

# ASHTON COMMUNITY SCIENCE COLLEGE: SCIENCE CURRICULUM

Year 11					
	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5
Knowledge	<u>Biology</u> Inheritance and Variation <u>Chemistry</u> Chemical Energy Electrolysis Chemical Cells and Fuel Cells (Triple only) Moles and Calculations <u>Physics</u> Forces and Motion	<u>Biology</u> Evolution and Speciation <u>Chemistry</u> Rates of Reaction Reversible Reactions and Dynamic Equilibrium <u>Physics</u> Waves	<u>Biology</u> Ecology <u>Chemistry</u> Organic Chemistry Pollutants Early Earth <u>Physics</u> Magnetism and Electromagnetism	<u>Biology</u> Paper 1 and Paper 2 Revision and Exam Preparation <u>Chemistry</u> Chemical Analysis Earth's Resources Potable Water <u>Physics</u> Space (Triple only)	<u>Biology</u> Paper 1 and Paper 2 Revision and Exam Preparation <u>Chemistry</u> Paper 1 and Paper 2 Revision and Exam Preparation <u>Physics</u> Paper 1 and Paper 2 Revision and Exam Preparation
Skills/ application of knowledge	<b>Inheritance and Variation:</b> DNA Structure, Variation, Protein Synthesis, Mendel's Work, Inherited disorders, Embryo screening, Stem Cells. <b>Chemical Energy:</b> Investigating Energy Changes, Exothermic and Endothermic Reactions, Bond Energy Calculations, Heat of Neutralisation. <b>Electrolysis:</b> Electrolysis of Molten Compounds, Electrolysis of Aqueous Solution, Investigating Electrolysis, Half Equations. <b>Chemical Cells and Fuel Cells:</b> Chemical Cells, Hydrogen Fuel Cells. <b>Moles and Calculations:</b> Relative Formula Mass, Moles, Calculating Missing Masses, Limiting Reactants, Percentage Yield, Atom Economy, Molar Gas Volumes. <b>Forces and Motion:</b> Falling Under Gravity, Newtons 1 <sup>st</sup> Law, Acceleration, Stopping Distance, Momentum, Force as a Rate of Change.	<b>Evolution and Speciation:</b> Evolution, Mutations, Speciation, Antibiotic Resistance, Fossils, Extinction, Selective Breeding, Animal Cloning, Plant Cloning, Classification. <b>Rates of Reaction:</b> Collision Theory, Factors Affecting the Rate of Reaction, Catalysts, Measuring the Rate of a Reaction, Rate of Reaction Graphs. <b>Reversible Reactions and Dynamic Equilibrium:</b> Reversible Reactions, Dynamic Equilibrium, The Haber Process, Lab Preparation of Fertilisers, Industrial Preparation of Fertilisers, NPK Fertilisers. <b>Waves:</b> Features of Waves, Properties of Waves, Waves Required Practical, Waves in a Solid, Reflection, Refraction, Lenses, Sound, Wave Imaging, The Electromagnetic Spectrum, Infra-Red, Blackbody Radiation.	<b>Ecology:</b> Ecosystems, Biotic and Abiotic Factors, Global Warming, Pollution, Bioaccumulation, Adaptations, Trophic Levels, Cycling of Materials, Sampling, Food Security, Decomposition. <b>Organic Chemistry:</b> Crude Oil, Fractional Distillation, Cracking, Combustion, Polymers, Alcohols, Carboxylic Acids, Esters, Condensation Polymers. <b>Pollutants:</b> Problems with Combustion, Global Warming, Acid Rain, Global Dimming, Human Activities, The Carbon Footprint. <b>Early Earth:</b> Evolution of the Earth's atmosphere. <b>Magnetism and Electromagnetism:</b> Magnetic Fields, Electromagnets, Motor Effect, Electric Motors.	<b>Chemical Analysis:</b> Precipitate Tests, Ionic Equations, Flame Tests, Testing for Negative Ions, Testing Unknown Compounds, Instrumental Methods. <b>Earth's Resources:</b> Sustainable Development, Reduce, Reuse, Recycle, Life Cycle Assessment, Ceramics, Polymers and Composites. <b>Potable Water:</b> Ground Water Treatment, Salt-Water Treatment, Distillation, Reverse Osmosis, Analysing Water Samples, Waste Water Treatment. <b>Space:</b> Lifecycle of Stars, Satellites, Redshift, Big Bang Theory.	<b>Bespoke revision and exam preparation informed by QLA and regular teacher assessment.</b>
Links to prior learning	<ul style="list-style-type: none"> <li>Year 8 – Inheritance, Evolution and Variation</li> <li>Year 8 Chemical Energy</li> <li>Year 8 Contact Forces</li> <li>Year 8 Speed</li> <li>Year 9 Metal Extraction</li> </ul>	<ul style="list-style-type: none"> <li>Year 8 – Inheritance and Variation</li> <li>Year 8 Wave Properties and Wave Effects</li> <li>Year 10 Three States of Matter</li> </ul>	<ul style="list-style-type: none"> <li>Year 7 Climate and Fuels Year 7 Magnetism and Electromagnets</li> <li>Year 8 Interdependence</li> <li>Year 10 Evolution and Speciation</li> </ul>	<ul style="list-style-type: none"> <li>Year 7 Earth's Resources</li> <li>Year 8 Gravity</li> <li>Year 8 The Universe</li> <li>Year 9 Separation Techniques</li> </ul>	
Assessment	Inheritance and Variation Exam Electrolysis Exam Calculations Exam Forces Exam	Paper 1 MOCK Exam Evolution and Speciation Exam Rates of Reaction Exam Forces and Motion Exam	Ecology Exam Organic Chemistry and Pollutants Exam Waves Exam Magnetism Exam	Chemical Analysis Exam Earth's Resources Exam Space Exam Paper 1 and Paper 2 MOCK Exams	