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 and Particle Model of Matter,	**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
Autumn 2	Physics: Atomic Structure, Forces 1	**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

		Maths Skills: Arithmetic and numerical computation, Handling Data, Algebra, Graphs		
Spring 1	Biology: Organisation (2), Homeostasis,	**Knowledge:** Homeostasis The human nervous system Human endocrine system Control of blood glucose concentration Hormones in human reproduction Contraception The use of hormones to treat infertility (HT only) Negative feedback (HT only) **Working Scientifically**: Development of Scientific Thinking **Maths Skills:** Arithmetic and numerical computation, Handling Data, Algebra, Graphs	Assessed Required Practicals	Contraception Fertility Exercise Diabetes
Spring 2	Biology: Infection and Response, Bioenergetics	**Knowledge:** Communicable (infectious) diseases Viral diseases Bacterial diseases Fungal diseases Protist diseases Human defence systems Vaccination Antibiotics and painkillers Discovery and development of drugs 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	Bioenergetics Exam Infection and Response Exam Assessed Required Practicals	Hygiene Infection Control (vaccination) STIs Legal and Illegal drugs

Summer 1	Chemistry: Bonding and Structure, Chemical Changes (2)	**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 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	Chemical Changes Exam Assessed Required Practicals	
Summer 2	Chemistry: Quantitative Chemistry, Energy Changes	**Knowledge:** Energy transfer during exothermic and endothermic reactions Reaction profiles The energy change of reactions (HT only)	Quantitative Chemistry Exam Assessed Required Practicals	Energy consumption and links between CO2 and climate change

		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, **Maths Skills:** Arithmetic and numerical computation, Algebra, Graphs and Geometry		

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 2, Waves	**Knowledge:** Ways of reducing the use of resources Waves in air, fluids and solids Electromagnetic waves Uses and applications of Electromagnetic Waves **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	Waves Exam Assessed Required Practicals	Sustainability – use of resources
Autumn 2	Physics: Magnetism 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	Assessed Required Practicals	
Spring 1	Biology: Inheritance, Variation and Evolution and Ecology	**Knowledge:** Sexual and asexual reproduction Meiosis DNA and the genome Genetic inheritance Inherited disorders	Inheritance, Variation and Evolution Exam Assessed Required Practicals	

		Sex determination **Working Scientifically**: Development of Scientific Thinking, Experimental Skills and Strategies **Maths Skills:** Arithmetic and numerical computation, Handling Data, Algebra, Graphs		
Spring 2	**Chemistry:** Rate and Extent of Chemical Changes, Organic Chemistry, Chemical Analysis, Chemistry of the Atmosphere, Using Resources	**Knowledge:** 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 Using the Earth's resources and sustainable development Potable water Waste water treatment Alternative methods of extracting metals (HT only) Life cycle assessment 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	Organic Chemistry Exam Assessed Required Practicals Y11 Mocks (Paper 1 B, C, P)	Use of finite natural resources Pollution Climate Change Sustainability

		Maths Skills: Arithmetic and numerical computation, Handling Data, Algebra, Graphs		
Summer 1	Revision and exam practice		Practice Exam Papers Required Practical Questions 6 Mark Question Practice	
Summer 2	Revision and exam practice		Practice Exam Papers Assessed Required Practicals 6 Mark Question Practice	