	Year 9 Chemistry					
	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
BIG Q Content *(max 5)* Please log into Seneca to support your child to understand this learning	***Different materials are suitable for different jobs. How can our knowledge of elements, compounds, ceramics, polymers, and composites help us choose the most appropriate material?*** Define and compare atoms, elements, molecules and compounds. Construct equations to represent chemical changes. Explain how the properties of polymers and ceramics relate to their function.	***How does understanding the energy change in reactions help us choose reactions to use in everyday products such as handwarmers?*** Describe examples of exothermic and endothermic reactions. Explain the energy changes taking place in reactions. Construct reaction profiles for exothermic and endothermic reactions. Describe what a catalyst is and explain how they work.	***How can we use our knowledge of energy changes in reactions to identify the most effective fuels?*** Calculate masses of products from given reactions Write word equations to represent chemical changes including combustion. Determine the energy content of different fuels. Compare the effectiveness of fuels.	***How can we use our knowledge of chemical reactions to make predictions about the masses of products compared to reactants?*** Describe what happens in a thermal decomposition reaction. Recognise and explain thermal decomposition reactions and describe some uses. Explain apparent mass changes for chemical and physical processes. Use particle diagrams to explain apparent changes in mass in chemical processes.	***How do human activities, such as burning fossil fuels and deforestation, accelerate the release of stored carbon into the atmosphere, and how can we predict the effect this will have on the global climate?*** Describe the carbon cycle and the composition of our atmosphere. Describe and explain how the atmosphere has changed over time. Describe the greenhouse effect and explain the consequences of global warming.	***How can we use our knowledge of how metals are extracted to explain the importance of recycling metals?*** Explain how human activity limits the resources that Earth provides. Describe examples of recycling. Compare the efficiency of recycling methods. Describe how metals can be extracted. Compare methods of extraction.
Vocabulary *(max 10)* Please log into MAPPER to support your child to learn these words	Atom Ceramic Chemical formula Composite Compound Element Molecule Monomer Polymer Synthetic	Activation Energy Bond breaking Bond making Catalyst Catalytic converter Chemical reaction Endothermic reaction Energy Level Diagram Enzyme Exothermic	Combustion Complete combustion Conservation of mass Energy Fuel Incomplete combustion Oxidation Physical change Product Reactant	Carbonate Conservation of mass Limewater Product Reactant Thermal decomposition Thermally stable	Atmosphere Carbon cycle Carbon sink Fossilisation Fossil fuel Global warming Greenhouse effect Greenhouse gases Photosynthesis Respiration	Electrolysis Extraction Landfill Ore Quarrying Reactivity series Recycling Reduction Reusing Sustainable
Catholic Link	Care for God's Creation: Polymer degradation and pollution. This theme demands that we address plastic pollution in oceans and landfills to protect the planet.	Rights and Responsibilities: Conservation of energy and finite resource limits.	Options for the Poor and Vulnerable: Energy density and the cost of extracting or synthesizing chemical fuels.	Life and Dignity of the Human Person: Every single atom has value and purpose in the system, just as every human life has inherent value.	Stewardship: Global warming damages ecosystems. Protecting nature is a moral requirement.	Care for God's Creation: Conserving Earth's finite metal resources preserves the planet for future generations.
Careers Link	Inorganic Chemist, Organic Chemist, Polymer Chemist	Sustainability Analyst, Organic Chemist, Industry Chemist	Industry Chemist, Process Chemist, Petrolum Chemist	Industry Chemist, Process Chemist, Organic Chemist	Atmospheric Scientist, Environmental Toxicologist, Carbon analyst	Waste Management Scientist, Environmental Consultant, Renewable Energy Scientist

Ways to enrich the Y9 Chemistry curriculum at home:

- Watch the videos about concrete, carbon fibre and polymers https://www.bbc.co.uk/teach/class-clips-video/articles/zdcw47h Produce a poster for one of them showing their properties and uses.
- Research real world application of catalysts
- Check your rubbish! Could you be recycling more at home?