Chemistry Year 11 Curriculum End Points and key vocabulary

	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Unit of Work	Rate and Extent of Chemical Change	Organic Chemistry	Using Resources	Chemistry of the Atmosphere	Revision	
Ethos links	**STEM** – How conditions can be altered to change the yield in a reaction	**STEM** – creating products such as fuels and polymers from oil. **Sust.** – using oil responsibly	**STEM –** Uses of science and technology to create fertilisers **Sust.** – recycling, using life cycle assessments to make sustainable choices, treating waste water before letting into environment	**Sust.** Evolution of the atmosphere, how humans are impacting the atmosphere		
Knowledge	By the end of this unit students will know and understand: - How rate of reaction is measured and calculated - The factors affecting rate of reaction and how this happens - Collision theory and activation energy - What a catalyst is and how they work - What a reversible reaction is and some examples - What equilibrium is and the factors affecting position of equilibrium - How changing concentration, temperature and pressure effects equilibrium (HT)	By the end of this unit students will know and understand: - What crude oil is and how it was formed - What is meant by hydrocarbon and alkane, including how to name alkanes, write their formula and draw displayed structure - How fractional distillation is used to separate crude oil - The properties of hydrocarbons and how these are related to chain length - How long chain hydrocarbons are turned into shorter chains by cracking, and that this produces an alkene - The structure and formulae of alkenes (triple only) - How alkenes react with oxygen, hydrogen, water and halogens (triple only - What alcohols are, including the names, structural and displayed formulae of the first four alcohols (triple only)	By the end of this unit students will know and understand: - How humans use the Earth's resources, both finite and renewable, and the implications of this - How potable water is produced from ground water - How waste water is treated before being released to the environment - How phytomining and bioleaching are used to extract copper - What a life cycle assessment is, why it is important and how to complete one - How recycling can be used to reduce the use of resources - What is meant by corrosion and how it is prevented (triple only) - The composition of common alloys and their uses (triple only) - The formation of ceramics and composites and what they are used for (triple only) - How soda-lime and borosilicate glass are made	By the end of this unit students will know and understand: - The proportions of the gases in todays atmosphere and the early atmosphere - What causes of the changes to the atmosphere - What is meant by greenhouse gases, where they come from and how they cause the greenhouse effect - Causes and effects of global warming - What is meant by carbon footprint and how to reduce it - Common atmospheric pollutants and where they come from, and the consequences of them	Please see previous units for a breakdown of key knowledge	-

		- How alcohols react with sodium, air, water and an oxidising agent (triple only) - How alcohols are made (triple only) - What carboxylic acids are, including the name, structural and displayed formulae of the first four (triple only_ - How carboxylic acids react with carbonates, dissolve in water and react with alcohols (triple only) - The addition polymerisation of alkenes (triple only) - The condensation polymerisation of diols and dioic acids (triple only) - The structure of amino acids and how these polymerise to form proteins (triple only) - How DNA is produced from two polymer chains (triple only) -	and the differences in properties and uses (triple only) - The production of thermosoftening and thermosetting polymers and HD and LD polymers (triple only) - How the Haber process is used to make ammonia (triple only) - The production of NPK fertilisers (triple only)			
Key vocabulary	Rate of reaction Collision theory Catalyst Reversible reaction Equilibrium Le Chatelier Yield	Crude oil Hydrocarbon Alkane Alkene Fractional distillation Cracking Functional group Alcohol Carboxylic acid Polymer Amino acid Ester Polypeptide Addition polymer Condensation polymer Combustion	Finite Renewable Phytomining Bioleaching Ceramic Composite Alloy Corrosion Potable Thermosoftening Thermosetting	Atmosphere Composition Green house effect Global warming Carbon footprint		