Years 10 & 11 Curriculum
GCSE: Combined Science

Year 10	Term 1 (Autumn)		Term 2 (Spring)		Term 3 (Summer)	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	**Cell Biology**	**Energy**	**Structure & Bonding**	**Infection & Response**	**Particle Model of Matter**	**Chemical Changes**
Key Concepts	• Cell structure • Microscopy & magnification • Prokaryotes & eukaryotes • Differentiation & specialised cells • Cell cycle & mitosis • Stem cells • Diffusion • Osmosis • Active transport	• Energy stores • Energy Transfers • Work done • Conservation of energy • Changes in energy • Power • Efficiency • Generating electricity • Evaluation of energy resources	• Covalent bonding & properties • Ionic bonding & properties • Metallic bonding, alloys and properties • Giant covalent structures (including fullerenes & graphene) • Polymers	• Cancer • Health & lifestyle factors & disease • Pathogens • Defence against disease • Vaccination • Antibiotics & painkillers • Drug trials	• Density of regular/irregular shaped objects • Particle model • Changes of state • Physical & chemical changes • Specific heat capacity • SHC Required practical • Internal energy & latent heat • Motion of particles in a gas	• Separating techniques • Reactions of metals • Salts • Electrolysis • Half-equations (HT only)

Year 10	Term 1 (Autumn)		Term 2 (Spring)		Term 3 (Summer)	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic	**Atomic Structure & the Periodic Table**	**Organisation**	**Electricity**	**Energy Changes**	**Bioenergetics**	**Radioactivity**
Key Concepts	• Atoms, elements & compounds • History of the atom • Atomic structure • Ions & isotopes • Development of the periodic table • Metals, non-metals & transition elements • Groups 1, 7 and 0 • Balancing equations • Relative formula mass	• Organisation & digestive system • Enzymes • Heart & circulation • Blood vessels & blood components • Coronary heart disease • Lung structure & functions • Plant tissues & organs • Plant transport	• Circuit symbols • Charge & current • Potential difference • Ohm's Law & resistance • Series & parallel circuits • IV characteristics • Thermistors and LDRs • Electricity at home • Power & energy	• Exothermic / endothermic reactions & reaction profiles • Bond energy (HT only) • Neutralisation & pH • Strong & weak acids (HT only)	• Photosynthesis • Limiting factors, greenhouses and uses of glucose • Aerobic respiration & metabolism • Anaerobic respiration • Response to exercise	• Rutherford scattering experiment • Atomic Structure • Radioactive Decay • Half Life • Irradiation and contamination

Key:

	Biology Topics		Chemistry Topics		Physic Topics

Exam Board: AQA

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Years 10 & 11 Curriculum *continued*
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Year 11	Term 1 (Autumn)		Term 2 (Spring)		Term 3 (Summer)	
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Topic	**Homeostasis & Response**	**Quantitative Chemistry**	**Forces**	**Ecology**	**Forces Electromagnetism**	
Key Concepts	• The human nervous system • Homeostasis, endocrine & body temperature • Control of blood glucose • Hormones & the menstrual cycle • Hormones & infertility/contraception	• Moles, formula mass & balancing equations • Limiting reactants • From masses to balanced equations • Reacting masses • Concentrations • Bond enthalpy calculations	• Forces and their interactions • Resultant forces • Work done • Forces and elasticity • Describing motion along a line • Distance time graphs • Velocity time graphs • Acceleration	• Classification • Communities, abiotic & biotic factors • Adaptations including extremophiles • Food chains & predator prey relationships • Water & carbon cycles • Land use & waste management • Maintaining biodiversity	• Newton's 1st and 3rd Laws • Newton's 2nd Law • Stopping distances & reaction times • Forces & braking • Momentum Magnets and magnetic fields • Electromagnetism • Fleming's left-hand rule and electric motors (HT only)	

Year 11	Term 1 (Autumn)		Term 2 (Spring)		Term 3 (Summer)	
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Topic	**Waves**	**Inheritance & Variation**	**Rates of Reaction**	**Organic Chemistry**	**Earth's Resources**	
Key Concepts	• Wave properties • Transverse and longitudinal waves • The Wave equation • Electromagnetic waves • Uses of EM waves • Refraction • Changes in atoms and radio waves	• Sexual & asexual reproduction • DNA & the genome • Meiosis • Inheritance & gender • Types of variation • Evolution, natural selection • Evidence for evolution • Selective breeding & genetic engineering	• Rate of reaction & collision theory • Factors affecting rate • Reversible reactions • Equilibrium	• Crude oil, hydrocarbons & alkanes • Fractional distillation • Combustion • Cracking & alkenes • Covalent bonding & properties • Giant covalent structures (including fullerenes & graphene) **Chemistry of the Atmosphere** • Earth's early atmosphere • Greenhouse effect and climate change • Pure substances, formulations & chromatography • Testing for gases	• Earth's Resources • Life cycle assessments • Extraction of metals • Purifying water	

Key:

	Biology Topics		Chemistry Topics		Physic Topics

Years 10 & 11 Assessment
GCSE: Combined Science

All pupils will sit several knowledge tests and a mock examination in Year 10. In Year 11, pupils will sit an assessment and a mock examination.

	Year 10		Year 11		
	Knowledge Tests	**Mock Exam**	**Assessment**	**Mock Exam**	**Revision Resources**
	Autumn/Spring Terms	**Summer Term**	**Autumn Term**	**Autumn Term**	*Kennet Resources* • Core Questions • Knowledge Organisers • Learning Habits *External Resources* • www.educake.co.uk • www.educationquizzes.com • www.bbc.com/bitesize • www.youtube.com • Science Revision Bank
Style of Assessment	Each knowledge test will consist of 20 multiple-choice questions	Each assessment will contain a variety of questions including multiple choice, structured, closed short answer, and open response			
Topics Assessed	**Knowledge Test 1** Core knowledge of Cell Biology and Atomic Structure and the Periodic Table **Knowledge Test 2** Cells and organisation, atomic structure and periodic table, Structures and bonding, energy and electricity	• **Biology:** Cell biology, organisation • **Chemistry:** Atomic structure and the periodic table, bonding and structure • **Physics:** Energy, electricity	• **Biology:** Cell biology, organisation; infection and response, bioenergetics • **Chemistry:** Atomic structure and the periodic table, bonding and structure, chemical and energy changes • **Physics:** Energy, electricity, particle model of matter, atomic structure (radioactivity)	• **Biology:** Cell biology, organisation; infection and response and bioenergetics *(Paper 1)* • **Chemistry:** Atomic structure and the periodic table, bonding and structure, quantitative chemistry, chemical changes, energy changes *(Paper 1)* • **Physics:** Energy, electricity, particle model of matter, atomic structure *(Paper 1)*	

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