Hobart High School Key Stage 4 Curriculum Map – Year 10

Science AQA GCSE Combined and GCSE Biology, Chemistry and Physics

	GCSE Unit, Topic or Summary of work covered (NB Order may differ depending on specialist teacher pairing.)	Knowledge & Skills Developed	Assessment	Personal Development
Autumn 1	Physics: Electricity	**Knowledge:** Current, potential difference and resistance Series and parallel circuits Domestic uses and safety Energy transfers Changes of state and the particle model Internal energy and energy transfers Particle model and pressure **Working Scientifically:** Development of Scientific thinking, Analysis and Evaluation, Scientific vocabulary **Maths Skills:** Arithmetic and numerical computation, Handling Data, Algebra, Graphs	Electricity Exam Assessed Required Practicals	Safe use of domestic electricity Energy Efficiency Environmental Impact
Autumn 2	Physics: Particle Model Motion	**Knowledge:** Atoms and isotopes Atoms and nuclear radiation Forces and their interactions Work done and energy transfer Forces and elasticity Forces and motion Speed/Velocity Newton's Laws Stopping Distances Momentum (HT only) **Working Scientifically:** Development of Scientific Thinking, Analysis and Evaluation, Scientific vocabulary, Experimental Skills and Strategies	Particle Model of Matter Exam Assessed Required Practicals	Stopping distances Driving Safely

		Maths Skills: Arithmetic and numerical computation, Handling Data, Algebra, Graphs		
Spring 1	Biology: Organisation Infection and Response	**Knowledge:** Communicable (infectious) diseases Viral diseases Bacterial diseases Fungal diseases Protist diseases Human defence systems Vaccination Antibiotics and painkillers Discovery and development of drugs Working Scientifically: Development of Scientific Thinking Maths Skills: Arithmetic and numerical computation, Handling Data, Algebra, Graphs	Infection and Response Exam Assessed Required Practicals	Hygiene Infection Control (vaccination) STIs Legal and Illegal drugs
Spring 2	Chemistry: Bonding and structure. Chemical Changes	**Knowledge:** Energy transfer during exothermic and endothermic reactions Reaction profiles The energy change of reactions (HT only) Calculating rates of reactions Factors which affect the rates of chemical reactions Collision theory and activation energy Catalysts Reversible reactions Energy changes and reversible reactions Equilibrium The effect of changing conditions on equilibrium (HT only) The effect of changing concentration (HT only) The effect of temperature changes on equilibrium (HT only) The effect of pressure changes on equilibrium (HT only) **Working Scientifically**: Development of Scientific Thinking,	Chemical Changes Exam Assessed Required Practicals	

		Maths Skills: Arithmetic and numerical computation, Algebra, Graphs and Geometry		
Summer 1	Biology: Bioenergetics. Homeostasis	Photosynthetic reaction Rate of photosynthesis Uses of glucose from photosynthesis Aerobic and anaerobic respiration Response to exercise Metabolism **Working Scientifically:** Development of Scientific Thinking **Maths Skills:** Arithmetic and numerical computation, Handling Data, Algebra, Graphs	End of Topic Tests	
Summer 2	Chemistry: Quantitative Chemistry. Energy Changes.	**Knowledge:** Conservation of mass and balanced chemical equations Relative formula mass Mass changes when a reactant or product is a gas Chemical measurements Moles (HT only) Amounts of substances in equations (HT only) Using moles to balance equations (HT only) Limiting reactants (HT only) Concentration of solutions Metal oxides The reactivity series Extraction of metals and reduction Oxidation and reduction in terms of electrons (HT only) Reactions of acids with metals Neutralisation of acids and salt production Soluble salts The pH scale and neutralisation Strong and weak acids (HT only) The process of electrolysis Electrolysis of molten ionic compounds Using electrolysis to extract metals Electrolysis of aqueous solutions	Quantitative Chemistry Exam Assessed Required Practicals	Energy consumption and links between CO2 and climate change

		Representation of reactions at electrodes as half equations (HT only) **Working Scientifically**: Development of Scientific Thinking , Analysis and Evaluation, Scientific vocabulary (units, symbols) **Maths Skills:** Arithmetic and numerical computation, Handling Data, Algebra		

Hobart High School Key Stage 4 Curriculum Map – Year 11

Science AQA GCSE Combined and GCSE Biology, Chemistry and Physics

	GCSE Unit, Topic or Summary of work covered (NB Order may differ depending on specialist teacher pairing.)	Knowledge & Skills Developed	Assessment	Personal Development
Autumn 1	Physics: Forces and Motion	**Knowledge:** Forces and their interactions Work done and energy transfer Forces and elasticity Forces and motion Speed/Velocity Newton's Laws Stopping Distances Momentum (HT only) **Working Scientifically:** Development of Scientific Thinking, Analysis and Evaluation, Scientific vocabulary, Experimental Skills and Strategies **Maths Skills:** Arithmetic and numerical computation, Handling Data, Algebra, Graphs	Assessed Required Practicals End of Topic Exams	Stopping distances
Autumn 2	Physics: Waves and Electromagnetism	**Knowledge:** Permanent and induced magnetism Poles of a Magnet Magnetic forces Magnetic Fields The motor effect Fleming's Left-hand rule (HT Only) **Working Scientifically:** Analysis and Evaluation, Scientific vocabulary, Experimental Skills and Strategies **Maths Skills:** Arithmetic and numerical computation, Handling Data, Algebra, Graphs	Waves Exam Assessed Required Practicals	Sustainability – use of resources

Spring 1	Biology: Inheritance, Variation and Evolution. Chemistry: Rate of Reaction Organic Chemistry	**Knowledge:** Sexual and asexual reproduction Meiosis DNA and the genome Genetic inheritance Inherited disorders Sex determination **Working Scientifically:** Development of Scientific Thinking, Experimental Skills and Strategies **Maths Skills:** Arithmetic and numerical computation, Handling Data, Algebra, Graphs **Knowledge:** Crude oil, hydrocarbons and alkanes Fractional distillation and petrochemicals Properties of hydrocarbons Cracking and alkenes **Working Scientifically:** Development of Scientific Thinking, Analysis and Evaluation, Scientific vocabulary, Experimental Skills and Strategies **Maths Skills:** Arithmetic and numerical computation, Handling Data, Algebra, Graphs	End of Topic Tests	
Spring 2	Biology: Ecology Chemistry: Chemical Analysis. Chemistry of the atmosphere. Using Resources	**Knowledge:** Competition and Adaptation Food Chains Biodiversity Sampling Techniques Biotechnology Carbon Cycle	Assessed Required Practicals End of Topic Tests	Climate Change Suatainability

		Water Cycle Decay Using the Earth's resources and sustainable development Potable water Waste water treatment Alternative methods of extracting metals (HT only) Life cycle assessment Pure substances Formulations Chromatography Identification of common gases The proportions of different gases in the atmosphere The Earth's early atmosphere How oxygen increased How carbon dioxide decreased Greenhouse gases Human activities which contribute to an increase in greenhouse gases in the atmosphere Global climate change The carbon footprint and its reduction Atmospheric pollutants from fuels Properties and effects of atmospheric pollutants **Working Scientifically:** Development of Scientific Thinking, Analysis and Evaluation, Scientific vocabulary, Experimental Skills and Strategies **Maths Skills:** Arithmetic and numerical computation, Handling Data, Algebra, Graphs		
Summer 1	Revision		Practice Exam Papers Required Practical Questions 6 Mark Question Practice	

Summer 2	Revision		Practice Exam Papers Assessed Required Practicals 6 Mark Question Practice	