½ TERM	TAUGHT CURRICULUM	TAUGHT SKILLS	SUMMATIVE ASSESSMENT TITLE/TYPE	ASSESSMENT CRITERIA	LEARNED CURRICULUM
TOPIC					
1-3	Rate & Extent of Chemical Change ● Calculating rates of reaction ● Factors which affect the rate of reaction ● Collision theory ● Catalysts ● Reversible reactions Energy changes ● Equilibrium Organic Chemistry ● Crude oil, hydrocarbons and alkanes ● Fractional distillation and petrochemicals ● Properties of hydrocarbons	● Rates of reaction practicals - comparing 2 different methods (sodium thiosulphate and the magnesium with HCl) ● Tangent graphs and curve of best fit graphs to display results ● Scientific drawings of organic compounds such as alkanes, alkenes, alcohols, carboxylic acids	20-40 Marks of exam style questions in the final week of each half term. Full topic/progress lists available in pupils' exercise books.	AO1: Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures. AO2: Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures. AO3: Analyse information and ideas to: interpret and evaluate; make judgments and draw conclusions; develop and improve experimental procedures	● *Research collision theory* ● *Research Catalysts - various types and uses in everyday processes* ● *Research uses of ammonia in a variety of industrial processes including fertilisers* ● *Prior KS3 knowledge of crude oil and separating mixtures i.e fractional distillation*

	● Structure and formulae of alkenes ● Reactions of alkenes ● Alcohols ● Carboxylic acids ● Addition polymerisation ● Condensation polymerisation (HT only) ● Amino acids (HT only) ● DNA (deoxyribonucleic acid) and other naturally occurring polymers				
4-6	Chemical Analysis ● Pure substances, formulations ● Chromatography ● Tests for Gases - Oxygen, Hydrogen, Chlorine and Carbon dioxide ● Flame tests ● Metal hydroxides ● Carbonates ● Halides ● Sulfates ● Instrumental	● Practical skills in Chromatography and analysing Rf values ● Using various techniques to test for gases - lit splint for hydrogen, glowing splint for oxygen, litmus paper for chlorine and limewater for carbon dioxide	20 Marks of exam style questions in the final week of each half term. Full topic/progress lists available in pupils' exercise books.	AO1: Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures. AO2: Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures. AO3: Analyse information and ideas to: interpret and	● Research uses of chromatography in a variety of fields such as food colouring tests to forensic science - compare to gas chromatography ● Research flame spectrometry ● Research the

	methods ● Flame emissions spectroscopy Chemistry of the Atmosphere ● Proportions of gases in the atmosphere ● Changes of early Earth atmosphere to present day - how oxygen increased and how carbon dioxide decreased ● Greenhouse gases - man-made and natural sources ● Global climate change, the carbon footprint and how to reduce it ● Atmospheric pollutants from fuels - Properties and effects of pollutants	● Practical skills in identifying unknown metal salts ● Writing formulae to show the reactants and products in both complete and incomplete combustion ● Comparison of Earth's early atmosphere to other planets in the solar system eg Mars and Venus	20 Marks of exam style questions in the final week of each half term. Full topic/progress lists available in pupils' exercise books.	evaluate; make judgments and draw conclusions; develop and improve experimental procedures	progress of the early atmosphere - Miller-Urey experiment ● Debates on climate change and the greenhouse effect ● Link the products of combustion of fuels to specific effects on the environment eg Sulphur dioxide causes acid rain, incomplete combustion of hydrocarbons causes soot and particulates which leads to global dimming. Useful links: SENECA Learning https://senecalearning.com/en-GB/ BBC Bitesize https://www.bbc.co.uk/bitesize/examspecs/z8xtmnb

					(GCSE Chemistry) https://www.bbc.co.uk/bitesize/examspecs/z8r997h (Combined)

Curriculum Assessment Map **Year:** Year 11 **Subject + Course details:** Separate Science Chemistry

AQA >

½ TERM TOPIC	TAUGHT CURRICULUM	TAUGHT SKILLS	SUMMATIVE ASSESSMENT TITLE/TYPE	ASSESSMENT CRITERIA	LEARNED CURRICULUM
1-3	Using resources: Define the terms: ● finite ● Renewable ● Sustainable Explain the differences between the two terms using suitable examples. Potable water Required practical Define the terms: ● potable water ● pure water. Waste Water Treatment: Learning each stage of the process eg Sewage treatment includes: ● screening and grit removal ● sedimentation to produce sewage sludge and effluent	● Analyse data and statistics. Evaluate production of materials. ● Distillation, evaporation, pH testing and analysis of samples ● Communication using a flow chart and labelled diagrams	20 Marks of exam style questions in the final week of each half term. Full topic/progress lists available in pupils' exercise books. Mock exam - 75 minutes in formal conditions.	AO1: Demonstrate knowledge and understanding of: scientific ideas; scientific techniques and procedures. AO2: Apply knowledge and understanding of: scientific ideas; scientific enquiry, techniques and procedures. AO3: Analyse information and ideas to: interpret and evaluate; make judgments and draw conclusions; develop and improve experimental procedures.	● *Critical thinking linked to current global issues.* ● Extended writing: describe the process of desalination. ● Extended writing: describe the process of distillation ● Extended writing: explain why distillation separates substances.

	● anaerobic digestion of sewage sludge ● aerobic biological treatment of effluent. <u>Alternative methods of extracting metals (Higher tier)</u> The process of: ● phytomining ● bioleaching <u>Life Cycle Assessments</u> ● extracting and processing raw materials ● manufacturing and packaging ● use and operation during its lifetime ● disposal at the end of its useful life, including transport and distribution at each stage. <u>Ways of reducing the use of resources</u> The reduction in use, reuse and recycling of	● Evaluate the impacts and benefits of biological methods of extracting metal. Use information to interpret the LCA of a given material or product. Discuss the negative issues relating to LCAs and why caution should be used when using them. Discuss the issues relating to using limited resources to generate energy.			Describe what a LCA is using a suitable example.

	materials by end users reduces the use of limited resources, energy consumption, waste and environmental impacts. Corrosion and its prevention Alloys as useful materials Ceramics, polymers and composites	Data analysis Comparison of energy costs Describe experiments and interpret results to show that both air and water are necessary for rusting. Explain sacrificial protection in terms of relative reactivity. Recall a use of each of the alloys specified Interpret and evaluate the composition and uses of alloys other than those specified, given appropriate information. Compare quantitatively the physical properties of glass and clay ceramics, polymers, composites and metals.			Extended writing: describe the environmental impacts of obtaining raw materials from the Earth. Define the following terms using suitable examples: *corrosion* *rusting* *sacrificial protection.* Define the terms: alloy high carbon steel low carbon steel. Using diagrams, describe the difference between metals and their alloys. Describe the composition of common alloys and their uses. Describe how the following are produced and give uses for each: soda-lime glass borosilicate glass clay ceramics

	The Haber process	Write a balanced symbol equation for the manufacture of ammonia. Use this to describe the reaction in terms of reactants, products, conditions and number of moles. (HT only) Interpret graphs of reaction conditions versus rate. (HT only) Apply the principles of dynamic equilibrium to the Haber process. (HT only) Explain the trade-off between rate of production and position of equilibrium. (HT only) Explain how the commercially used conditions for the Haber process are related to the availability and cost of raw materials and energy supplies, control of equilibrium position and			low-density poly(ethene) high density poly(ethene) composites. Discuss the effect of the following conditions on the reaction: a high temperature a low temperature a high pressure a low pressure use of a catalyst no catalyst.

	Production and uses of NPK fertilizers Revision of paper 1	rate.			Extended writing: compare how fertilisers are produced in industry and in the laboratory.
	Revision of paper 2				Useful links: SENECA Learning https://senecalearning.com/en-GB/ BBC Bitesize https://www.bbc.co.uk/bitesize/examspecs/z8xtmnb (GCSE Chemistry) https://www.bbc.co.uk/bitesize/examspecs/z8r997h (Combined)