style-type: none"> • Guided Reading
End of term 2				