Science KS4 Curriculum Intent, Implementation and Impact Overview

	Year: 10 Subject: Separate Chemistry IMPLEMENTATION					
INTENT (**AQA GCSE Chemistry (9-1)** **GCSE specification coverage** key concepts and skills ('Big ideas')	**Half Term 1 (7)** **Context:** C1 Atomic Structure and the periodic table **Key Vocabulary:** Atom, electron, proton, neutron, ion, isotope, distillation, equation, compound, Chromatography **Prior Learning / LTM:** Y7/Y8 Matter and reactions,9 Chem 1 **Cultural Capital:** History of the atom and how scientific theories are revised. Dmitri Mendeleev and development of the periodic table.	**Half Term 2 (7)** **Context:** C1 Atomic Structure and the periodic table C2 Structure and Bonding **Key Vocabulary:** Element, halogen, alkali metal, electronic, transition, displacement, reactivity, ionic, covalent, bond, graphene, lattice **Prior Learning / LTM:** Y7 Reactions and Y8 Matter, Y9 Chem 1 **Cultural Capital:** Applications of graphene. Uses of polymers and plastics	**Half Term 3 (7)** **Context:** C2 Structure and Bonding C3 Quantitative Chemistry **Key Vocabulary:** Delocalised, metallic, nanoparticles, melting, energy, concentration, mass, decimetre, mole, mass, atom economy, titration, yield **Prior Learning / LTM:** Y7 Matter, Y8 Reactions, Y9 Chem 1 **Cultural Capital:** Nanotechnology and its uses. Applications of chemistry in industry.	**Half Term 4 (6)** **Context:** C3 Quantitative Chemistry C4 Chemical Change **Key Vocabulary:** volume, reactivity, displacement, reduction, ionic electron, redox, oxidation **Prior Learning / LTM:** Y7 Matter, Y8 reactions. Y9 Chem 2 **Cultural Capital:** Work of Roger E Billings and Prof Saiful Islam.	**Half Term 5 (5)** **Context:** C4 Chemical Change **Key Vocabulary:** Reactivity, acid, alkali, base, insoluble, reaction, neutralisation, electrode, electrolyte electron, redox, oxidation, titration **Prior Learning / LTM:** Y7 and Y8 reactions. Y9 Chem 2 **Cultural Capital:** History of making salts Practical techniques, safety and development of skills.	**Half Term 6 (6)** **Context:** **C5 Energy Changes** **Key Vocabulary:** Exothermic, endothermic activation, energy, Collison, rate, gradient, profile **Prior Learning / LTM:** Y7 Matter, Y8 Reactions, Y9 Chem 2 **Cultural Capital:** Humphrey Davey and Laban Roomes – applications of electrolysis. Communication of science ideas and concepts
All material in the Universe is made of very small particles	x	x	x	x	x	x
Objects can affect other objects at a distance				x	x	x
Changing the movement of an object requires a net force to be acting on it						
The total amount of energy in the Universe is always the same	x		x	x	x	x
The composition of the Earth and its atmosphere				x	x	
Our solar system is a very small part of one of millions of galaxies in the Universe						
Organisms are organised on a cellular basis						

Organisms require a supply of energy and materials						
Genetic information is passed down from one generation of organisms to another						
The diversity of organisms, living and extinct, is the result of evolution						
Apply knowledge and understanding to explain observations.	x	x	X	X	X	X
Use different types of scientific enquiry to answer scientific questions.	x		X	X	X	x
Use technical terminology with confidence accurately and precisely.	x	x	X	X	X	x
Apply mathematical knowledge to scientific understanding.	x	x	X	X	X	x
Awareness of some of the social and economic implications of science	x	x		x		x
IMPACT	Assessment: Paper 1 assessment. Extended writing atomic structure. Maths skills 1 Progression to KS5: Foundations in chemistry. Scientific enquiry.	Assessment: Structure and bonding assessment. Extended writing giant covalent structures. Maths skills 2 Progression to KS5: Periodicity and bonding. Scientific enquiry.	Assessment: Paper 1 assessment. Chemical calculations data task. Maths skills 3 Progression to KS5: Quantitative chemistry and bonding. Scientific enquiry.	Assessment: Extended writing - reactivty Maths skills 4 Progression to KS5: Electrolysis, redox reactions Scientific enquiry.	Assessment: Extended writing making salts Data task titrations Maths skills 5 Progression to KS5: Enthalpy, entropy and Collison theory. Energy. Rates and Scientific enquiry.	Assessment: Trial exam – Paper 1 Bond energies task. Progression to KS5: Rates of reaction, chemical change, enthalpy and entropy. Scientific enquiry.

Cultural Capital is the body of knowledge a student needs so that they can flourish in the future and not be left behind. LTM = Long Term Memory.