The CGP Revision Guide
(Combined Science)

You can buy a copy of thie revision guide from Mrs O'Neill in the office.
The guide provides you with all of the information you need to learn.
It also provides you with a code to use a free online edition.

Biology Paper 1

Topic	**Foundation Pages**	**Higher Pages**
Working Scientifically	1-10	1-10
Practical Skills	232-241	232-241
Cell Biology	11-23	11-23
Organisation	24-41	24-42
Infection and Response	42-49	43-49
Bioenergetics	50-56	50-57

Chemistry Paper 1

Topic	**Foundation Pages**	**Higher Pages**
Working Scientifically	1-10	1-10
Practical Skills	232-241	232-241
Atomic Structure and the Periodic Table	96-112	96-111
Bonding, Structure and Properties of Matter	113-122	112-122
Quantitative Chemistry	123-127	123-128
Chemical Changes	128-133	129-137
Energy Changes	134-137	138-141

Physics Paper 1

Topic	Foundation Pages	Higher Pages
Working Scientifically	1-10	1-10
Practical Skills	232-241	232-241
Energy	167-179	167-178
Electricity	180-192	179-190
Particle Model of Matter	193-196	191-194
Atomic Structure	197-202	195-200

Biology Paper 2

Topic	Foundation Pages	Higher Pages
Working Scientifically	1-10	1-10
Practical Skills	232-241	232-241
Homeostasis and Response	57-65	58-67
Inheritance, Variation and Evolution	66-82	68-82
Ecology	83-95	83-95
It is also useful reviewing: Cell Structure; Microscopes; Photosynthesis; and Respiration from paper 1		

Chemistry Paper 2

Topic	Foundation Pages	Higher Pages
Working Scientifically	1-10	1-10
Practical Skills	232-241	232-241
Rate and extent of Chemical Change	138-145	142-149
Organic Chemistry	146-149	150-152
Chemical Analysis	150-154	153-156
Chemistry of the Atmosphere	155-158	157-160
Using Resources	159-166	161-166
It is also useful for revisiting: Covalent Bonding; Separation Techniques; Quantitative Chemistry.		

Physics Paper 2

Topic	Foundation Pages	Higher Pages
Working Scientifically	1-10	1-10
Practical Skills	232-241	232-241
Forces	203-218	201-217
Waves	219-228	218-226
Magnetism and Electromagnetism	229-231	227-231
It is also useful for revisiting Work Done and Power; Elastic Energy; Series and Parallel Circuits		

Cognito Resources
These provide videos and questions about all of the topics at GCSE.
The questions are answered online and you get instant feedback.

Biology Paper 1 and Paper 2 (Foundation)
https://www.cognitoedu.org/courseoverview/b2-gcse-aqa-f-c/lessons

Chemistry Paper 1 and Paper 2 (Foundation)
https://www.cognitoedu.org/courseoverview/c2-gcse-aqa-f-c/lessons

Physics Paper 1 and Paper 2 (Foundation)
https://www.cognitoedu.org/courseoverview/p2-gcse-aqa-f-c/lessons

Biology Paper 1 and Paper 2 (Higher)
https://www.cognitoedu.org/courseoverview/b2-gcse-aqa-h-c/lessons

Chemistry Paper 1 and Paper 2 (Higher)
https://www.cognitoedu.org/courseoverview/c2-gcse-aqa-h-c/lessons

Physics Paper 1 and Paper 2 (Higher)
https://www.cognitoedu.org/courseoverview/p2-gcse-aqa-h-c/lessons

Subject	Unit	Topic	Code	Specification points covered	Higher only	Separate only
Biology	4.1: Cell biology	Introduction to cells	R848	4.1.1.1, 4.1.1.2		
Biology	4.1: Cell biology	Prokaryotic and eukaryotic cells	R489	4.1.1.1		
Biology	4.1: Cell biology	Specialisation in animal cells	R220	4.1.1.3		
Biology	4.1: Cell biology	Specialisation in plant cells	R976	4.1.1.3		
Biology	4.1: Cell biology	Cell differentiation	R509	4.1.1.4		
Biology	4.1: Cell biology	Microscopy	R878	4.1.1.5		
Biology	4.1: Cell biology	Practical: Microscopy	R132	Biology, required practical activity 1		
Biology	4.1: Cell biology	Calculating magnification	R585	4.1.1.5		
Biology	4.1: Cell biology	Culturing microorganisms	R308	4.1.1.6		Separate only
Biology	4.1: Cell biology	Practical: Microbiology	R611	Biology, required practical activity 2		Separate only
Biology	4.1: Cell biology	Chromosomes	R258	4.1.2.1		
Biology	4.1: Cell biology	Mitosis	R368	4.1.2.1		
Biology	4.1: Cell biology	Stem cells	R478	4.1.2.3		
Biology	4.1: Cell biology	Diffusion	R264	4.1.3.1		
Biology	4.1: Cell biology	Factors affecting diffusion	R428	4.1.3.1		
Biology	4.1: Cell biology	Diffusion in multicellular organisms	R534	4.1.3.1		
Biology	4.1: Cell biology	Osmosis	R949	4.1.3.2		
Biology	4.1: Cell biology	Calculations involving osmosis	R685	4.1.3.2		
Biology	4.1: Cell biology	Practical: Osmosis	R110	Biology, required practical activity 3		
Biology	4.1: Cell biology	Active transport	R786	4.1.3.3		
Biology	4.1: Cell biology	Exchanging materials	R137	4.1.3.3		
Biology	4.2: Organisation	Principles of organisation	R948	4.2.1		
Biology	4.2: Organisation	The human digestive system	R154	4.2.2.1		
Biology	4.2: Organisation	Enzymes	R667	4.2.2.1		
Biology	4.2: Organisation	Factors affecting enzymes	R800	4.2.2.1		
Biology	4.2: Organisation	Rate calculations and enzyme activity	R615	4.2.2.1		
Biology	4.2: Organisation	Enzymes and digestion	R244	4.2.2.1		
Biology	4.2: Organisation	Practical: Food tests	R647	Biology, required practical activity 4		
Biology	4.2: Organisation	Practical: Enzymes	R642	Biology, required practical activity 5		
Biology	4.2: Organisation	The heart	R806	4.2.2.2		
Biology	4.2: Organisation	The structure of blood vessels	R350	4.2.2.2		
Biology	4.2: Organisation	The lungs	R652	4.2.2.2		
Biology	4.2: Organisation	The composition of blood	R673	4.2.2.3		
Biology	4.2: Organisation	Heart disease	R583	4.2.2.2, 4.2.2.4		
Biology	4.2: Organisation	Health issues	R902	4.2.2.5		
Biology	4.2: Organisation	Non-communicable disease	R505	4.2.2.6		
Biology	4.2: Organisation	Cancer	R669	4.2.2.7		
Biology	4.2: Organisation	The structure of the leaf	R451	4.2.3.1, 4.2.3.2		
Biology	4.2: Organisation	Plant tissues and organ systems	R318	4.2.3.1, 4.2.3.2		
Biology	4.2: Organisation	The xylem and phloem	R419	4.2.3.1, 4.2.3.2		
Biology	4.2: Organisation	Transpiration	R973	4.2.3.2		
Biology	4.2: Organisation	Factors affecting transpiration	R600	4.2.3.2		
Biology	4.2: Organisation	Translocation	R547	4.2.3.2		
Biology	4.3: Infection and response	Communicable diseases	R329	4.3.1.1		
Biology	4.3: Infection and response	Preventing the spread of disease	R417	4.3.1.1		
Biology	4.3: Infection and response	Viral diseases	R366	4.3.1.2		
Biology	4.3: Infection and response	Bacterial diseases	R421	4.3.1.3		
Biology	4.3: Infection and response	Diseases caused by fungi and protists	R875	4.3.1.4, 4.3.1.5		
Biology	4.3: Infection and response	Human defence system	R566	4.3.1.6		
Biology	4.3: Infection and response	The immune system	R582	4.3.1.6		
Biology	4.3: Infection and response	Vaccination	R938	4.3.1.7		

Subject	Unit	Topic	Code	Specification points covered	Higher only	Separate only
Biology	4.3: Infection and response	Antibiotics and painkillers	R328	4.3.1.8		
Biology	4.3: Infection and response	Development of drugs	R781	4.3.1.9		
Biology	4.3: Infection and response	Producing monoclonal antibodies	R691	4.3.2.1	Higher only	Separate only
Biology	4.3: Infection and response	Uses of monoclonal antibodies	R486	4.3.3.2	Higher only	Separate only
Biology	4.3: Infection and response	Detecting plant diseases	R746	4.3.3.1	Higher only	Separate only
Biology	4.3: Infection and response	Plant diseases	R914	4.3.3.1		Separate only
Biology	4.3: Infection and response	Plant defence responses	R632	4.3.3.2		Separate only
Biology	4.4: Bioenergetics	Photosynthesis	R827	4.4.1.1		
Biology	4.4: Bioenergetics	Factors affecting photosynthesis	R732	4.4.1.2		
Biology	4.4: Bioenergetics	Light and photosynthesis	R979	4.4.1.2	Higher only	
Biology	4.4: Bioenergetics	Practical: Photosynthesis	R248	Biology, required practical activity 6		
Biology	4.4: Bioenergetics	Uses of glucose	R917	4.4.1.3		
Biology	4.4: Bioenergetics	Aerobic respiration	R336	4.4.2.1		
Biology	4.4: Bioenergetics	Respiration and exercise	R545	4.4.2.2		
Biology	4.4: Bioenergetics	Anaerobic respiration	R268	4.4.2.3		
Biology	4.4: Bioenergetics	Metabolism	R434	4.4.2.3		
Biology	4.5: Homeostasis	Homeostasis	R904	4.5.1		
Biology	4.5: Homeostasis	The nervous system	R213	4.5.2.1		
Biology	4.5: Homeostasis	The reflex arc	R936	4.5.2.1		
Biology	4.5: Homeostasis	Practical: Reaction time	R683	Biology, required practical activity 7		
Biology	4.5: Homeostasis	The brain	R838	4.5.2.2		Separate only
Biology	4.5: Homeostasis	Investigating and treating brain disease	R464	4.5.2.2	Higher only	Separate only
Biology	4.5: Homeostasis	The eye	R850	4.5.2.3		Separate only
Biology	4.5: Homeostasis	How the eye works	R369	4.5.2.3		Separate only
Biology	4.5: Homeostasis	Common eye issues	R864	4.5.2.3		Separate only
Biology	4.5: Homeostasis	Thermoregulation	R160	4.5.2.4		Separate only
Biology	4.5: Homeostasis	The endocrine system	R832	4.5.3.1		
Biology	4.5: Homeostasis	Controlling blood glucose	R379	4.5.3.2		
Biology	4.5: Homeostasis	Diabetes	R841	4.5.3.2		
Biology	4.5: Homeostasis	Maintaining water and nitrogen balance	R445	4.5.3.3		Separate only
Biology	4.5: Homeostasis	The role of the kidneys	R591	4.5.3.3		Separate only
Biology	4.5: Homeostasis	ADH	R141	4.5.3.3	Higher only	Separate only
Biology	4.5: Homeostasis	Kidney failure	R570	4.5.3.3		Separate only
Biology	4.5: Homeostasis	The menstrual cycle	R651	4.5.3.4		
Biology	4.5: Homeostasis	Hormones and the menstrual cycle	R910	4.5.3.4		
Biology	4.5: Homeostasis	Contraception	R679	4.5.3.5		
Biology	4.5: Homeostasis	Infertility	R493	4.5.3.6	Higher only	
Biology	4.5: Homeostasis	Negative feedback	R275	4.5.3.7	Higher only	
Biology	4.5: Homeostasis	Plant hormones	R782	4.5.4.1		Separate only
Biology	4.5: Homeostasis	Applications of plant hormones	R201	4.5.4.1, 4.5.4.2	Higher only	Separate only
Biology	4.5: Homeostasis	Practical: Plant responses	R730	Biology, required practical activity 8		Separate only
Biology	4.6: Inheritance, variation and evolution	Sexual and asexual reproduction	R320	4.6.1.1		
Biology	4.6: Inheritance, variation and evolution	Meiosis	R969	4.6.1.2		
Biology	4.6: Inheritance, variation and evolution	Comparing types of reproduction	R668	4.6.1.3		Separate only
Biology	4.6: Inheritance, variation and evolution	DNA and the genome	R810	4.6.1.4		
Biology	4.6: Inheritance, variation and evolution	The structure of DNA	R794	4.6.1.5		Separate only
Biology	4.6: Inheritance, variation and evolution	Protein synthesis	R295	4.6.1.5	Higher only	Separate only
Biology	4.6: Inheritance, variation and evolution	Gene expression and mutation	R909	4.6.1.5	Higher only	Separate only
Biology	4.6: Inheritance, variation and evolution	Introduction to genetics	R216	4.6.1.6		
Biology	4.6: Inheritance, variation and evolution	Inheritance	R249	4.6.1.6, 4.6.1.7, 4.6.1.8		
Biology	4.6: Inheritance, variation and evolution	Genetic diagrams	R933	4.6.1.6, 4.6.1.8		

Subject	Unit	Topic	Code	Specification points covered	Higher only	Separate only
Biology	4.6: Inheritance, variation and evolution	Predicting inheritance	R431	4.6.1.6		
Biology	4.6: Inheritance, variation and evolution	Variation	R276	4.6.2.1		
Biology	4.6: Inheritance, variation and evolution	Evolution	R738	4.6.2.2		
Biology	4.6: Inheritance, variation and evolution	Selective breeding	R754	4.6.2.3		
Biology	4.6: Inheritance, variation and evolution	Genetic engineering	R801	4.6.2.4		
Biology	4.6: Inheritance, variation and evolution	The process of genetic engineering	R609	4.6.2.4	Higher only	
Biology	4.6: Inheritance, variation and evolution	Genetic engineering and food demands	R805	4.6.2.4		
Biology	4.6: Inheritance, variation and evolution	Tissue cultures and cloning in plants	R859	4.6.2.5		Separate only
Biology	4.6: Inheritance, variation and evolution	Cloning in animals	R492	4.6.2.5		Separate only
Biology	4.6: Inheritance, variation and evolution	The development of the theory of evolution	R157	4.6.3.1, 4.6.3.2		Separate only
Biology	4.6: Inheritance, variation and evolution	Speciation	R733	4.6.3.2		Separate only
Biology	4.6: Inheritance, variation and evolution	Mendel and genetics	R189	4.6.3.3		Separate only
Biology	4.6: Inheritance, variation and evolution	Fossil records	R719	4.6.3.4, 4.6.3.5		
Biology	4.6: Inheritance, variation and evolution	Extinction	R294	4.6.3.6		
Biology	4.6: Inheritance, variation and evolution	Resistant bacteria	R175	4.6.3.4, 4.6.3.7		
Biology	4.6: Inheritance, variation and evolution	Classification	R761	4.6.4		
Biology	4.7: Ecology	Ecosystems	R504	4.7.1.1		
Biology	4.7: Ecology	Interdependence	R226	4.7.1.1		
Biology	4.7: Ecology	Competition	R750	4.7.1.1		
Biology	4.7: Ecology	Adaptations	R453	4.7.1.1, 4.7.1.4		
Biology	4.7: Ecology	Abiotic factors	R173	4.7.1.1, 4.7.1.2		
Biology	4.7: Ecology	Biotic factors	R656	4.7.1.1, 4.7.1.3		
Biology	4.7: Ecology	Feeding relationships	R618	4.7.2.1		
Biology	4.7: Ecology	Distribution and abundance	R347	4.7.2.1		
Biology	4.7: Ecology	Practical: Field investigations	R355	Biology, required practical activity 9		
Biology	4.7: Ecology	The carbon cycle	R824	4.7.2.2		
Biology	4.7: Ecology	The water cycle	R153	4.7.2.2		
Biology	4.7: Ecology	Decomposition	R687	4.7.2.3, 4.7.4.1		Separate only
Biology	4.7: Ecology	Practical: Decay	R152	Biology, required practical activity 10		Separate only
Biology	4.7: Ecology	Calculating rates of decay	R863	4.7.2.3		Separate only
Biology	4.7: Ecology	Factors affecting distribution	R555	4.7.2.4	Higher only	Separate only
Biology	4.7: Ecology	Introduction to biodiversity	R748	4.7.3.1		
Biology	4.7: Ecology	Waste management and pollution	R604	4.7.3.2		
Biology	4.7: Ecology	Land use	R975	4.7.3.3, 4.7.3.4		
Biology	4.7: Ecology	Global warming	R325	4.7.3.5		
Biology	4.7: Ecology	Maintaining biodiversity	R124	4.7.3.6		
Biology	4.7: Ecology	Trophic levels	R438	4.7.4.1		Separate only
Biology	4.7: Ecology	Pyramids of biomass	R305	4.7.4.2		Separate only
Biology	4.7: Ecology	Transfers of biomass	R292	4.7.4.3		Separate only
Biology	4.7: Ecology	Food security	R311	4.7.5.1		Separate only
Biology	4.7: Ecology	Farming techniques	R177	4.7.5.2, 4.7.5.3		Separate only
Chemistry	4.1: Atomic structure and the periodic table	Elements and compounds	R447	4.1.1.1		
Chemistry	4.1: Atomic structure and the periodic table	Word equations	R333	4.1.1.1		
Chemistry	4.1: Atomic structure and the periodic table	Balancing chemical equations	R994	4.1.1.1		
Chemistry	4.1: Atomic structure and the periodic table	Formulae of common ions and compounds	R711	4.1.1.1		
Chemistry	4.1: Atomic structure and the periodic table	Ionic equations	R671	4.1.1.1	Higher only	
Chemistry	4.1: Atomic structure and the periodic table	Mixtures	R616	4.1.1.2		
Chemistry	4.1: Atomic structure and the periodic table	Separating mixtures	R550	4.1.1.2		
Chemistry	4.1: Atomic structure and the periodic table	The development of the atomic model	R793	4.1.1.3		
Chemistry	4.1: Atomic structure and the periodic table	Atomic structure	R945	4.1.1.4, 4.1.1.5		
Chemistry	4.1: Atomic structure and the periodic table	Atomic number and mass number	R646	4.1.1.5		

Subject	Unit	Topic	Code	Specification points covered	Higher only	Separate only
Chemistry	4.1: Atomic structure and the periodic table	Isotopes	R365	4.1.1.5		
Chemistry	4.1: Atomic structure and the periodic table	Calculations involving isotopes	R330	4.1.1.6		
Chemistry	4.1: Atomic structure and the periodic table	Electron configuration	R293	4.1.1.7		
Chemistry	4.1: Atomic structure and the periodic table	The Periodic table	R684	4.1.2.1, 4.1.2.3		
Chemistry	4.1: Atomic structure and the periodic table	The development of the Periodic table	R842	4.1.2.2		
Chemistry	4.1: Atomic structure and the periodic table	Metals and non-metals	R468	4.1.2.3		
Chemistry	4.1: Atomic structure and the periodic table	Noble gases	R572	4.1.2.4		
Chemistry	4.1: Atomic structure and the periodic table	Alkali metals	R925	4.1.2.5		
Chemistry	4.1: Atomic structure and the periodic table	Reactions of alkali metals	R406	4.1.2.5		
Chemistry	4.1: Atomic structure and the periodic table	Halogens	R580	4.1.2.6		
Chemistry	4.1: Atomic structure and the periodic table	Reactions of halogens	R715	4.1.2.6		
Chemistry	4.1: Atomic structure and the periodic table	Displacement reactions involving halogens	R640	4.1.2.6		
Chemistry	4.1: Atomic structure and the periodic table	Transition metals	R843	4.1.3.1, 4.1.3.2		Separate only
Chemistry	4.2: Bonding, structure and the properties of matter	Ionic bonding	R868	4.2.1.1, 4.2.1.2, 4.2.1.3		
Chemistry	4.2: Bonding, structure and the properties of matter	Dot and cross diagrams for ionic compounds	R581	4.2.1.2		
Chemistry	4.2: Bonding, structure and the properties of matter	Ions	R199	4.2.1.2		
Chemistry	4.2: Bonding, structure and the properties of matter	Representing ionic compounds	R557	4.2.1.3		
Chemistry	4.2: Bonding, structure and the properties of matter	Covalent bonding	R467	4.2.1.1, 4.2.1.4		
Chemistry	4.2: Bonding, structure and the properties of matter	Simple covalent molecules	R283	4.2.1.4		
Chemistry	4.2: Bonding, structure and the properties of matter	Large covalent structures	R916	4.2.1.4		
Chemistry	4.2: Bonding, structure and the properties of matter	Limitations of ionic and covalent models	R677	4.2.1.3, 4.2.1.4		
Chemistry	4.2: Bonding, structure and the properties of matter	Metallic bonding	R928	4.2.1.1, 4.2.1.5		
Chemistry	4.2: Bonding, structure and the properties of matter	States of matter	R211	4.2.2.1		
Chemistry	4.2: Bonding, structure and the properties of matter	Changes of state	R983	4.2.2.1		
Chemistry	4.2: Bonding, structure and the properties of matter	Predicting states of matter	R627	4.2.2.1		
Chemistry	4.2: Bonding, structure and the properties of matter	State symbols	R272	4.2.2.2		
Chemistry	4.2: Bonding, structure and the properties of matter	Properties of ionic compounds	R562	4.2.2.3		
Chemistry	4.2: Bonding, structure and the properties of matter	Properties of small covalent molecules	R876	4.2.2.4		
Chemistry	4.2: Bonding, structure and the properties of matter	Properties of large covalent structures	R338	4.2.2.5, 4.2.2.6		
Chemistry	4.2: Bonding, structure and the properties of matter	Properties of metals	R444	4.2.2.7, 4.2.2.8		
Chemistry	4.2: Bonding, structure and the properties of matter	Metals and alloys	R596	4.2.2.7		
Chemistry	4.2: Bonding, structure and the properties of matter	Allotropes of carbon	R901	4.2.3.1, 4.2.3.2		
Chemistry	4.2: Bonding, structure and the properties of matter	Graphene and fullerenes	R237	4.2.3.3		
Chemistry	4.2: Bonding, structure and the properties of matter	Nanoparticles	R530	4.2.4.1		Separate only
Chemistry	4.2: Bonding, structure and the properties of matter	Uses of nanoparticles	R957	4.2.4.2		Separate only
Chemistry	4.3: Quantitative chemistry	Conservation of mass	R533	4.3.1.1, 4.3.1.3		
Chemistry	4.3: Quantitative chemistry	Relative formula mass	R195	4.3.1.2		
Chemistry	4.3: Quantitative chemistry	Calculations using percentage composition	R497	4.3.1.2		
Chemistry	4.3: Quantitative chemistry	Measurements and uncertainty	R155	4.3.1.4		
Chemistry	4.3: Quantitative chemistry	Calculations with moles	R223	4.3.2.1	Higher only	
Chemistry	4.3: Quantitative chemistry	Calculating masses from equations using molar calculations	R624	4.3.2.2	Higher only	
Chemistry	4.3: Quantitative chemistry	Balancing equations using molar calculations	R143	4.3.2.3	Higher only	
Chemistry	4.3: Quantitative chemistry	Limiting reactants	R380	4.3.2.4	Higher only	
Chemistry	4.3: Quantitative chemistry	Concentrations	R807	4.3.2.5		
Chemistry	4.3: Quantitative chemistry	Percentage yield	R463	4.3.3.1		Separate only
Chemistry	4.3: Quantitative chemistry	Atom economy	R474	4.3.3.2		Separate only
Chemistry	4.3: Quantitative chemistry	Choosing reaction pathways	R804	4.3.3.2	Higher only	Separate only
Chemistry	4.3: Quantitative chemistry	Concentrations in mol/dm³	R262	4.3.4	Higher only	Separate only
Chemistry	4.3: Quantitative chemistry	Molar volume	R985	4.3.5	Higher only	Separate only
Chemistry	4.3: Quantitative chemistry	Avogadro's law and gases	R332	4.3.5	Higher only	Separate only
Chemistry	4.4: Chemical changes	Reactions of metals	R681	4.4.1.1		

Subject	Unit	Topic	Code	Specification points covered	Higher only	Separate only
Chemistry	4.4: Chemical changes	The reactivity series	R981	4.4.1.2		
Chemistry	4.4: Chemical changes	Extracting metals	R483	4.4.1.3		
Chemistry	4.4: Chemical changes	Redox reactions	R245	4.4.1.4	Higher only	
Chemistry	4.4: Chemical changes	Reactions of acids and metals	R828	4.4.2.1		
Chemistry	4.4: Chemical changes	Reactions of acids and bases	R142	4.4.2.2		
Chemistry	4.4: Chemical changes	Further reactions of acids	R495	4.4.2.1, 4.4.2.2	Higher only	
Chemistry	4.4: Chemical changes	Preparing soluble salts using crystallisation	R885	4.4.2.3		
Chemistry	4.4: Chemical changes	Practical: Making salts	R412	Chemistry, required practical activity 1		
Chemistry	4.4: Chemical changes	Acids and alkalis	R529	4.4.2.4		
Chemistry	4.4: Chemical changes	Titrations	R539	4.4.2.5		Separate only
Chemistry	4.4: Chemical changes	Practical: Neutralisation	R892	Chemistry, required practical activity 2		Separate only
Chemistry	4.4: Chemical changes	Titration calculations	R297	4.4.2.5	Higher only	Separate only
Chemistry	4.4: Chemical changes	Concentrations of acids and alkalis	R309	4.4.2.6	Higher only	
Chemistry	4.4: Chemical changes	Strong and weak acids	R629	4.4.2.6	Higher only	
Chemistry	4.4: Chemical changes	Introduction to electrolysis	R298	4.4.3.1		
Chemistry	4.4: Chemical changes	Electrolysis of molten compounds	R672	4.4.3.2, 4.4.3.3		
Chemistry	4.4: Chemical changes	Electrolysis of aqueous solutions	R279	4.4.3.4		
Chemistry	4.4: Chemical changes	Practical: Electrolysis	R866	Chemistry, required practical activity 3		
Chemistry	4.4: Chemical changes	Oxidation and reduction in electrolysis	R792	4.4.3.1, 4.4.3.5	Higher only	
Chemistry	4.5: Energy changes	Endothermic and exothermic reactions	R833	4.5.1.1		
Chemistry	4.5: Energy changes	Practical: Temperature changes	R466	Chemistry, required practical activity 4		
Chemistry	4.5: Energy changes	Reaction profiles	R675	4.5.1.2		
Chemistry	4.5: Energy changes	Bond energy calculations	R769	4.5.1.3	Higher only	
Chemistry	4.5: Energy changes	Cells and batteries	R120	4.5.2.1		Separate only
Chemistry	4.5: Energy changes	Fuel cells	R836	4.5.2.2		Separate only
Chemistry	4.6: The rate and extent of chemical change	Calculating reaction rates	R771	4.6.1.1		
Chemistry	4.6: The rate and extent of chemical change	Practical: Rates of reaction	R280	Chemistry, required practical activity 5		
Chemistry	4.6: The rate and extent of chemical change	Collision theory	R895	4.6.1.3		
Chemistry	4.6: The rate and extent of chemical change	Catalysts	R601	4.6.1.4		
Chemistry	4.6: The rate and extent of chemical change	Dynamic equilibrium	R768	4.6.2.1, 4.6.2.2, 4.6.2.3		
Chemistry	4.6: The rate and extent of chemical change	Factors affecting the position of dynamic equilibrium	R115	4.6.2.4, 4.6.2.5, 4.6.2.6, 4.6.2.7	Higher only	
Chemistry	4.7: Organic chemistry	Crude oil	R526	4.7.1.1		
Chemistry	4.7: Organic chemistry	Fractional distillation of crude oil	R205	4.7.1.2		
Chemistry	4.7: Organic chemistry	Properties of hydrocarbons	R837	4.7.1.3		
Chemistry	4.7: Organic chemistry	Cracking	R240	4.7.1.4		
Chemistry	4.7: Organic chemistry	Alkenes	R418	4.7.2.1		Separate only
Chemistry	4.7: Organic chemistry	Reactions of alkenes	R900	4.7.2.2		Separate only
Chemistry	4.7: Organic chemistry	Alcohols	R613	4.7.2.3		Separate only
Chemistry	4.7: Organic chemistry	Production of ethanol	R465	4.7.2.3		Separate only
Chemistry	4.7: Organic chemistry	Carboxylic acids	R508	4.7.2.4		Separate only
Chemistry	4.7: Organic chemistry	Addition polymers	R371	4.7.3.1		Separate only
Chemistry	4.7: Organic chemistry	Condensation polymers	R723	4.7.3.2	Higher only	Separate only
Chemistry	4.7: Organic chemistry	Naturally-occurring polymers	R692	4.7.3.3, 4.7.3.4	Higher only	Separate only
Chemistry	4.8: Chemical analysis	Pure substances	R281	4.8.1.1		
Chemistry	4.8: Chemical analysis	Formulations	R256	4.8.1.2		
Chemistry	4.8: Chemical analysis	Chromatography	R638	4.8.1.3		
Chemistry	4.8: Chemical analysis	Interpreting chromatograms	R720	4.8.1.3		
Chemistry	4.8: Chemical analysis	Practical: Chromatography	R953	Chemistry, required practical activity 6		
Chemistry	4.8: Chemical analysis	Tests for gases	R443	4.8.2.1, 4.8.2.2, 4.8.2.3, 4.8.2.4		
Chemistry	4.8: Chemical analysis	Tests for positive ions	R172	4.8.3.1, 4.8.3.2		Separate only
Chemistry	4.8: Chemical analysis	Tests for negative ions	R755	4.8.3.3, 4.8.3.4, 4.8.3.5		Separate only

Subject	Unit	Topic	Code	Specification points covered	Higher only	Separate only
Chemistry	4.8: Chemical analysis	Instrumental methods for analysing ions	R487	4.8.3.6, 4.8.3.7		Separate only
Chemistry	4.8: Chemical analysis	Practical: Identifying ions	R364	Chemistry, required practical activity 7		Separate only
Chemistry	4.9: Atmospheric chemistry	The development of the atmosphere	R225	4.9.1.1, 4.9.1.2, 4.9.1.3, 4.9.1.4		
Chemistry	4.9: Atmospheric chemistry	The greenhouse effect	R391	4.9.2.1		
Chemistry	4.9: Atmospheric chemistry	Greenhouse gases and climate change	R728	4.9.2.2, 4.9.2.3		
Chemistry	4.9: Atmospheric chemistry	Reducing emissions	R873	4.9.2.4		
Chemistry	4.9: Atmospheric chemistry	Combustion of fuels and pollution	R221	4.9.3.1, 4.9.3.2		
Chemistry	4.9: Atmospheric chemistry	Pollutants involving sulfur and nitrogen	R119	4.9.3.1, 4.9.3.2		
Chemistry	4.10: Using resources	Earth's resources	R912	4.10.1.1		
Chemistry	4.10: Using resources	Creating drinking water	R208	4.10.1.2		
Chemistry	4.10: Using resources	Practical: Water purification	R759	Chemistry, required practical activity 8		
Chemistry	4.10: Using resources	Waste water treatment	R898	4.10.1.3		
Chemistry	4.10: Using resources	Biological methods of extracting metals	R403	4.10.1.4	Higher only	
Chemistry	4.10: Using resources	Life-cycle assessments	R826	4.10.2.1		
Chemistry	4.10: Using resources	Reducing and reusing resources	R228	4.10.2.2		
Chemistry	4.10: Using resources	Corrosion	R561	4.10.3.1		Separate only
Chemistry	4.10: Using resources	Alloys	R907	4.10.3.2		Separate only
Chemistry	4.10: Using resources	Thermosoftening and thermosetting polymers	R920	4.10.3.3		Separate only
Chemistry	4.10: Using resources	Glass, ceramics, polymers and composites	R287	4.10.3.3		Separate only
Chemistry	4.10: Using resources	Fertilisers and the Haber process	R511	4.10.4.1		Separate only
Chemistry	4.10: Using resources	Choosing industrial conditions	R163	4.10.4.1	Higher only	Separate only
Chemistry	4.10: Using resources	Production of NPK fertilisers	R541	4.10.4.2		Separate only
Physics	4.1: Energy	Energy stores and transfers	R393	4.1.1.1		
Physics	4.1: Energy	Calculations involving energy transfers	R180	4.1.1.1		
Physics	4.1: Energy	Kinetic energy	R704	4.1.1.2		
Physics	4.1: Energy	Elastic potential energy	R802	4.1.1.2		
Physics	4.1: Energy	Gravitational potential energy	R751	4.1.1.2		
Physics	4.1: Energy	Thermal energy	R544	4.1.1.3		
Physics	4.1: Energy	Practical: Specific heat capacity	R251	Physics, required practical activity 1		
Physics	4.1: Energy	Power	R602	4.1.1.4		
Physics	4.1: Energy	Conservation of energy	R606	4.1.2.1		
Physics	4.1: Energy	Wasted energy	R384	4.1.2.1		
Physics	4.1: Energy	Reducing wasted energy	R996	4.1.2.1		
Physics	4.1: Energy	Practical: Thermal insulation	R312	Physics, required practical activity 2		Separate only
Physics	4.1: Energy	Efficiency	R666	4.1.2.2		
Physics	4.1: Energy	Improving efficiency	R593	4.1.2.2	Higher only	
Physics	4.1: Energy	Energy demands	R496	4.1.3		
Physics	4.1: Energy	Non-renewable energy resources	R911	4.1.3		
Physics	4.1: Energy	Renewable energy resources	R476	4.1.3		
Physics	4.2: Electricity	Circuit symbols	R780	4.2.1.1		
Physics	4.2: Electricity	Charge and current	R274	4.2.1.2		
Physics	4.2: Electricity	Introduction to series and parallel circuits	R955	4.2.1.1		
Physics	4.2: Electricity	Ohm's law	R779	4.2.1.3		
Physics	4.2: Electricity	Practical: Resistance	R831	Physics, required practical activity 3		
Physics	4.2: Electricity	Resistance in devices	R959	4.2.1.4		
Physics	4.2: Electricity	LDRs and thermistors	R658	4.2.1.4		
Physics	4.2: Electricity	Testing components	R238	4.2.1.4		
Physics	4.2: Electricity	Practical: V-I characteristics	R439	Physics, required practical activity 4		
Physics	4.2: Electricity	Series circuits	R302	4.2.2		
Physics	4.2: Electricity	Parallel circuits	R409	4.2.2		
Physics	4.2: Electricity	Mixed practice: Series and parallel circuits	R752	4.2.2		

Subject	Unit	Topic	Code	Specification points covered	Higher only	Separate only
Physics	4.2: Electricity	AC and DC	R499	4.2.3.1		
Physics	4.2: Electricity	Mains electricity	R121	4.2.3.2		
Physics	4.2: Electricity	Dangers of mains electricity	R361	4.2.3.2		
Physics	4.2: Electricity	Power in circuits	R773	4.2.4.1		
Physics	4.2: Electricity	Energy transfers in circuits	R490	4.2.4.2		
Physics	4.2: Electricity	Power and energy transfer	R815	4.2.4.2		
Physics	4.2: Electricity	Power of devices	R145	4.2.4.2		
Physics	4.2: Electricity	Power ratings of appliances	R144	4.2.4.2		
Physics	4.2: Electricity	The National Grid	R507	4.2.4.3		
Physics	4.2: Electricity	Static electricity	R147	4.2.5.1		Separate only
Physics	4.2: Electricity	Electric fields	R151	4.2.5.2		Separate only
Physics	4.3: Particle model of matter	Density	R136	4.3.1.1		
Physics	4.3: Particle model of matter	States of matter	R252	4.3.1.1		
Physics	4.3: Particle model of matter	The particle model and density	R161	4.3.1.1		
Physics	4.3: Particle model of matter	Practical: Density	R128	Physics, required practical activity 5		
Physics	4.3: Particle model of matter	Changes of state	R791	4.3.1.2		
Physics	4.3: Particle model of matter	Internal energy	R621	4.3.2.1		
Physics	4.3: Particle model of matter	Specific heat capacity	R527	4.3.2.1		
Physics	4.3: Particle model of matter	Specific latent heat	R641	4.3.2.3		
Physics	4.3: Particle model of matter	Heating and cooling graphs	R927	4.3.2.3		
Physics	4.3: Particle model of matter	Pressure and volume	R951	4.3.3.2		Separate only
Physics	4.3: Particle model of matter	Particle motion in gases	R614	4.3.3.1		
Physics	4.3: Particle model of matter	Work and pressure	R989	4.3.3.3	Higher only	Separate only
Physics	4.4: Atomic structure	The atom	R139	4.4.1.1		
Physics	4.4: Atomic structure	Atomic number and mass number	R548	4.4.1.2		
Physics	4.4: Atomic structure	Ionisation	R767	4.4.1.1, 4.4.1.2		
Physics	4.4: Atomic structure	Isotopes	R889	4.4.1.2		
Physics	4.4: Atomic structure	The development of the atomic model	R617	4.4.1.3		
Physics	4.4: Atomic structure	Types of radiation	R937	4.4.2.1		
Physics	4.4: Atomic structure	Properties of radiation	R694	4.4.2.1		
Physics	4.4: Atomic structure	Nuclear equations	R193	4.4.2.2		
Physics	4.4: Atomic structure	Activity and decay	R549	4.4.2.1		
Physics	4.4: Atomic structure	Half-life	R905	4.4.2.3		
Physics	4.4: Atomic structure	Contamination and irradiation	R661	4.4.2.4		
Physics	4.4: Atomic structure	Background radiation	R690	4.4.3.1		Separate only
Physics	4.4: Atomic structure	Uses of radiation	R326	4.4.2.1		Separate only
Physics	4.4: Atomic structure	Dangers of radiation	R316	4.4.3.2, 4.4.3.3		Separate only
Physics	4.4: Atomic structure	Radiation and medicine	R388	4.4.3.3		Separate only
Physics	4.4: Atomic structure	Nuclear fission	R345	4.4.4.1		Separate only
Physics	4.4: Atomic structure	Nuclear reactors	R370	4.4.4.1		Separate only
Physics	4.4: Atomic structure	Nuclear fusion	R851	4.4.4.2		Separate only
Physics	4.5: Forces	Scalar and vector quantities	R197	4.5.1.1		
Physics	4.5: Forces	Contact and non-contact forces	R853	4.5.1.2		
Physics	4.5: Forces	Weight	R590	4.5.1.3,		
Physics	4.5: Forces	Resultant forces	R744	4.5.1.4	Higher only	
Physics	4.5: Forces	Resolving forces	R589	9.3	Higher only	
Physics	4.5: Forces	Work and energy	R307	4.5.2		
Physics	4.5: Forces	Deformation	R337	4.5.3		
Physics	4.5: Forces	Hooke's law	R598	4.5.3		
Physics	4.5: Forces	Elastic potential energy	R494	4.5.3		
Physics	4.5: Forces	Practical: Force and extension	R353	Physics, required practical activity 6		

Subject	Unit	Topic	Code	Specification points covered	Higher only	Separate only
Physics	4.5: Forces	Moments	R563	4.5.4		Separate only
Physics	4.5: Forces	The principle of moments	R324	4.5.4		Separate only
Physics	4.5: Forces	Levers and gears	R473	4.5.4		Separate only
Physics	4.5: Forces	Pressure and forces	R564	4.5.5.1.1		Separate only
Physics	4.5: Forces	Pressure in liquids	R129	4.5.5.1.2		Separate only
Physics	4.5: Forces	Upthrust	R817	4.5.5.1.2	Higher only	Separate only
Physics	4.5: Forces	Atmospheric pressure	R480	4.5.5.2		Separate only
Physics	4.5: Forces	Distance and displacement	R314	4.5.6.1.1		
Physics	4.5: Forces	Speed	R374	4.5.6.1.2		
Physics	4.5: Forces	Velocity and circular motion	R639	4.5.6.1.3		
Physics	4.5: Forces	Distance-time graphs	R908	4.5.6.1.4		
Physics	4.5: Forces	Acceleration	R760	4.5.6.1.5		
Physics	4.5: Forces	Calculating uniform acceleration	R799	4.5.6.1.5		
Physics	4.5: Forces	Terminal velocity	R112	4.5.6.1.5		
Physics	4.5: Forces	Velocity-time graphs and displacement	R176	4.5.6.1.5	Higher only	
Physics	4.5: Forces	Velocity-time graphs and acceleration	R663	4.5.6.1.5		
Physics	4.5: Forces	Newton's first law	R893	4.5.6.2.1		
Physics	4.5: Forces	Newton's second law	R138	4.5.6.2.2		
Physics	4.5: Forces	Mass and inertia	R597	4.5.6.2.2	Higher only	
Physics	4.5: Forces	Practical: Acceleration	R149	Physics, required practical activity 7		
Physics	4.5: Forces	Newton's third law	R519	4.5.6.2.3		
Physics	4.5: Forces	Stopping distance	R823	4.5.6.3.1		
Physics	4.5: Forces	Thinking distance and reaction times	R134	4.5.6.3.2		
Physics	4.5: Forces	Braking distance	R107	4.5.6.3.3, 4.5.6.3.4		
Physics	4.5: Forces	Momentum	R980	4.5.7.1	Higher only	
Physics	4.5: Forces	Conservation of momentum	R695	4.5.7.2	Higher only	
Physics	4.5: Forces	Force and momentum	R554	4.5.7.3	Higher only	Separate only
Physics	4.5: Forces	Momentum and safety	R870	4.5.7.3	Higher only	Separate only
Physics	4.6: Waves	Transverse and longitudinal waves	R186	4.6.1.1		
Physics	4.6: Waves	Wave properties	R103	4.6.1.2		
Physics	4.6: Waves	The wave equation	R569	4.6.1.2		
Physics	4.6: Waves	Measuring wave speed	R452	4.6.1.2		
Physics	4.6: Waves	Practical: Waves	R625	Physics, required practical activity 8		
Physics	4.6: Waves	Reflection	R241	4.6.1.3		Separate only
Physics	4.6: Waves	Practical: Light	R233	Physics, required practical activity 6		Separate only
Physics	4.6: Waves	Sound waves	R803	4.6.1.2, 4.6.1.4		Separate only
Physics	4.6: Waves	Waves for detection and exploration - Ultrasound	R762	4.6.1.5	Higher only	Separate only
Physics	4.6: Waves	Waves for detection and exploration - Seismic waves	R382	4.6.1.5	Higher only	Separate only
Physics	4.6: Waves	The electromagnetic spectrum	R288	4.6.2.1		
Physics	4.6: Waves	Refraction	R992	4.6.2.2		
Physics	4.6: Waves	Practical: Radiation and absorption	R699	Physics, required practical activity 10		
Physics	4.6: Waves	Radio waves	R556	4.6.2.3	Higher only	
Physics	4.6: Waves	Dangers of electromagnetic radiation	R919	4.6.2.3		
Physics	4.6: Waves	Uses of electromagnetic radiation	R993	4.6.2.4		
Physics	4.6: Waves	Lenses and images	R724	4.6.2.5		Separate only
Physics	4.6: Waves	Magnification	R648	4.6.2.5		Separate only
Physics	4.6: Waves	Ray diagrams of lenses	R198	4.6.2.5		Separate only
Physics	4.6: Waves	Light and surfaces	R488	4.6.2.6		Separate only
Physics	4.6: Waves	Thermal radiation	R968	4.6.3.1		Separate only
Physics	4.6: Waves	Thermal radiation and temperature	R553	4.6.3.2		Separate only
Physics	4.6: Waves	Maintaining Earth's temperature	R709	4.6.3.2	Higher only	Separate only

Subject	Unit	Topic	Code	Specification points covered	Higher only	Separate only
Physics	4.7: Magnetism and electromagnetism	Magnetic fields	R847	4.7.1.1, 4.7.1.2		
Physics	4.7: Magnetism and electromagnetism	Permanent and induced magnets	R882	4.7.1.1		
Physics	4.7: Magnetism and electromagnetism	Current and magnetic fields	R342	4.7.2.1		
Physics	4.7: Magnetism and electromagnetism	Electromagnets	R344	4.7.2.1		
Physics	4.7: Magnetism and electromagnetism	Fleming's left-hand rule	R766	4.7.2.2	Higher only	
Physics	4.7: Magnetism and electromagnetism	Calculating magnetic force	R206	4.7.2.2	Higher only	
Physics	4.7: Magnetism and electromagnetism	Electric motors	R931	4.7.2.3	Higher only	
Physics	4.7: Magnetism and electromagnetism	Electromagnetic induction	R717	4.7.3.1	Higher only	Separate only
Physics	4.7: Magnetism and electromagnetism	Alternators and dynamos	R571	4.7.3.2	Higher only	Separate only
Physics	4.7: Magnetism and electromagnetism	Microphones and speakers	R247	4.7.2.3, 4.7.2.4	Higher only	Separate only
Physics	4.7: Magnetism and electromagnetism	Transformers	R224	4.7.3.4	Higher only	Separate only
Physics	4.7: Magnetism and electromagnetism	The transformer equation	R510	4.7.3.4	Higher only	Separate only
Physics	4.7: Magnetism and electromagnetism	The ideal transformer equation	R116	4.7.3.4	Higher only	Separate only
Physics	4.8: Space physics	The solar system	R935	4.8.1.1		Separate only
Physics	4.8: Space physics	The life cycle of stars	R540	4.8.1.2		Separate only
Physics	4.8: Space physics	Orbits	R872	4.8.1.3		Separate only
Physics	4.8: Space physics	Red-shift	R718	4.8.2		Separate only
Physics	4.8: Space physics	Theories of the Universe	R789	4.8.2		Separate only
Skills	Maths skills for science	Rounding	R921			
Skills	Maths skills for science	Standard form	R778			
Skills	Maths skills for science	Fractions and percentages	R502			
Skills	Maths skills for science	Percentage change	R100			
Skills	Maths skills for science	Significant figures	R471			
Skills	Maths skills for science	Calculating the mean	R414			
Skills	Maths skills for science	Tables of data	R235			
Skills	Maths skills for science	Bar charts	R703			
Skills	Maths skills for science	Scatter graphs	R148			
Skills	Maths skills for science	Converting units	R322			
Skills	Maths skills for science	Rearranging equations	R340			
Skills	Maths skills for science	Solving equations	R185			
Skills	Maths skills for science	Calculating area	R232			
Skills	Maths skills for science	Calculating surface area and volume	R359			
Skills	Working scientifically	Hypotheses and predictions	R662	WS 2.1		
Skills	Working scientifically	Planning experiments	R184	WS 2.2		
Skills	Working scientifically	Scientific equipment	R787	WS 2.3		
Skills	Working scientifically	Working safely	R457	WS 2.4		
Skills	Working scientifically	Measurements and observations	R229	WS 2.6		
Skills	Working scientifically	Resolution	R397	WS 2.4		
Skills	Working scientifically	Displaying results	R941	WS 3.1		
Skills	Working scientifically	Precision and uncertainty	R756	WS 3.4, WS 3.7		
Skills	Working scientifically	Errors in experiments	R146	WS 3.7		
Skills	Working scientifically	Accuracy	R880	WS 2.4, WS 3.7		
Skills	Working scientifically	Evaluating data	R352	WS 3.7		
Skills	Working scientifically	Validity and improvements	R230	WS 2.7, WS 3.7		
Skills	Working scientifically	Drawing conclusions	R784	WS 3.8		