Key Stage 3 Curriculum Map 2020-21

Term 2

Year Group: 9	Subject: Chemistry		
Focus/Topic	**Objectives**	**Key Skills/ UAE Links**	**Home Learning/ Recommended Reading**
• Revising Atoms	• 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	• Recall, how science works, application of knowledge and maths • UAE link: Explain why some people take calcium supplements to support their health	• Guided Reading
• Electron Arrangement	• 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		
• Atoms into Ions	• 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		

• Reactivity • Writing Ionic Formulae • Atoms into Ions end of topic test & feedback	• Describe and explain the observations made when alkali metals react with water • Compare the electron arrangement of the alkali metals • Derive the relationship between electron arrangement and reactivity • 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	• Recall, how science works, application of knowledge and maths • UAE link: Explain why the Burj Khalifa not made out of alkali metals.	• Guided Reading
• Fossil Fuels • Fractional Distillation • Alkanes	• Use your knowledge to summarise the formation of fossil fuels • Analyse the structure of the molecules found in fossil fuels • Justify why fossil fuels can be classified as non-renewable • 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	• Recall, how science works, application of knowledge and maths • UAE link: Explain how the UAE is moving towards renewable energy resources.	• Guided Reading

	• Analyse the name to determine the molecular formulae of the alkanes and their general formula • Construct displayed formula for different alkanes		
• Alkenes • Plastics • Renewable Energy Organic Molecules end of topic test and feedback	• Explain the formation of alkenes from alkanes • Write the names, construct the molecular formulae of the alkenes and their general formula • Construct displayed formula for different alkenes • 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 • Discuss the disadvantages of using fossil fuels • Analyse the use of bioethanol as an alternative energy source • Compare and contrast different renewable energy sources	• Recall, how science works, application of knowledge and maths • UAE link: Explain the strategies the UAE uses to promote recycling.	• Guided Reading
• Combustion	• Define the term combustion • Compare complete and incomplete combustion of hydrocarbons • Construct the chemical equations for the complete and incomplete combustion of hydrocarbons .	• Recall, how science works, application of knowledge and maths • UAE link: Explain why it would be dangerous to use propane to fuel a desert BBQ	• Guided Reading

• Calculating Energy Change • Reactivity Investigation	• 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 • 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		
• Neutralisation • Titration • Redox	• 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	• Recall, how science works, application of knowledge and maths • UAE link: Explain why antacids help neutralise indigestion.	• Guided Reading
Half Term			

• Electrolysis • Chemical Reactions Test/Feedback • Collision Theory	• 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 • List the signs of a chemical reaction • Justify why some reactions may be unsuccessful • Create a diagram which demonstrates the principles of collision theory	• Recall, how science works, application of knowledge and maths • UAE link: Determine if you think a reaction with a high activation energy would be good for profit in industry in UAE. Justify your answer.	• Guided Reading
• Effect of Temperature & Surface area • Effect of Concentration • Reporting Rate Investigation	• 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 • 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 • 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	• Recall, how science works, application of knowledge and maths • UAE link: Explore the risks associated with highly concentrated reactants in industry in the UAE	• Guided Reading

• Interpreting Rate Graphs • Rates of Reaction and Industry • Rates of Reaction Test/Feedback	• 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 • 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	• Recall, how science works, application of knowledge and maths • UAE link: Describe the catalysts often used in industry in the UAE.	• Guided Reading •
Revision			
End of term 2 assessment			
Feedback			
End of term 2			