KS4 mapping of Biology, Chemistry & Physics

Combined Science	Separate Sciences
2 GCSES	3 GCSES
AQA Combined Science (8464)	AQA Biology (8461)
	AQA Chemistry (8462)
	AQA Physics (8463)
6 exam papers	6 exam papers
1 hour 15 minutes per paper	1 hour 45 minutes
10 hours of Science per fortnight	15 hours of Science per fortnight

Combined Science	Separate Sciences
21 equations to recall and use	23 equations to recall and use
7 equations they can select from the Physics	12 equations they can select from the Physics
data sheet and apply	data sheet and apply
20% of available marks are assigned to	Biology - 10% of available marks are assigned to
mathematical skills	mathematical skills
	Chemistry - 20% of available marks are assigned
	to mathematical skills
	Physics - 30% of available marks are assigned to
	mathematical skills

<u>Biology</u>

	Combined Science	Separate Sciences
Paper 1 Content	Cell Biology: Cell structure,	Cell Biology: Cell structure,
·	microscopy, eukaryotic &	microscopy, eukaryotic &
	prokaryotic cells, scale and size,	prokaryotic cells, scale and size,
	cell transport, cell division,	cell transport, cell division,
	mitosis, cancer and cancer	mitosis, cancer and cancer
	treatment.	treatment.
	Organisation: Tissues and organs,	Organisation: Tissues and organs,
	organ systems. Digestive system.	organ systems. Digestive system.
	Enzymes, blood, blood vessels,	Enzymes, blood, blood vessels,
	the heart, circulatory system,	the heart, circulatory system,
	coronary heart disease, the	coronary heart disease, the
	lungs, non-communicable disease,	lungs, non-communicable disease,
	metabolism, effect of lifestyle	metabolism, effect of lifestyle
	Infection & Response:	Infection & Response:
	communicable disease, human	communicable disease, human
	defences including white blood	defences including white blood
	cells, preventing infection, drug	cells, preventing infection, drug
	trials, vaccination, pathogens	trials, vaccination, pathogens,
	Bioenergetics: plant tissue,	culturing microorganisms,
	photosynthesis reaction, uses of	monoclonal antibodies, uses of
	glucose, transport systems in	monoclonal antibodies
	plants, evaporation and	Bioenergetics: plant tissue,
	transpiration, fungal diseases,	photosynthesis reaction, uses of

respiration, response to exercise Paper 2 Content Ecology: interdependence, field investigations, extremophiles, adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon and water cycle, global warming Homeostasis & Response: homeostasis, negative feedback, hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Thheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, exidence of evolution, costis, variation, resistant bacteria, extinction, classification production, meiosis, production, evaluating sexual and asexual reproduction, meiosis, bright of the production, meiosis, bright of the production and farming techniques, role of biotechnol Homeostasis & Response: homeostasis, negative feedback hormonal coordination in human control of blood glucose, hormones in human reproduction, evidence of evolution, evolution, evidence of evolution, evolution, evidence of evolution, evolution, evidence of evolution, evolution, extinction, classification path timestigations, extremophiles, adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon adaptation, completion, biodiversity, land use, waste m		aerobic respiration, anaerobic	glucose, transport systems in
Paper 2 Content Ecology: interdependence, field investigations, extremophiles, adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon and water cycle, global warming Homeostasis & Response: hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inheritaded disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, fossils, variation, resistant bacteria, extinction, classification transpiration, fungal diseases, plant diseases, aerobic respiration, aerobic respiration, nearobic respiration, nearose to exerc Ecology: interdependence, fiel investigations, extremophiles, adaptation, completion, completion, completion, completion, cadaptation, completion, cadaptation, completion, adaptation, completion, each bodicary, leading decay, trophic levels, pyramid biomass, sustainable food production and farming techniques, role of biotechnole Homeostasis & Response: homeostasis & Response: homeostasis, negative feedback, hormonal coordination in huma reproduction, neiosis, postation, carbon decay, trophic		•	
Paper 2 Content Ecology: interdependence, field investigations, extremophiles, adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon and water cycle, global warming Homeostasis & Response: homeostasis, negative feedback, hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation, resistant bacteria, extinction, classification plant diseases, aerobic respiration, anearobic respiration, neaerboic respiration, neaerboic respiration, neaerboic respiration, neaerboic investigation, adaptation, expletion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon of water cycle, global warming, impact of environmental chang decay, trophic levels, pyramids biomass, sustainable food production and farming techniques, role of biotechnole Homeostasis, negative feedback, hormones in human reproduction and farming techniques, role of biotechnole Homeostasis, negative feedback, hormones in human reproduction in human servous system, reaction times and nitrogen blance, plant hormone, using plant hormone human nervous system, reaction times, the brain, the eye Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding variation & Evolution: e		, ,	•
Paper 2 Content Ecology: interdependence, field investigations, extremophiles, adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon and water cycle, global warming Homeostasis & Response: homeostasis & Response: homeostasis is negative feedback, hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, classification Variation, calssification respiration, response to exerc Ecology: interdependence, fiel investigation, response to exerc Ecology: interdependence, fiel investigation, response to exerc Ecology: interdependence, fiel investigation, respiration, respiration, posterious, extremophiles, adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon of water cycle, global warming, impact of environmental chang decay, trophic levels, pyramids biomass, sustainable food production and farming techniques, role of biotechnole Homeostasis & Responses: hormonal coordination in human control of blood glucose, hormonal coordination in human control of blood glucose, hormones in human reproduction, evidence of evolution, evolution, evidence of evolution, evolution, evidence of evolution, control of blood glucose, hormones in human reproduction and farming techniques, role of biotechnole Homeostasis & Responses: hormones in human reproduction in human control of blood glucose, hormones in human reproduction in human nervous system, reaction times the production of blood glucose, hormones in human reproduction, evolution, evolution			
Paper 2 Content Ecology: interdependence, field investigations, extremophiles, adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon and water cycle, global warming Homeostasis & Response: homeostasis, negative feedback, hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evidence of evolution, resistant bacteria, extinction, classification respiration, response to exerce Scology: interdependence, fiel investigations, extremophiles, adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon of water cycle, global warming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass, sustainable food production and farming decay, trophic levels, pyramids biomass,			•
Paper 2 Content Ecology: interdependence, field investigations, extremophiles, adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon and water cycle, global warming Homeostasis & Response: homeostasis, negative feedback, hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evaluating sexual and asexual reproduction, costsistication			•
investigations, extremophiles, adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon and water cycle, global warming Homeostasis & Response: homeostasis, negative feedback, hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, exidence of evolution, resistant bacteria, extinction, classification evolution.	Paper 2 Content	Ecology: interdependence, field	·
adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon and water cycle, global warming Homeostasis & Response: homeostasis, negative feedback, hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation, resistant bacteria, extinction, classification adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon and water cycle, global warming, impact of environmental chang decay, trophic levels, pyramids biomass, sustainable food production and farming techniques, role of biotechnole. Homeostasis & Response: homeostasis, negative feedback hormonal coordination in human control of blood glucose, hormones in human reproduction and introgen balance, plant hormones, using plant hormone, evidence of evolution, fossils, variation, resistant bacteria, extinction, classification adaptation, completion, biodiversity, land use, waste management, deforestation and peat bog destruction, carbon and water cycle, global warming, impact of environmental chang decay, trophic levels, pyramids biomass, sustainable food production and farming techniques, role of biotechnole. Homeostasis & Response: homeostasis, negative feedback, hormonal coordination in human control of blood glucose, hormones in human reproduction, infertility treatments, control of blood glucose, hormones in human reproduction and farming techniques, role of biotechnole Homeostasis & Response: homeostasis, negative feedback, hormones in human reproduction, infertility treatments, control of blood glucose, hormones in human reproduction, infertility treatments, control of blood glucose, hormones in human reproduction, infertility treatments, control of blood glucose, ho	'	•	•
biodiversity, land use, waste management, deforestation and peat bog destruction, carbon and water cycle, global warming Homeostasis & Response: homeostasis & Response: homeostasis , negative feedback, hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, resistant bacteria, extinction, classification biodiversity, land use, waste management, deforestation and part bog destruction, carbon of water cycle, global warming impact of environmental chang decay, trophic levels, pyramids biomass, sustainable food production and farming techniques, role of biotechnole Homeostasis & Response: homeostasis a, negative feedback hormonal coordination in huma control of blood glucose, hormones in human reproduction and farming techniques, role of biotechnole Homeostasis & Response: homeostasis a, negative feedback hormonal coordination in huma control of blood glucose, hormones in human reproduction and farming techniques, role of biotechnole Homeostasis & Response: homeostasis a, negative feedback hormonal coordination in human control of blood glucose, hormones in human reproduction and farming techniques, role of biotechnole Homeostasis & Response: homeostasis a, negative feedback hormonal coordination in human nervous system, reaction through the genome, inheritality treatments, control of blood glucose, hormones in human reproduction and farming techniques, role of biotechnole Homeostasis & Response: homeostasis a, negative feedback hormonal coordination in human nervous system, reaction through the production and farming techniques, role of biotechnole Homeostasis and production and farming techniques, role of biotechnole Homeostasis and production and farming techniques, role of b		-	
management, deforestation and peat bog destruction, carbon and water cycle, global warming Homeostasis & Response: homeostasis, negative feedback, hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, fossils, variation, resistant bacteria, extinction, classification management, deforestation and peat bog destruction, carbon of peat bog destruction, impeat bog desay, trophic levels, pyramids decay, trophic language, r		· · · · · · · · · · · · · · · · · · ·	·
peat bog destruction, carbon and water cycle, global warming Homeostasis & Response: homeostasis, negative feedback, hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproductive preading Variation, resistant bacteria, extinction, classification peat bog destruction, carbon of water cycle, global warming, impact of environmental chang decay, trophic levels, pyramids biomass, sustainable food production and farming techniques, role of biotechnole Homeostasis & Response: homeostasis & Response: homeostasis & Response: homeostasis & Response: homeostasis in negative feedback, hormonal coordination in human control of blood glucose, hormones in human reproduction contraception, infertility treatments, control of blood glucose, hormones in human reproduction, evaluating sexual and nitrogen balance, plant hormones, using plant ho		•	• 1
water cycle, global warming Homeostasis & Response: homeostasis, negative feedback, hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evidence of evolution, resistant bacteria, extinction, classification water cycle, global warming, impact of environmental chang decay, trophic levels, pyramids biomass, sustainable food production and farming techniques, role of biotechnols homeostasis & Response: homeostasis, out and afarming techniques, role of biotechnols homeostasis, negative feedback hormonal coordination in human control of blood glucose, hormonal coordination in human control of blood glucose, hormonal coordination in human control of blood glucose, hormones in human reproduction formones, inheritance, plant homeostasis, negative feedback hormonal coordination in human control of blood glucose, hormones in human reproduction formones, inheritance, plant homeostasis, negative feedback hormonal coordination in human control of blood glucose, hormones in human reproduction formones in human reproduction, techniques, role of biotechnols homeostasis, negative feedback hormonal coordination in human control of blood glucose, hormones in human reproduction formones in human reproduction fo		_	peat bog destruction, carbon and
Homeostasis & Response: homeostasis, negative feedback, hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, fossils, variation, resistant bacteria, extinction, classification impact of environmental chang decay, trophic levels, pyramids biomass, sustainable food production and farming techniques, role of biotechnole Homeostasis & Response: homeostasis, negative feedback hormones in human reproduction ontrol of blood glucose, hormones in human reproduction ontrol of blood glucose, hormones in human reproduction ontrol of blood glucose, hormones in human reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & genome, DNA structure, inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & genome, DNA structure, inheritance; inherited disorder understanding genetics, genetic engineering, selective breeding cloning Variation & Evolution: evolution			
hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, resistant bacteria, extinction, classification hormonal farming techniques, role of biotechnole Homeostasis & Response: homeostasis & R		. 3	impact of environmental change,
hormonal coordination in humans, control of blood glucose, hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, resistant bacteria, extinction, classification hormonal farming techniques, role of biotechnole Homeostasis & Response: homeostasis & R		homeostasis, negative feedback,	decay, trophic levels, pyramids of
hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, resistant bacteria, extinction, classification hormones in human reproduction, homeostasis & Response: homeostasis & Respo			
hormones in human reproduction, contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, control, classification hormones in human reproduction, homeostasis & Response: homeostasis & Resp			•
contraception, infertility treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution; evidence of evolution, resistant bacteria, extinction, classification Homeostasis & Response: homeostasis, negative feedback hormonal coordination in human control of blood glucose, hormones in human reproduction treatments, control of body temperature, maintaining wate and nitrogen balance, plant hormones, using plant hormones human nervous system, reaction times, the brain, the eye Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding Variation & Evolution: evolution		•	techniques, role of biotechnology
treatments, human nervous system, reaction times Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, resistant bacteria, extinction, classification Treproduction times Inheritance: reproduction, eontrol of blood glucose, hormones in human reproduction contraception, infertility treatments, control of body temperature, maintaining wate and nitrogen balance, plant hormones, using plant hormone human nervous system, reaction times, the brain, the eye Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding variation & Evolution: evolution.		•	
Thheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, resistant bacteria, extinction, classification Theritance: reproduction, meiosis, DNA & the genome, inheritance: reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding Variation & Evolution: evolution dispersion of the production of the producti		treatments, human nervous	homeostasis, negative feedback,
evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, resistant bacteria, extinction, classification Evaluating sexual and asexual times, the brain, the eye sexual and asexual reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding variation & Evolution: evolution.		system, reaction times	hormonal coordination in humans,
evaluating sexual and asexual reproduction, meiosis, DNA & the genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, resistant bacteria, extinction, classification Evaluating sexual and asexual times, the brain, the eye sexual and asexual reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding variation & Evolution: evolution.		<u>Inheritance</u> : reproduction,	control of blood glucose,
genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, resistant bacteria, extinction, classification Theritance: reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding variation & Evolution: evolution		•	hormones in human reproduction,
genome, inheritance, inherited disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, resistant bacteria, extinction, classification Theritance: reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding Variation & Evolution: evolution		•	contraception, infertility
disorders, genetic engineering, selective breeding Variation & Evolution: evolution, evidence of evolution, resistant bacteria, extinction, classification Therefore, and nitrogen balance, plant hormones, using plant ho		·	treatments, control of body
Variation & Evolution: evolution, evidence of evolution, fossils, variation, resistant bacteria, extinction, classification Mormones, using plant hormone human nervous system, reaction times, the brain, the eye Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding cloning Variation & Evolution: evolution		_	temperature, maintaining water
evidence of evolution, fossils, variation, resistant bacteria, extinction, classification Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & genome, DNA structure, inheritance, inheritance, inheritance, inheritance, inheritance, genetic engineering, selective breeding cloning Variation & Evolution: evolution Variation & Evolution Variation		selective breeding	and nitrogen balance, plant
variation, resistant bacteria, extinction, classification times, the brain, the eye Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding cloning Variation & Evolution: evolution		Variation & Evolution: evolution,	hormones, using plant hormones,
extinction, classification Inheritance: reproduction, evaluating sexual and asexual reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding cloning Variation & Evolution: evolution		evidence of evolution, fossils,	human nervous system, reaction
evaluating sexual and asexual reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding cloning Variation & Evolution: evolution		variation, resistant bacteria,	times, the brain, the eye
reproduction, meiosis, DNA & genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding cloning Variation & Evolution: evolution		extinction, classification	Inheritance: reproduction,
genome, DNA structure, inheritance, inherited disorder understanding genetics, genetic engineering, selective breeding cloning Variation & Evolution: evolution			evaluating sexual and asexual
inheritance, inherited disorder understanding genetics, genetics, genetics, genetics, selective breeding cloning Variation & Evolution: evolution			reproduction, meiosis, DNA & the
understanding genetics, genetics engineering, selective breeding cloning Variation & Evolution: evolution			genome, DNA structure,
engineering, selective breeding cloning <u>Variation & Evolution:</u> evolution			inheritance, inherited disorders,
cloning <u>Variation & Evolution:</u> evolution			understanding genetics, genetic
Variation & Evolution: evolution			engineering, selective breeding,
			cloning
avidance of avaluation formila			Variation & Evolution: evolution,
evidence of evolution, fossils,			evidence of evolution, fossils,
variation, theory of evolution,			variation, theory of evolution,
resistant bacteria, extinction,			resistant bacteria, extinction,
speciation, classification,			speciation, classification,
Available marks per paper 70 marks 100 marks	Available marks per paper	70 marks	100 marks
% of the GCSE Each paper worth 16.7% Each paper worth 50%	% of the GCSE	Each paper worth 16.7%	Each paper worth 50%
Type of questions featured multiple choice, structured, multiple choice, structured,	Type of questions featured	multiple choice, structured,	multiple choice, structured,
in exam papers closed short answer and open closed short answer and open	in exam papers	closed short answer and open	closed short answer and open
response response		response	response
Tier of entry Higher or foundation Higher only	Tier of entry	Higher or foundation	Higher only

Chemistry

	Combined Science	Separate Sciences
Paper 1 Content	Atomic Structure & Periodic Table: atomic structure, electron configuration, history of the atom, development of periodic table, metals, non-metals and ions, isotopes, separation techniques Bonding, Structure & Properties of Matter: States of matter, ionic bonding, covalent bonding, metallic structures, Quantitative Chemistry: relative atomic mass, moles, calculating % mass, conservation of mass, balancing equations, concentrations Chemical Changes: reactivity series, displacement reactions, extracting metals, electrolysis, acids, alkalis and neutralisation, naming salts Energy Changes: exothermic and endothermic reactions, reaction profiles, bond energy calculations	Atomic Structure & Periodic Table: atomic structure, electron configuration, history of the atom, development of periodic table, metals, non-metals and ions, isotopes, separation techniques Bonding, Structure & Properties of Matter: States of matter, ionic bonding, covalent bonding, metallic structures, nanoparticles Quantitative Chemistry: relative atomic mass, moles, calculating % mass, conservation of mass, balancing equations, concentrations, atom economy and yield, titration calculations, volumes of gases Chemical Changes: reactivity series, displacement reactions, extracting metals, electrolysis, acids, alkalis and neutralisation, naming salts, titration calculations Energy Changes: exothermic and endothermic reactions, reaction profiles, bond energy calculations, chemical cells and batteries, fuel cells
Paper 2 Content	Rate & Extent of Chemical Change: calculating rate of reaction, collision theory, factors that affect rate of reaction, reversible reactions, dynamic equilibrium Organic Chemistry: crude oil and hydrocarbons, properties and burning hydrocarbons, fractional distillation, cracking of hydrocarbons Chemical Analysis: pure substances and mixtures, analysing chromatograms, testing for gases	Rate & Extent of Chemical Change: calculating rate of reaction, collision theory, factors that affect rate of reaction, reversible reactions, dynamic equilibrium Organic Chemistry: crude oil and hydrocarbons, properties and burning hydrocarbons, fractional distillation, cracking of hydrocarbons, reaction of alkenes, structure, reactions and uses of alcohols, carboxylic acids and esters, addition polymerisation and condensation

	Chemistry of the Atmosphere: history of the atmosphere, greenhouse gases, global climate change, atmospheric pollutants Using Resources: finite and renewable resources, potable water, treating waste water, extracting metals from ores, life cycle assessments, reduce, reuse and recycle,	polymerisation, natural polymers and DNA Chemical Analysis: pure substances and mixtures, analysing chromatograms, testing for gases, testing for positive and negative ions, instrumental analysis Chemistry of the Atmosphere: history of the atmosphere, greenhouse gases, global climate change, atmospheric pollutants Using Resources: finite and renewable resources, potable water, treating waste water, extracting metals from ores, life cycle assessments, reduce, reuse
		extracting metals from ores, life cycle assessments, reduce, reuse and recycle, Haber process and NPK fertilisers, using materials
Available marks per paper	70 marks	100 marks
% of the GCSE	Each paper worth 16.7%	Each paper worth 50%
Type of questions featured	multiple choice, structured,	multiple choice, structured,
in exam papers	closed short answer and open	closed short answer and open
	response	response
Tier of entry	Higher or foundation	Higher only

Physics

	Combined Science	Separate Sciences
Paper 1 Content	Energy: energy stores and	Energy: energy stores and
	transfers, kinetic energy, elastic	transfers, kinetic energy, elastic
	energy, gravitational potential	energy, gravitational potential
	energy, power and energy,	energy, power and energy,
	specific heat capacity,	specific heat capacity,
	efficiency, energy transfers in a	efficiency, energy transfers in a
	system, renewable and non-	system, renewable and non-
	renewable energy	renewable energy, insulation
	Electricity: circuit symbols,	Electricity: circuit symbols,
	charge and current, potential	charge and current, potential
	difference, resistance and	difference, resistance and
	current, IV graphs, thermistors,	current, IV graphs, thermistors,
	LDRs, resistors in circuits,	LDRs, resistors in circuits,
	parallel and series circuits, AC	parallel and series circuits, AC
	and DC, mains electricity, power	and DC, mains electricity, power
	equations, appliances and	equations, appliances and
	efficiency, National Grid	efficiency, National Grid, static
	Particle Model of Matter:	charge and electric fields
	density, states of matter,	

internal energy, conduction, specific heat capacity, specific latent heat, particle motion in a gas

Radioactivity: atomic structure, mass number, atomic number and isotopes, development of atomic model, atoms and nuclear radiation, half-lives, nuclear equations, background radiation, irradiation and contamination

Particle Model of Matter:

density, states of matter,
internal energy, conduction,
specific heat capacity, specific
latent heat, particle motion in a
gas, gas pressure
Radioactivity: atomic structure,
mass number, atomic number and
isotopes, development of atomic
model, atoms and nuclear
radiation, half-lives, nuclear
equations, background radiation,
irradiation and contamination,
uses of radioactive substances,
nuclear fission and nuclear fusion

Paper 2 Content

Forces: Scalar and vector quantities, contact and noncontact forces, centre of mass, weight and gravity, resultant forces, vector diagrams, work done and energy transfers, forces and elasticity, distance and displacement, speed, velocity, distance-time graphs, acceleration, velocity-time graphs, terminal velocity, Newton's laws of motion, stopping distances, reaction times, momentum, conservation of momentum Waves: types and properties of waves, wave speed, electromagnetic waves and their properties, uses and applications of the EM spectrum Magnetism: magnetic fields, electromagnets and solenoids, the motor effect, Flemming's left hand rule, magnetic flux density, electric motors

Forces: Scalar and vector quantities, contact and noncontact forces, centre of mass, weight and gravity, resultant forces, vector diagrams, work done and energy transfers, forces and elasticity, distance and displacement, speed, velocity, distance-time graphs, acceleration, velocity-time graphs, terminal velocity, Newton's laws of motion, stopping distances, reaction times, momentum, conservation of momentum, moments, levers and gears, pressure in fluids, atmospheric pressure, interpreting velocity-time graphs for terminal velocity, interpreting change in motion, changes in momentum Waves: types and properties of waves, wave speed, electromagnetic waves and their properties, uses and applications of the EM spectrum, changes in velocity frequency and wavelength, reflection of waves, soundwaves, ultrasound, seismic and echo used in detection. lenses, visible light and black body radiation

		Magnetism: magnetic fields, electromagnets and solenoids, the motor effect, Flemming's left hand rule, magnetic flux density, electric motors, loudspeakers and microphones, induced potential difference, transformers Space: formation of Solar System, life cycle of a star, circular orbits, the expanding universe, the beginning and
Available marks per paper	70 marks	future of the universe 100 marks
% of the GCSE	Each paper worth 16.7%	Each paper worth 50%
Type of questions featured	multiple choice, structured,	multiple choice, structured,
in exam papers	closed short answer and open	closed short answer and open
	response	response
Tier of entry	Higher or foundation	Higher only