



Topics	This year in Chemistry we will be learning:	This links to:	Key Vocabulary:	
1 (HT1)	Unit 1 (Atomic structure and periodic table) <ul style="list-style-type: none"> Exploring the atomic structure history and describing it Exploring the history and development of periodic table and relating properties of elements based on their position in periodic table Explaining properties of group 1, 7, 0 and <i>transition metals</i> elements based on their atomic structure Explaining the choice of separation technique based on the type of mixture 	You will build your knowledge from year 9 about the particle model and how separation techniques work. You will apply the principle to choose the right method for different mixtures. You will look deeper into the atomic structure and learn what atoms are made up of and why periodic table helps us to understand the properties and characters of elements better. <i>Triple tier will learn about transition metals and their properties.</i>	<ul style="list-style-type: none"> Atoms Atomic number Mass number Isotope Alkali metals Halogens 	<ul style="list-style-type: none"> Noble gases <i>Transition metals</i> Distillation Filtration Chromatography Groups and periods
2 (HT1)	Unit 2 (Chemical Bonding) <ul style="list-style-type: none"> Explaining the bonding and structure of ionic, covalent and metallic substances Explaining the properties of giant covalent molecules and polymers based on their bonding and structure <i>Understand what nanoparticles are and their applications</i> 	In year 9 you have learnt what ionic, covalent and metallic bonding is and what their properties are. You will review the same information and apply your knowledge to analyse data and characters of different substances. You will also recall the different allotropes of carbon and their properties. You will look at different bonding models that help us understand the structures better. <i>Triple tier will learn about nanoparticles.</i>	<ul style="list-style-type: none"> Electrostatic forces Lattice Ions Intermolecular forces Allotropes 	<ul style="list-style-type: none"> Monomers Polymers Conductivity Nanoparticle
3 (HT2)	Unit 4 (Chemical changes) <ul style="list-style-type: none"> Understanding that metals have different reactivity and relating it to the choice of extraction method Learning about electrolysis and reduction using carbon as extraction methods Learning about properties and reactions of acids and bases 	In year 8 you have learnt about characters of metals and example of extraction methods. Now you will learn more about the process of electrolysis and reduction using carbon. You will also develop on your understanding about acids, bases and pH scale from year 8 by looking at more reactions and practical observation and data. <i>Triple tier will also look at the method of titration of acids to figure out unknown concentrations.</i>	<ul style="list-style-type: none"> Electrolysis Electrolyte Electrodes Redox Half equation 	<ul style="list-style-type: none"> Acid Alkali Indicator Neutralisation Crystallisation
4 (HT3)	Unit 3 (Quantitative chemistry) <ul style="list-style-type: none"> Learning to calculate relative formula mass of compounds and applying conservation of mass theory Learning about mole concept and applying it Learning to calculate concentration, <i>volume of gases, percentage yield and atom economy</i> 	In year 8 you have learnt about conservation of mass. We will apply it to calculate reacting masses of reactants and products. We will learn about mole concept and apply it to calculate unknown masses from balanced equations and concentrations of solutions. <i>Triple tiers will also learn to calculate volume of gases, percentage yield and atom economy.</i>	<ul style="list-style-type: none"> Conservation of mass Relative formula mass Limiting reagent Mole Avogadro's Number 	<ul style="list-style-type: none"> Concentration Theoretical yield Actual yield Percentage by mass
5 (HT4)	Unit 5 (energy changes) <ul style="list-style-type: none"> Understanding what exothermic and endothermic reactions are Being able to draw reaction profile diagram of these reactions Calculating energy change in a reaction using data and practical work <i>Learning how cells (batteries) and fuel cells work to generate energy</i> 	In year 8 you have learnt about exothermic and endothermic reactions and their examples. Now you will develop your understanding further to be able to draw reaction profile diagrams and calculating energy changes using practical data. <i>Triple tier will also look at application of energy changes through the working techniques of batteries and fuel cells.</i>	<ul style="list-style-type: none"> Exothermic reaction Endothermic reaction Reaction profile Overall energy change 	<ul style="list-style-type: none"> Chemical cells Fuel cells Rechargeable cells
6 (HT5 &6)	Unit 6 (Rate and extent of reaction) <ul style="list-style-type: none"> Understanding what is rate of reaction and how we can calculate it Explaining the effect of temperature, concentration, particle size, pressure and catalyst on rate of reaction Understanding what reversible reaction is how we achieve equilibrium Applying Le Chatelier's principle to control the yield of products 	In year 9 you have learnt about rate of reactions and the factors affecting it. You will be reviewing the content again through practical data collection and calculation using data and graph. You will also learn what reversible reaction is and how equilibrium is achieved. You will learn and apply Le Chatelier's principle to see the effect of temperature, concentration and pressure on yield of products of reversible reaction.	<ul style="list-style-type: none"> Collision theory Rate of reaction Surface area Catalyst Activation energy 	<ul style="list-style-type: none"> Tangent Gradient. Reversible reaction Equilibrium

Target Grade:

AP1:

AP2:

AP3:



Topics	This year in Chemistry we will be learning:	This links to:	Key Vocabulary:	
1 (HT1)	Unit 7 (Organic chemistry) <ul style="list-style-type: none"> Learning how fuels are made and what they are made up of Understanding that fuels are hydrocarbons which can be categorised as alkanes and alkenes and how they can be separated into fractions Learning the process of cracking and its importance <i>Learning about properties and reactions of alcohols and carboxylic acid</i> <i>Understanding polymerisation and applying it to biological polymers</i> 	In year 9 you have learnt about fuels and how to separate them. You will now review the same content and look at application questions. You will look deeper into alkanes and alkenes and their properties. Triple tiers will also learn about other homologous systems like alcohols and carboxylic acids along with biological polymers	<ul style="list-style-type: none"> Hydrocarbons Alkanes Alkenes Fractional distillation Cracking Homologous series 	<ul style="list-style-type: none"> Alcohols Carboxylic acid Esters Polymerisation Fermentation Nucleotides
2 (HT2)	Unit 8 (Chemical analysis) <ul style="list-style-type: none"> Understanding the difference between pure substance, mixtures and importance of formulations Applying chromatography to separate mixtures Learning test for common gases <i>Learning chemical and instrumental methods to test ions</i> 	In year 10 you looked at the difference between mixtures and separation techniques. Now you will revisit the process of chromatography and apply it to separate mixtures in small quantity. You will also learn what formulations are and their application. You will learn the common test for gases and ions by chemical and instrumental methods.	<ul style="list-style-type: none"> Chromatography Formulation Mobile phase Stationary phase Rf value 	<ul style="list-style-type: none"> Impure substance Pure substance <i>Flame test</i> <i>Flame emission spectroscopy</i>
3 (HT2)	Unit 9 (Atmosphere) <ul style="list-style-type: none"> Understanding how the atmosphere changed over time Explaining how human activities can affect our environment through greenhouse effect and how we can control it 	In year 9 you learnt about evolution of earth's atmosphere. You will look deeper into how different gases and life through photosynthesis changed the composition and temperature of earth's atmosphere. You will also look at how human activities is creating global climate crisis.	<ul style="list-style-type: none"> Climate change Greenhouse effect Complete combustion Incomplete combustion 	<ul style="list-style-type: none"> Acid rain Carbon Footprint Pollutants Global dimming
4 (HT3 and 4)	Unit 10 (Using resources) <ul style="list-style-type: none"> Understanding what potable water is and how we can make it treating natural water source Understanding and applying life cycle assessment to analyse sustainable products Looking at alternate methods of extraction of metals <i>Learning how to protect metals from corrosion</i> <i>Learning Haber's process and applying Le Chatelier's principle to increase yield of the product</i> 	You will learn how water collected from natural sources can be treated to get drinking water. You will learn how we apply the process of life cycle assessment to evaluate the sustainability of a product. We will link that to other methods of extraction of metals which can be more sustainable. <i>Triple sets will develop their knowledge and understanding of metallic bonding to understand how metals corrode and ways to resist it. You will also revisit the concept of equilibrium to Haber's process and increasing yield of ammonia.</i>	<ul style="list-style-type: none"> Potable water Ground water Desalination Sterilisation Sedimentation Phytomining Bioleaching Sustainable 	<ul style="list-style-type: none"> <i>Alloy</i> <i>Corrosion</i> <i>Electroplating</i> <i>Galvanise</i> <i>Sacrificial protection</i>
5 (HT5)	Revision			

Target Grade:

AP1:

AP2:

AP3: