Exam Board/Syllabus

GCSE AQA COMBINED SCIENCE (8464)

Year 10

Year Group	Term	Module/Topic/Theme/	Biology Content (3 lessons per fortnight)	Chemistry Content (3 lessons per fortnight)	Physics Content (2 lessons per fortnight)	Assessment Content
10	1	**Biology: Infection and Response** **Chemistry: Chemical Changes** **Physics: Atomic Structure** Students have 3 teachers – one for Biology, Chemistry and Physics. They will be taught the content of all 3 sciences concurrently	**Infection and Response** Communicable diseases Viral disease Bacterial diseases Fungal diseases Protist diseases Human defence systems	**Chemical Changes** 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 Soluble salts **Required practical activity 8** The pH scale and neutralisation Strong and weak acids (HT only)	**Energy** Energy stores and systems Kinetic and potential energy stores Specific heat capacity Conservation of energy and power Reducing unwanted energy transfers Efficiency	**Mid-Point Assessments** designed to draw out misconceptions and allow for reteaching of content if required. Whole Class Feedback sheet completed and given to students
	2	**Biology: Infection and Response** **Chemistry: Chemical Changes and Quantitative Chemistry** **Physics: Atomic Structure and Electricity**	**Infection and Response (continued)** Vaccination Antibiotics and painkillers Discovery and development of drugs	**Chemical Changes (continued)** Electrolysis **Required practical activity 9** Half equations **Quantitative Chemistry**	**Energy (continued)** Energy resources and their uses Wind, solar and geothermal Hydro-electricity, waves and tides Biofuels and non-renewables	**End of Unit SYNOPTIC tests**. These will include a section on Core Knowledge and vocabulary for the current topic as well as terms from previous topics. The second half of the assessment will be APPLICATION based and consist of past exam paper questions.

					Trends in energy resource use	

				Conservation of mass and balanced chemical equations Relative formula mass	Standard circuit diagram symbols Electrical charge and current	
	3	**Biology: Bioenergetics** **Chemistry: Quantitative Chemistry** **Physics: Electricity**	**<u>Bioenergetics</u>** Photosynthetic reaction Rate of Photosynthesis **Required practical activity 5** Uses of glucose from photosynthesis	**<u>Quantitative Chemistry (continued)</u>** 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	**<u>Electricity</u>** Current and circuit symbols Current, resistance and potential difference **Required practical activity 3** Resistors **Required practical activity 4** Series and parallel circuits Direct and alternating potential difference Mains electricity	Mixture of Mid-Point Assessment and End of Unit Synoptic tests depending on the unit/subject

4	**Biology: Bioenergetics and Homeostasis** **Chemistry Energy Changes** **Physics Electricity and Forces**	**<u>Bioenergetics (continued)</u>** Aerobic and anaerobic respiration Response to exercise Metabolism	**<u>Energy Changes</u>** Energy transfer during exothermic and endothermic reactions **Required practical activity 10** Reaction profiles The energy change of reactions (HT only)	**<u>Electricity</u>** Power Energy transfers in everyday appliances The National Grid Static charge Electric fields	Mixture of Mid-Point Assessment and End of Unit Synoptic tests depending on the unit/subject
5	**Biology: Ecology** **Chemistry: The rate and extent of chemical change** **Physics: Forces**	**<u>Ecology</u>** Communities Abiotic factors Biotic factors Adaptations Levels of organisation **Required practical activity 7** How materials are cycled	**<u>The rate and extent of chemical change</u>** Calculating rates of reactions Factors which affect rates **Required practical activity 11** Collision theory and activation energy Catalysts Reversible reactions Equilibrium	**<u>Magnetism</u>** Poles of a magnet Magnetic fields Permanent and induced magnetism Electric motors The motor effect Electromagnetism Fleming's left-hand rule (HT only) Electric motors (HT only)	Mixture of Mid-Point Assessment and End of Unit Synoptic tests depending on the unit/subject **PPEs** are also likely to take place in this term

	6	**Biology: Ecology** **Chemistry: Chemical Analysis** **Physics: Forces**	**<u>Ecology (continued)</u>** Biodiversity Waste management Land use Deforestation Global warming Maintaining biodiversity	**<u>Chemical Analysis</u>** Pure substances Formulations Chromatography **Required practical activity 12** Identification of common gases	**<u>Magnetism (continued)</u>** Loudspeakers Induced potential Uses of the generator effect Microphones Transformers	**End of Unit SYNOPTIC tests**. These will include a section on Core Knowledge and vocabulary for the current topic as well as terms from previous topics. The second half of the assessment will be APPLICATION based and consist of past exam paper questions.

<u>Year 11</u>

Year Group	Term	Module/Topic/Theme/	Biology Content (3 lessons per fortnight)	Chemistry Content (3 lessons per fortnight)	Physics Content (2 lessons per fortnight)	Assessment Content
11	1	**Biology: Inheritance, variation and evolution** **Chemistry: Organic Chemistry** **Physics: Waves**	**<u>Inheritance, variation and evolution</u>** Sexual and asexual reproduction Meiosis DNA and the genome Genetic inheritance Inherited disorders Sex determination	**<u>Organic Chemistry</u>** Crude oil, hydrocarbons and alkanes Fractional distillation and petrochemicals Properties of hydrocarbons Cracking and alkenes	**<u>Forces</u>** Scalar and vector quantities Contact and non-contact forces Gravity Resultant forces Work done and energy transfer Forces and elasticity **Required practical activity 6** Moments, levers and gears Pressure in a fluid Pressure in a fluid 2 (HT only)	Mixture of Mid-Point Assessment and End of Unit Synoptic tests depending on the unit/subject

					Atmospheric pressure	
	2	**Biology Inheritance, variation and evolution** **Chemistry: Chemistry of the atmosphere** **Physics: Waves**	**<u>Inheritance, variation and evolution (continued)</u>** Variation Evolution Selective breeding Genetic engineering Evidence for evolution Fossils Extinction Resistant bacteria Classification of living organisms	**<u>Chemistry of the atmosphere</u>** The proportions of different gases in the atmosphere How oxygen increased How carbon dioxide decreased Greenhouse gases Human activities which contribute to an increase in greenhouse gases in the atmosphere	**<u>Forces (continued)</u>** Distance and displacement Speed Velocity The distance–time relationship Acceleration Newton's First Law Newton's Second Law **Required practical activity 7** Newton's Third Law Stopping distance Reaction time Factors affecting braking distance Momentum (HT ONLY)	Mixture of Mid-Point Assessment and End of Unit Synoptic tests depending on the unit/subject **PPEs** are also likely to take place in this term
	3	**Biology Homeostasis and control** **Chemistry: Chemistry of the atmosphere and C5.10 Using resources** **Physics: Magnetism and electromagnetism**	**<u>Homeostasis</u>** Homeostasis The human nervous system **Required practical activity 6** The human endocrine system Control of blood glucose concentration	**<u>Chemistry of the atmosphere (continued)</u>** Global climate change The carbon footprint and its reduction Atmospheric pollutants from fuels Properties and effects of atmospheric pollutants **<u>Using resources</u>** Using the Earth's resources and sustainable development	**<u>Waves</u>** Transverse and longitudinal waves Properties of waves **Required practical activity 8** Reflection of waves **Required practical activity 9** Sound waves Waves for detection and exploration	Mixture of Mid-Point Assessment and End of Unit Synoptic tests depending on the unit/subject

				Potable water	Types of electromagnetic waves	
	4	**Biology Homeostasis and control** **Chemistry: Using resources** **Physics: Magnetism and electromagnetism**	**<u>Homeostasis (continued)</u>** Hormones in human reproduction Contraception The use of hormones to treat infertility (HT only) Feedback systems (HT only)	**<u>Using resources</u>** **Required practical activity 13** Waste water treatment Alternative methods of extracting metals (HT only Life cycle assessment Ways of reducing the use of resources	**<u>Waves</u> <u>(continued)</u>** Properties of electromagnetic waves 1 **Required practical activity 10** Properties of electromagnetic waves 2 Uses and applications of electromagnetic waves Lenses Visible light Black body radiation	**End of Unit SYNOPTIC tests**. These will include a section on Core Knowledge and vocabulary for the current topic as well as terms from previous topics. The second half of the assessment will be APPLICATION based and consist of past exam paper questions.
	5	**Revision and Re teaching based on feedback from tests and PPEs**				**GCSE EXAMS**
	6	**Revision and Re teaching based on feedback from tests and PPEs**				**GCSE EXAMS**