

Term	Week	Focus	Summary	Learning Outcomes	Learning skills
<b>Term 1.1</b>	<b>1 and 2</b>	Introduction to Science	Expectations HPL in Science Lab Safety Reaction Time Investigation Reaction Time and Report Self-Assessment of Report and Feedback	Summarise the key expectations in Science Apply your knowledge to identify dangers in the lab Construct a set of lab safety rules Use your knowledge to identify variables Choose the correct titles for a scientific table Collect results from a scientific investigation	Learners will use this week to remember key safety skills and expectations that will be required throughout Year 9. Through practice, learners will embed these rules and routines into every Science lesson (VAA Hardworking).
	<b>3</b>	Chemistry: Atoms into Ions	Revising Atoms Electron Arrangement	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	Learners will review their knowledge of atoms to construct diagrams of atoms and their electrostatic forces (ACP Creating). Learners will conclude relationships between the positions of atoms on the Periodic Table and their atomic number (ACP Analysing).
	<b>4</b>	Chemistry: Atoms into Ions	Atoms into Ions Reactivity	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	Learners will have opportunity to build upon their knowledge of atoms to describe an abstract concept such as the electron configuration of elements while linking this to the reactivity of substances (ACP Linking). Learners

				Apply your knowledge to detail 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	will need to be open minded when exploring the formation of ions as it builds upon their current knowledge of atoms while being flexible by demonstrating the ability to adopt superior ideas (VAA Agile and ACP Creating).
	5	Chemistry: Atoms into Ions Chemistry: Organic Molecules	Atoms into Ions Retrieval Fossil Fuels Fractional Distillation	Evaluate your knowledge of the Atoms into Ions topic  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	Learners will need to use their revision techniques such as flash cards, mind mapping, revision on Seneca to practice and prepare for their retrieval practice of atoms into ions (VAA Hardworking). Learners will explore how fossil fuels are used and has been used in some countries to support their societies with their fuel and energy needs while considering the impacts this has in the UAE (VAA Empathetic).
	6	Chemistry: Organic Molecules	Alkanes Alkenes Plastics	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  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	Learners will be able to generate ideas from examples of reactants and products of polymerisation reactions (ACP Creating). Learners will be able to demonstrate their concern for society when discussing the advantages and disadvantages of fuels (VAA Empathetic). Learners will practise retrieving knowledge to answer questions on fossil fuels and persevere when

				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	finding questions challenging (VAA Hardworking).
	7	Chemistry: Organic Molecules	Renewable Energy Organic Molecules Retrieval	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  Evaluate your knowledge of the Organic Molecules topic	Learners will develop their ability to train and prepare through working on past exam questions in order to become more proficient (VAA Hardworking).
Term 1.2	1	Chemistry- Chemical Reactions	Combustion Calculating Energy Change	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 ( $n=m/M_r$ ) to release a specific amount of energy	Learner will practise the ability to deduct, hypothesis, reason, seek supporting evidence when analysing combustion reactions of alcohols (ACP Analysing). Learners will be able to use their skills to write balanced chemical equations for the reactions of acids with ease (ACP Realising). Learners will learn to be able to work in teams and take a variety of roles by evaluating their own ideas and contributions when working in groups to calculate the energy change of a fuel (VAA Empathetic).

	<b>2</b>	Chemistry- Chemical Reactions	Reporting an Energy Investigation Neutralisation	<p>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</p> <p>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</p>	Learners will demonstrate their curiosity while exploring chemical concepts through the practical investigation and challenging the conclusions drawn in the theory lessons (VAA Agile). Learners will develop their abilities to collaborate with their peers when completing the practical investigation by reviewing the strategy, considering the steps to complete successfully and be willing to listen to the views of their team (VAA Empathetic).
	<b>3</b>	Chemistry- Chemical Reactions Chemistry: Rate of Reactions	Chemical Reactions Retrieval Collision Theory Effect of Temperature and Surface Area	<p>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</p> <p>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</p>	Learners will be practicing the ability to think fluently while generating ideas about collision theory and applying it to rate graphs (ACP Creating). Learners will be able to practise the ability to go beyond the absorption of knowledge to develop their own ideas and conclusions by investigating factors affecting rate using a simulation (VAA Agile). Learners will be able to break down a research task (the required practical) and decide a suitable approach to ensure you complete the task (ACP Analysing).
	<b>4</b>	Chemistry: Rate of Reactions	Effect of Concentration Reporting a Rate Investigation	<p>Use your knowledge to compare the particles in a solution of high and low concentration Calculate the concentration of a given solution (<math>n = cv</math>) Predict the relationship between concentration and rate of reaction using collision theory</p>	Learners will have the opportunity to approach this new investigation while connecting it to their existing knowledge of factors affecting rate to determine a suitable approach to the task (ACP Metathinking).

				<p>Apply your knowledge to determine the variables for an investigation</p> <p>Construct a table and/or graph to present your results</p> <p>Evaluate your results to write a valid conclusion supported by evidence</p>	<p>Learners will be seeking general conclusions about chemical reaction rates that can be applied to real world scenarios (ACP Linking).</p>
	<b>5</b>	Chemistry: Rate of Reactions	<p>Rates of Reaction and Industry</p> <p>Rate of Reaction Retrieval</p>	<p>Use your knowledge to explain why catalysts are commonly used in industry</p> <p>Analyse the use of high temperatures and determine any disadvantages when this method is used to increase yield</p> <p>Interpret data to calculate the percentage increase in profit for a given reaction under different conditions</p> <p>Evaluate your knowledge of the Rate of Reaction topic</p>	<p>Learners will practise the ability to think fluently while generating ideas in regards to how ammonia and sulfuric acid is produced in industry (ACP Creating).</p> <p>Learners will develop their ability to train and prepare through working on past exam questions in order to become more proficient (VAA Hardworking).</p>
	<b>6</b>	Chemistry Synoptic and Feedback Week	Chemistry Synoptic Feedback and Actions	<p>The success criteria explored for the Chemistry term will be assessed</p> <p>Evaluate your knowledge of the Chemistry content explored</p> <p>Determine the skill (Recall, Application, HSW, Maths) that is your area of strength and area of development to inform focus for next term</p> <p>Analyse your performance for each of the HPL Skills to determine your area of strength and area of development to inform focus for next term</p>	<p>Through revision for Chemistry retrieval, learners will have the opportunity to demonstrate their perseverance when answering challenging questions to assess their learning and be flexible when applying their knowledge to new and unfamiliar scenarios (VAA Hardworking and Agile). Learners will need to use their generalisations constructed during the term to support their answering of the questions while finding connections between content and skills across the Chemistry topics (ACP Linking).</p>