



Years 10 & 11 Curriculum

GCSE: Combined Science



Topic	Term 1 (Autumn)		Term 2 (Spring)		Term 3 (Summer)	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Cell Biology	Energy	Structure & Bonding	Infection & Response	Particle Model of Matter	Chemical Changes
Key Concepts	<ul style="list-style-type: none">Cell structureMicroscopy & magnificationProkaryotes & eukaryotesDifferentiation & specialised cellsCell cycle & mitosisStem cellsDiffusionOsmosisActive transport	<ul style="list-style-type: none">Energy storesEnergy TransfersWork doneConservation of energyChanges in energyPowerEfficiencyGenerating electricityEvaluation of energy resources	<ul style="list-style-type: none">Covalent bonding & propertiesIonic bonding & propertiesMetallic bonding, alloys and propertiesGiant covalent structures (including fullerenes & graphene)Polymers	<ul style="list-style-type: none">CancerHealth & lifestyle factors & diseasePathogensDefence against diseaseVaccinationAntibiotics & painkillersDrug trials	<ul style="list-style-type: none">Density of regular/irregular shaped objectsParticle modelChanges of statePhysical & chemical changesSpecific heat capacitySHC Required practicalInternal energy & latent heatMotion of particles in a gas	<ul style="list-style-type: none">Separating techniquesReactions of metalsSaltsElectrolysisHalf-equations (HT only)

Topic	Term 1 (Autumn)		Term 2 (Spring)		Term 3 (Summer)	
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Atomic Structure & the Periodic Table	Organisation	Electricity	Energy Changes	Bioenergetics	Radioactivity
Key Concepts	<ul style="list-style-type: none">Atoms, elements & compoundsHistory of the atomAtomic structureIons & isotopesDevelopment of the periodic tableMetals, non-metals & transition elementsGroups 1, 7 and 0Balancing equationsRelative formula mass	<ul style="list-style-type: none">Organisation & digestive systemEnzymesHeart & circulationBlood vessels & blood componentsCoronary heart diseaseLung structure & functionsPlant tissues & organsPlant transport	<ul style="list-style-type: none">Circuit symbolsCharge & currentPotential differenceOhm's Law & resistanceSeries & parallel circuitsIV characteristicsThermistors and LDRsElectricity at homePower & energy	<ul style="list-style-type: none">Exothermic / endothermic reactions & reaction profilesBond energy (HT only)Neutralisation & pHStrong & weak acids (HT only)	<ul style="list-style-type: none">PhotosynthesisLimiting factors, greenhouses and uses of glucoseAerobic respiration & metabolismAnaerobic respirationResponse to exercise	<ul style="list-style-type: none">Rutherford scattering experimentAtomic StructureRadioactive DecayHalf LifeIrradiation and contamination

Key:

	Biology Topics		Chemistry Topics		Physics Topics
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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	<ul style="list-style-type: none">The human nervous systemHomeostasis, endocrine & body temperatureControl of blood glucoseHormones & the menstrual cycleHormones & infertility/contraception	<ul style="list-style-type: none">Moles, formula mass & balancing equationsLimiting reactantsFrom masses to balanced equationsReacting massesConcentrationsBond enthalpy calculations	<ul style="list-style-type: none">Forces and their interactionsResultant forcesWork doneForces and elasticityDescribing motion along a lineDistance time graphsVelocity time graphsAcceleration	<ul style="list-style-type: none">ClassificationCommunities, abiotic & biotic factorsAdaptations including extremophilesFood chains & predator prey relationshipsWater & carbon cyclesLand use & waste managementMaintaining biodiversity	<ul style="list-style-type: none">Newton's 1st and 3rd LawsNewton's 2nd LawStopping distances & reaction timesForces & brakingMomentum Magnets and magnetic fieldsElectromagnetismFleming'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	<ul style="list-style-type: none">Wave propertiesTransverse and longitudinal wavesThe Wave equationElectromagnetic wavesUses of EM wavesRefractionChanges in atoms and radio waves	<ul style="list-style-type: none">Sexual & asexual reproductionDNA & the genomeMeiosisInheritance & genderTypes of variationEvolution, natural selectionEvidence for evolutionSelective breeding & genetic engineering	<ul style="list-style-type: none">Rate of reaction & collision theoryFactors affecting rateReversible reactionsEquilibrium	<ul style="list-style-type: none">Crude oil, hydrocarbons & alkanesFractional distillationCombustionCracking & alkenesCovalent bonding & propertiesGiant covalent structures (including fullerenes & graphene) <div>Chemistry of the Atmosphere<ul style="list-style-type: none">Earth's early atmosphereGreenhouse effect and climate changePure substances, formulations & chromatographyTesting for gases</div>	<ul style="list-style-type: none">Earth's ResourcesLife cycle assessmentsExtraction of metalsPurifying water	

Key:

	Biology Topics		Chemistry Topics		Physic Topics
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Years 10 & 11 Assessment

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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		Revision Resources
	Knowledge Tests	Mock Exam	Assessment	Mock Exam	
	Autumn/Spring Terms	Summer Term	Autumn Term	Spring Term	
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			Kennet Resources <ul style="list-style-type: none"> • Core Questions • Knowledge Organisers • Learning Habits • SRB
Topics Assessed	Knowledge Test 1 Core knowledge on 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	<ul style="list-style-type: none"> • Biology: Cell biology, organisation • Chemistry: Atomic structure and the periodic table, bonding and structure • Physics: Energy, electricity 	<ul style="list-style-type: none"> • 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) 	<ul style="list-style-type: none"> • Biology: Cell biology, organisation; infection and response and bioenergetics (<i>Paper 1</i>) • Chemistry: Atomic structure and the periodic table, bonding and structure, quantitative chemistry, chemical changes, energy changes (<i>Paper 1</i>) • Physics: Energy, electricity, particle model of matter, atomic structure (<i>Paper 1</i>) 	External Resources <ul style="list-style-type: none"> • www.educake.co.uk • www.educationquizzes.com • www.bbc.com/bitesize • www.youtube.com <p>You can also find additional revision material on Frog</p> 