Chemistry Curriculum Overview – Year 12 (Teacher A)

Sequencing of topics	What knowledge will students develop? (Including key terminology)	What skills will students develop? (Including literacy & numeracy)	Assessment opportunities	Homework opportunities	Personal development (Ursuline Values, Catholic Social Teaching, Cultural Capital, Cross-curricular, Careers)	Curriculum links
Autumn Term 1						
Nomenclature **Reaction mechanisms**	○ Give the empirical, molecular, general, structural, displayed and skeletal structure of organic molecules ○ Describe the characteristics of a homologous series ○ Draw the structure of, and name organic molecules with chains and rings with up to six carbon atoms each. ○ Write mechanisms for free radical reactions (free radical substitution of alkanes) ○ Draw mechanisms with curly arrow diagrams (electrophilic addition, nucleophilic addition and nucleophilic substitution at AS level). ○ Define structural isomerism and stereoisomerism	○ Visualise and represent 2D and 3D forms including 2D representations of 3D objects). ○ Make models of organic compounds ○ Name molecules given their structure, or draw the structure given the name ○ Write mechanisms for the reactions shown ○ Students suggest a mechanistic step in an unfamiliar reaction ○ Make models of isomers – visualise and represent 2D and 3D forms including 2D representations of 3D objects	○ AFL ○ Summative assessment ○ Formative assessment ○ CPAC skills assessment ○ Scientific report writing	○ Research Task ○ Exam questions ○ Write up of practical ○ Prepare a presentation ○ Flipped learning ○ Make notes	○ **United in harmony** when we consider the wider uses drugs, medicines and plastics ○ **Grateful** for medicine/vaccination ○ **Faith-filled and hopeful** when seeing beyond the naked eye and the advancements of medicine ○ **Discerning and joyful** at the possibilities of science and medicine ○ **Leading others in pursuit of justice** when planning and carrying out a practical ○ **Service and sacrifice** when we recognise the scientific work that has been done before us ○ **Dignity of the human person** when considering healthcare	KS4 ○ Yr 9 Bonding ○ Yr 9 Some simple organic chemistry, eg alkanes and ○ Yr 11 alkenes. ○ Yr 10 Empirical and molecular formulas KS4 ○ Yr 9 Bonding ○ Yr 9 Some simple organic chemistry, eg alkanes and ○ Yr 11 alkenes. ○ Yr 10 Empirical and molecular formulas

Isomerism **Alkanes**	○ Draw the structure of and name chain, position and functional group isomers ○ Explain the cause of *E–Z* isomerism ○ Draw the structure of and name *E–Z* isomers (using Cahn–Ingold–Prelog priority rules). ○ Explain that alkanes are saturated hydrocarbons ○ Explain how the alkanes in crude oil are separated by fractional distillation. ○ Understand how fractional distillation can be used to separate the alkanes in crude oil ○ Explain the commercial benefits of cracking ○ Describe how thermal and catalytic cracking are	○ Draw and name isomers, including using CIP rules to name *E–Z* isomers– visualise and represent 2D and 3D forms including 2D representations of 3D objects). ○ Identify pairs (or groups) of compounds which exhibit each type of isomerism ○ Draw and name alkanes visualise and represent 2D and 3D forms including 2D representations of 3D objects). ○ Describe and explain how alkanes in crude oil are separated by fractional distillation ○ Practical opportunity: Separate some alkanes into fractions from a crude oil substitute mixture ○ Safely and carefully handle solids and liquids, including corrosive, irritant, flammable and toxic substances).			○ **Courageous and resilient** when we consider how vaccines were developed and new drugs are trialled ○ **Loving and compassionate** when we think about those who have suffered serious illness and the The impact of our actions on our environment ○ **Care of God's creation** ○ **Dignity of God's people** ○ **Community and participation** ○ **Dignity in work** ○ **Solidarity** ○ **Personal** ○ **Cultural** ○ **Social** ○ **Art** ○ **History** ○ **Geography** ○ **PE** ○ **Maths** ○ **DT** ○ **Doctor** ○ **Analytical Chemist** ○ **Chemical Engineer** ○ **Environmental Chemist**	

Know/consider how pollution problems from burning alkanes can be reduced.	completed and the types of compounds that are produced. ○ Write equations for the complete and incomplete combustion of alkanes ○ Explain how a number of pollutants including NO_x, CO, C and unburned hydrocarbons are formed in the internal combustion engine and how their emissions can be reduced ○ Why SO_2 may be formed when fuels are burned and how it can be removed from flue gases. ○ Equations and mechanism for reaction of alkanes with halogens.	○ Practical opportunity: Crack some kerosene/paraffin ○ Construct a table to compare thermal and catalytic cracking in terms of conditions and products ○ Write balanced equations for the complete and incomplete combustion of alkanes ○ Construct a table to show why pollutants may be formed when fuels are burned and how these can be reduced ○ Analyse, interpret and evaluate scientific information. ○ Write balanced equations for reactions of alkanes with halogens ○ Write balanced equations to show the steps in the mechanism for these reactions ○ Research the usefulness of halogenoalkanes as anaesthetics ○			○ **Research Scientist** ○ **Patent Attorney** ○ **Nurse** ○ **Veterinary scientist** ○ **Midwife** ○ **Biomedical scientist** ○ **Dentist** ○ **Forensic Scientist** ○ **Nanotechnologist** ○ **Geoscientist** ○ **Food scientist** ○ **Pathologist** ○ **Pharmacist**	

Autumn Term 2						
Halogenoalkanes	○ Draw and name halogenoalkanes ○ Mechanisms for reactions of halogenoalkanes with OH^-, CN^- and NH_3 ○ Explain the relative rate of reaction of halogenoalkanes ○ Write equations and mechanisms for elimination reaction of halogenoalkanes using OH^- ○ Understand the concurrent nature of elimination and substitution when halogenoalkanes react with OH^- ○ Understand the different roles of the OH^- in these reactions.	○ Draw and name halogenoalkanes ○ Write equations and mechanisms for reactions of halogenoalkanes with OH^-, CN^- and NH_3 ○ Practical opportunity: Students carry out test-tube hydrolysis of halogenoalkanes to show their relative rates of reaction ○ Safely and carefully handle solids and liquids, including corrosive, irritant, flammable and toxic substances. ○ Practical opportunity: Students prepare a chloroalkane, purifying the product using a separating funnel and distillation (; AT - Use appropriate apparatus to record mass, and boiling points ; AT b - Use water bath or electric heater or sand bath for heating ; AT d - Use laboratory apparatus for a variety of experimental techniques including distillation and heating under reflux,	○ AFL ○ Summative assessment ○ Formative assessment ○ CPAC skills assessment ○ Scientific report writing	○ Research Task ○ Exam questions ○ Write up of practical ○ Prepare a presentation ○ Flipped learning ○ Make notes	○ **United in harmony** when we consider the wider uses drugs, medicines and plastics ○ **Grateful** for medicine/vaccination ○ **Faith-filled and hopeful** when seeing beyond the naked eye and the advancements of medicine ○ **Discerning and joyful** at the possibilities of science and medicine ○ **Leading others in pursuit of justice** when planning and carrying out a practical ○ **Service and sacrifice** when we recognise the scientific work that has been done before us ○ **Dignity of the human person** when considering healthcare ○ **Courageous and resilient** when we consider how vaccines were developed and new drugs are trialled	KS4 ○ Yr 9 Bonding ○ Yr 9 Some simple organic chemistry, eg alkanes and ○ Yr 11 alkenes. ○ Yr 10 Empirical and molecular formulas KS4 ○ Yr 9 Bonding ○ Yr 9 Some simple organic chemistry, eg alkanes and ○ Yr 11 alkenes ○ Yr 10 Empirical and molecular formulas

	○ Understand the role of ozone in the atmosphere ○ Understand how chlorine free radicals can be formed in the atmosphere from compounds such as CFCs ○ Understand the mechanism for the depletion of ozone by chlorine free radicals ○ Evaluate the role of chemists in the introduction of legislation to ban the use of CFCs and to find replacements. ○ The role of ozone in the atmosphere. ○ How Cl free radicals are formed in the atmosphere and how they destroy ozone. ○ How research evidence led to the end of use of CFCs and alternatives found.	○ write equations and mechanisms for reactions of halogenoalkanes with OH^-, both for elimination and substitution reactions ○ Students investigate the presence and role of ozone in the atmosphere ○ Write equations and mechanisms for the formation of chlorine free radicals and the destruction of ozone ○ Understand why suitable replacements for CFCs do not destroy ozone ○ Students investigate the role of chemists in the introduction of legislation to ban the use of CFCs and in finding replacements ○ Rich question – CFCs are still used in some countries – how can we stop this?			○ **Loving and compassionate** when we think about those who have suffered serious illness and the The impact of our actions on our environment ○ **Dignity of God's people** ○ **Care for Creation** ○ **Community and participation** ○ **Dignity in work** ○ **Solidarity** ○ **Personal** ○ **Cultural** ○ **Social** ○ **Art** ○ **History** ○ **Geography** ○ **PE** ○ **Maths** ○ **DT** ○ **Doctor** ○ **Analytical Chemist** ○ **Environmental Chemist** ○ **Research Scientist** ○ **Patent Attorney** ○ **Nurse** ○ **Veterinary scientist** ○ **Midwife** ○ **Biomedical scientist** ○ **Dentist** ○ **Forensic Scientist** ○ **Nanotechnologist**	

Alkenes **Polymerisation**	○ Draw alkenes ○ Understand that the double bond is an area of high electron density. ○ Write equations and mechanisms for reactions of alkenes with HBr, H_2SO_4 and HBr ○ Explain the potential formation of major and minor products in these reactions. ○ Describe what a polymer is ○ Identify the repeating unit of an addition polymer given the monomer structure and vice versa ○ Name polymers from the name of the monomer ○ Explain how polymers have developed over time ○ Give some uses of PVC and how plasticisers can change its properties ○ Explain why addition polymers are unreactive ○ Explain the nature of the intermolecular forces between polyalkene molecules.	○ Draw and name alkenes, including *E–Z* isomers ○ Use angles and shapes in regular 2D and 3D structures of alkenes). ○ Write equations for reactions of alkenes with HBr, H_2SO_4 and HBr ○ Draw mechanisms for reactions of alkenes with HBr, H_2SO_4 and HBr, including explaining why there may be major and minor products ○ Practical opportunity: Students test organic compounds for unsaturation using bromine water and record their observations ○ Safely and carefully handle solids and liquids, including corrosive, irritant, flammable and toxic substances). ○ Students could each make a model of a monomer using Molymods and then students collectively join them together to			○ **Geoscientist** ○ **Food scientist** ○ **Pathologist** ○ **Pharmacist**	

		make a long polymer chain ○ Draw the structure of the monomer, repeating unit of the polymer and a section of the polymer chain given one of the others; students should also be able to name the polymer from the monomer name and vice versa ○ Students should consider how polymer technology has developed over time ○ Students should research uses of PVC and how plasticisers change its properties ○ Practical opportunity: Students make poly(phenylethane				

Spring Term 1						
Alcohols	○ Write equations and give conditions for the production of alcohols by hydration of alkenes ○ Outline the mechanism for formation of ethanol from reaction of ethene with steam with an acid catalyst ○ Write an equation, give and justify conditions for the production of ethanol by fermentation of glucose ○ Compare the two methods of producing ethanol ○ Explain the meaning of the term biofuel ○ Evaluate the use of ethanol as a biofuel ○ Show using equations how ethanol made by fermentation can be regarded as carbon neutral but that in reality it is not. ○ Classify alcohols as primary, secondary or tertiary. ○ Identify products and write equations for oxidation reactions of alcohols. ○ Use chemical tests to distinguish aldehydes and ketones. ○ Identify products of alcohol elimination reactions ○ Write equations and mechanism for alcohol elimination reactions	○ Write equations for the production of alcohols from alkenes ○ Produce a summary table to compare and contrast the two methods of making ethanol ○ Outline the mechanism to make ethanol from reaction of ethene with steam with an acid catalyst ○ Students could produce ethanol by fermentation, followed by purification by fractional distillation AT d - Use laboratory apparatus for a variety of experimental techniques including distillation and setting up glassware using retort stand and clamps; ○ Evaluate the use of biofuels ○ Show by use of chemical equation that the formation of ethanol by fermentation can be thought of as being	○ AFL ○ Summative assessment ○ Formative assessment ○ CPAC skills assessment ○ Scientific report writing	○ Research Task ○ Exam questions ○ Write up of practical ○ Prepare a presentation ○ Flipped learning ○ Make notes	○ **United in harmony** when we consider the wider uses drugs, medicines and plastics ○ **Grateful** for medicine/vaccination ○ **Faith-filled and hopeful** when seeing beyond the naked eye and the advancements of medicine ○ **Discerning and joyful** at the possibilities of science and medicine ○ **Leading others in pursuit of justice** when planning and carrying out a practical ○ **Service and sacrifice** when we recognise the scientific work that has been done before us ○ **Dignity of the human person** when considering healthcare ○ **Courageous and resilient** when we consider how vaccines were developed and new drugs are trialled	KS4 ○ Yr 9 Bonding ○ Yr 9 Some simple organic chemistry, eg alkanes and ○ Yr 11 Empirical and molecular formulas ○ alkenes. ○ Biofuels ○ Production of ethanol. ○ Addition polymers KS5 ○ Yr 13 Esters

	○ Understand how addition polymers can be made from alkenes made this way without using monomers derived from crude oil. ○ **Core Practical 5: Distillation of a product from a reaction**	carbon neutral, but why it is not in reality ○ Draw and name alcohols and classify them as primary, secondary or tertiary ○ Write equations to show oxidation reactions of alcohols ○ Practical opportunity: Carry out test-tube reactions to distinguish tertiary alcohols from primary and secondary by reaction with acidified potassium dichromate(VI) (AT b - Use water bath or electric heater or sand bath for heating; AT d - Use laboratory apparatus for qualitative tests for organic functional groups; AT k - Safely and carefully handle solids and liquids, including corrosive, irritant, flammable and toxic substances). ○ Practical opportunity: Carry out test-tube reactions to distinguish aldehydes from ketones by reaction with Tollens' reagent and Fehling's solution			○ **Loving and compassionate** when we think about those who have suffered serious illness and the The impact of our actions on our environment ○ **Dignity of God's people** ○ **Care of Creation** ○ **Community and participation** ○ **Dignity in work** ○ **Solidarity** ○ **Personal** ○ **Cultural** ○ **Social** ○ **Art** ○ **Biology** ○ **History** ○ **Geography** ○ **PE** ○ **Maths** ○ **DT** ○ **Doctor** ○ **Analytical Chemist** ○ **Environmental Chemist** ○ **Research Scientist** ○ **Patent Attorney** ○ **Nurse** ○ **Veterinary scientist** ○ **Midwife** ○ **Biomedical scientist** ○ **Dentist** ○ **Forensic Scientist**	

		○ Practical opportunity: The preparation of ethanal; AT b - Use water bath or electric heater or sand bath for heating; AT d - Use laboratory apparatus for a variety of experimental techniques including distillation and heating under reflux, including setting up glassware using retort stand and clamps; AT k . ○ Students should identify alkenes formed from elimination of alcohols and write equations and mechanism for their production. ○ Practical opportunity: Students could carry out the preparation of cyclohexene from cyclohexanol, including purification using a separating funnel and by distillation ; AT b - Use water bath or electric heater or sand bath for heating; AT d - Use laboratory apparatus			○ **Nanotechnologist** ○ **Geoscientist** ○ **Food scientist** ○ **Pathologist** ○ **Pharmacist**	

		for a variety of experimental techniques including distillation and heating under reflux, including setting up glassware using retort stand and clamps; AT g - Purify a liquid product, including use of separating funnel; AT k - Safely and carefully handle solids and liquids, including corrosive, irritant, flammable and toxic substances.				

Spring Term 2						
Organic analysis: Practical skills- Mass spectrometry Infra red	○ Carry out test-tube reactions in the specification to distinguish alcohols, aldehydes, alkenes and carboxylic acids, and interpret the observations from these reactions. ○ Observing and recording results accurately ○ Carry out risk assessment for a practical ○ **Core practical 6: Tests for alcohols, aldehydes, alkenes and carboxylic acid. Periodicity**	○ Practical opportunity: Students carry out test-tube reactions in the specification to distinguish alcohols, aldehydes, alkenes and carboxylic acids AT b – ○ Use water bath or electric heater or sand bath for heating; AT d - Use laboratory apparatus for qualitative tests for organic functional groups; ○ AT k - Safely and carefully handle solids and liquids, including corrosive, irritant, flammable and toxic substances; PS 2.2 - Present results of reactions in appropriate ways; PS 2.3 - Evaluate results and draw conclusions ○ Write equations for the reactions occurring. ○ Use precise atomic masses to calculate the precise molecular mass of a compound	○ AFL ○ Summative assessment ○ Formative assessment ○ CPAC skills assessment ○ Scientific report writing	○ Research Task ○ Exam questions ○ Write up of practical ○ Prepare a presentation ○ Flipped learning ○ Make notes	○ **United in harmony** when we consider the wider uses drugs, medicines and plastics ○ **Grateful** for medicine/vaccination ○ **Faith-filled and hopeful** when seeing beyond the naked eye and the advancements of medicine ○ **Discerning and joyful** at the possibilities of science and medicine ○ **Leading others in pursuit of justice** when planning and carrying out a practical ○ **Service and sacrifice** when we recognise the scientific work that has been done before us ○ **Dignity of the human person** when considering healthcare ○ **Courageous and resilient** when we consider how vaccines were developed and new drugs are trialled	KS3-4 ○ Working scientifically ○ Yr 12 Introduction to Mass spectrometry

	○ Identify functional groups from infra-red spectra ○ understand how the "fingerprint" region of a spectrum can be used ○ Understand the link between absorption of infrared radiation by bonds in CO_2, methane and water vapour and global warming	in order to determine the molecular formula ▪ Use an appropriate number of significant figures. ○ Students identify functional groups from infra-red spectra ○ Students research the relative effect of different gases on global warming			○ **Loving and compassionate** when we think about those who have suffered serious illness and The impact of our actions on our environment ○ **Dignity of God's people** ○ **Community and participation** ○ **Dignity in work** ○ **Solidarity** ○ **Personal** ○ **Cultural** ○ **Social** ○ **Art** ○ **History** ○ **Geography** ○ **PE** ○ **Maths** ○ **DT** ○ **Doctor, Nurse** ○ **Analytical Chemist** ○ **Environmental Chemist** ○ **Research Scientist** ○ **Patent Attorney** ○ **Pathologist** ○ **Veterinary scientist** ○ **Midwife** ○ **Biomedical scientist** ○ **Dentist, Pharmacist** ○ **Forensic Scientist** ○ **Nanotechnologist** ○ **Geoscientist** ○ **Food scientist**	

Summer Term 1						
Group 7	○ Describe and explain the trends down Group 7 in electronegativity and boiling points ○ Describe and explain the trends in oxidising power of the halogens, illustrated by displacement reactions of halide ions ○ Describe and explain the trends in reducing power of the halide ions, illustrated by reactions of concentrated sulfuric acid with solid sodium halides ○ Describe and explain how halide ions can be identified using acidified silver nitrate and the solubility of silver halides in ammonia ○ Explain why the silver nitrate used is acidified. ○ Know the reactions of chlorine with water ○ Know how and why chlorine is used in water treatment ○ Evaluate advantages and disadvantages of adding chemicals to water ○ Know the reaction of sodium hydroxide with water and uses of the solution formed.	○ Students plot data on graphs for electronegativity and boiling point and explain those trends ○ Practical opportunity: Students carry out test-tube reactions of solutions of the halogen (Cl_2, Br_2, I_2) with solutions containing their halide ions (eg KCl, KBr, KI) ; ○ Practical opportunity: Students record observations from reactions of NaCl, NaBr and NaI with concentrated sulfuric acid. ○ Present results of test-tube reactions in appropriate ways). ○ Practical opportunity: Students could carry out tests for halide ions using acidified silver nitrate, including the use of ammonia to distinguish the silver halides formed AT d - Use laboratory apparatus for qualitative tests for ions; AT k - ○ Use laboratory apparatus for	○ AFL ○ Summative assessment ○ Formative assessment ○ CPAC skills assessment ○ Scientific report writing	○ Research Task ○ Exam questions ○ Write up of practical ○ Prepare a presentation ○ Flipped learning ○ Make notes	○ **United in harmony** when we consider the wider uses drugs, medicines and plastics ○ **Grateful** for medicine/vaccination ○ **Faith-filled and hopeful** when seeing beyond the naked eye and the advancements of medicine ○ **Discerning and joyful** at the possibilities of science and medicine ○ **Leading others in pursuit of justice** when planning and carrying out a practical ○ **Service and sacrifice** when we recognise the scientific work that has been done before us ○ **Dignity of the human person** when considering healthcare ○ **Courageous and resilient** when we consider how vaccines were developed and new drugs are trialled	KS4 Year 9 Periodic table KS5 Yr 12 ○ Ionic equations ○ Electronegativity ○ Bonding ○ Oxidation states and redox equations

	○ Know and explain trends in atomic radius, first ionisation energy and melting point from Mg–Ba ○ Know the role of Mg in the extraction of Ti ○ Describe and write equations for the reactions of Mg–Ba with water ○ Know the solubility of Group 2 sulfates and hydroxides ○ Know uses of $Mg(OH)_2$ and $BaSO_4$ in medicine; $BaSO_4$ in testing for sulfate ions; $Ca(OH)_2$ in agriculture; Mg in the extraction of Ti; $CaO/CaCO_3$ in removing SO_2 from flue gases.	qualitative tests for ions; AT k - Safely and carefully handle solids and liquids, including corrosive, irritant, flammable and toxic substances ○ Students investigate and evaluate the treatment of drinking water with chlorine ○ Students investigate and evaluate the addition of sodium fluoride to water supplies (AO3 - Analyse, interpret and evaluate scientific information). ○ Students plot data on graphs for atomic radius, first ionisation energy and melting point and explain those trends ○ Plot two variables from experimental or other data). ○ Practical opportunity: Students test the reactions of Mg–Ba with water and Mg with steam and record their results ○ Test the solubility of Group 2 hydroxides by mixing solutions of soluble Group 2 salts			○ **Loving and compassionate** when we think about those who have suffered serious illness and the The impact of our actions on our environment ○ **Dignity of God's people** ○ **Community and participation** ○ **Dignity in work** ○ **Solidarity** ○ **Personal** ○ **Cultural** ○ **Social** ○ **Art** ○ **History** ○ **Geography** ○ **PE** ○ **Maths** ○ **DT** ○ **Doctor** ○ **Analytical Chemist** ○ **Environmental Chemist** ○ **Research Scientist** ○ **Patent Attorney** ○ **Nurse** ○ **Veterinary scientist** ○ **Midwife** ○ **Biomedical scientist** ○ **Dentist** ○ **Forensic Scientist** ○ **Nanotechnologist** ○ **Geoscientist**	

Group 2	**Core Practical 4. Carry out test tube reactions to identify cations an**	with sodium hydroxide and record their results ○ Practical opportunity: Test the solubility of Group 2 sulfates by mixing solutions of soluble Group 2 salts with sulfuric acid and record their results ○ Practical opportunity: Test for sulfate ions using acidified barium chloride and record their results ○ Research uses of the following: $Mg(OH)_2$ and $BaSO_4$ in ○ Medicine; $BaSO_4$ in testing for sulfate ions; $Ca(OH)_2$ in agriculture; Mg in the extraction of Ti; $CaO/CaCO_3$ in removing SO_2 from flue gases ○ Practical opportunity: Students identify some “unknown” group 2 compounds by their reactions with NaOH and sulfate ions.			○ **Food scientist** ○ **Pathologist** ○ **Pharmacist**	

Summer Term 2						
Period 3 Elements **A2 Content** Properties of Period 3 elements and their oxides	○ Classification ○ Physical properties of Period 3 elements ○ Reactions of Na and Mg with water. ○ Reactions of Na, Mg, Al, Si, P and S with oxygen. ○ Melting points of period 3 oxides. ○ Reactions of period 3 oxides with water.	○ Classify an element as an s, p,d or f block element using its electron structure ○ Plot data on graphs for atomic radius, first ionisation energy and melting point and explain those trends ○ Describe and write equations for reactions of Na and Mg with water ○ Describe and write equations for reactions of Na, Mg, Al, Si, P and S with oxygen ○ Describe and explain the trend in melting points of period 3 oxides ○ Write equations for the reactions of period 3 oxides with water and describe the pH of the solutions formed ○ Predict reactions of period 3 elements ○ Describe the structure and bonding of period 3 oxides, and link this to how they react with water.	○ AFL ○ Summative assessment ○ Formative assessment ○ CPAC skills assessment ○ Scientific report writing	○ Research Task ○ Exam questions ○ Write up of practical ○ Prepare a presentation ○ Flipped learning Make notes	○ **United in harmony** when we consider the wider uses drugs, medicines and plastics ○ **Grateful** for medicine/vaccination ○ **Faith-filled and hopeful** when seeing beyond the naked eye and the advancements of medicine ○ **Discerning and joyful** at the possibilities of science and medicine ○ **Leading others in pursuit of justice** when planning and carrying out a practical ○ **Service and sacrifice** when we recognise the scientific work that has been done before us ○ **Dignity of the human person** when considering healthcare ○ **Courageous and resilient** when we consider how vaccines were developed and new drugs are trialled	**KS3/4** ○ **Yr & 8** ○ Periodic table ○ **Yr 9&12** ○ Bonding **KS5** **Yr 12 Group 2 and 7** ○ Electron structure ○ Ionisation energy ○ Bonding

○ **Revision for QFE** ○ **Required practicals** ○ Possible start of A2 Content: Isomerism Optical Isomerism	The whole of Year 12 content				○ **Loving and compassionate** when we think about those who have suffered serious illness and the The impact of our actions on our environment ○ **Dignity of God's people** ○ **Community and participation** ○ **Dignity in work** ○ **Solidarity** ○ **Personal** ○ **Cultural** ○ **Social** ○ **Art** ○ **History** ○ **Geography** ○ **Maths** ○ **DT** ○ **Doctor** ○ **Analytical Chemist** ○ **Environmental Chemist** ○ **Research Scientist** ○ **Patent Attorney** ○ **Veterinary scientist** ○ **Midwife/Nurse** ○ **Biomedical scientist** ○ **Dentist** ○ **Forensic Scientist** ○ **Nanotechnologist** ○ **Geoscientist** ○ **Food scientist** ○ **Pathologist** ○ **Pharmacist**	