

Science faculty

Year 11 combined science topic check list.

The sub-topics underlined and in italics are higher tier only.

Topic	Pages in <u>foundation</u> tier revision guide	Pages in <u>higher</u> tier revision guide	Revised?
Biology content in both paper 1 and 2.			
Key concepts in biology <ul style="list-style-type: none"> - Microscopes - Plant and animal cells (core practical: using microscopes) - Specialised cell - Inside bacteria - Enzymes and nutrition - Enzyme action - Enzyme activity (core practical: Enzymes and pH) - Transporting substances (core practical: Osmosis in potatoes) 	1-12	1-12	
Biology content in paper 1 only			
Cells and control <ul style="list-style-type: none"> - Mitosis - Growth in animals - Growth in plants - Stem cells - The nervous system - Neurotransmission speeds 	13-19	13-19	
Genetics <ul style="list-style-type: none"> - Meiosis - DNA - DNA extraction - Alleles - Inheritance - Gene mutation 	20-28	20-28	

Combined science

- Variation			
Natural selection and genetic modification <ul style="list-style-type: none"> - Evidence for human evolution - Darwin's theory - Classification - Breeds and varieties - Genes in agriculture and medicines 	29-34	29-35	
Health disease and the development of medicines <ul style="list-style-type: none"> - Health and disease - Non-communicable disease - Cardiovascular disease - Pathogens - Spreading pathogens - Physical and chemical barriers - The immune system - Antibiotics 	35-28	36-49	
Biology content in paper 2 only			
Plant structure and their functions <ul style="list-style-type: none"> - Photosynthesis - Factors that affect photosynthesis (core practical: light intensity and photosynthesis) - Absorbing water and mineral ions - Transpiration and translocation 	49-56	50-57	
Animal coordination, control and homeostasis <ul style="list-style-type: none"> - Hormones - <u>Hormone control of metabolic rate</u> - The menstrual cycle - <u>Hormones and the menstrual cycle</u> - Control of blood glucose - Type 2 diabetes 	57-61	58-65	
Exchange and transport in animals <ul style="list-style-type: none"> - Efficient transport and exchange - The circulatory system - The heart - Cellular respiration (core practical: respiration rates) 	62-71	66-75	
Ecosystems and material cycles	72-82	76-86	

Combined science

<ul style="list-style-type: none"> - Ecosystems - Abiotic factors and communities (core practical: Quadrats and transects) - Biotic factors and communities - Parasitism and mutualism - Biodiversity and humans - Preserving biodiversity - The water cycle - The carbon cycle - The nitrogen cycle 			
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Chemistry content in paper 1 and 2

Key chemistry concepts <ul style="list-style-type: none"> - Formulae - Equations - Ionic equations - Hazards, risks and precautions. 	83-85	87-90	
Atomic structure <ul style="list-style-type: none"> - Structure of an atom - Atomic number and mass number - Isotopes 	86-87	91-92	
The periodic table <ul style="list-style-type: none"> - Elements and the periodic table - Atomic number and the periodic table - Electronic configuration 	89-90	93-95	
Ionic bonding <ul style="list-style-type: none"> - Ionic bonds - Ionic lattices - Properties of ionic compounds 	91-93	96-98	
Covalent bonding <ul style="list-style-type: none"> - Covalent bonds - Molecular compounds 	94-95	99-100	
types of substances <ul style="list-style-type: none"> - Allotropes of carbon - Properties of metals - Bonding models 	96-99	101-104	

Combined science

Calculations involving masses <ul style="list-style-type: none"> - Masses and empirical formula - Conservation of mass - <u>Moles</u> 	100-104	105-111	
Chemistry content in paper 1 only			
States of matter and methods of separating and purifying substances <ul style="list-style-type: none"> - States of matter - Mixtures - Filtration and crystallisation - Paper chromatography - Distillation (Core practical: investigating inks) - Drinking water 	105-112	112-119	
Acids and alkalis <ul style="list-style-type: none"> - Acids, alkalis and indicators - Looking at acids - Bases and salts (core practical: Preparing copper sulfate) - Alkalis and balancing equations (Core practical – investigating neutralisation) - Alkalis and neutralisation - Reactions of acids with metals and metal carbonates - Solubility 	113-119	120-127	
Electrolytic processes <ul style="list-style-type: none"> - Electrolysis (core practical: Electrolysis of copper sulfate solution) - Products from electrolysis 	120-123	128-131	
Obtaining and using metals. <ul style="list-style-type: none"> - Reactivity - Ores - Oxidation and reduction - Life cycle assessment and recycling 	124-131	132-140	
Reversible reactions and equilibria <ul style="list-style-type: none"> - Dynamic equilibrium 	132	141-142	
Chemistry content in paper 2 only			

Combined science

Groups in the periodic table <ul style="list-style-type: none"> - Group 1 - Group 7 - Halogen reactivity - Group 0 	133-138	143-148	
Rates of reaction <ul style="list-style-type: none"> - Rates of reaction - Factors affecting reaction rates (core practical: investigating reaction rates) - Catalysts and activation energy 	139-141	149-151	
Heat energy changes in chemical reactions <ul style="list-style-type: none"> - Exothermic and endothermic reactions - Energy changes in reactions 	142-143	152-154	
Fuels <ul style="list-style-type: none"> - Hydrocarbons in crude oil and natural gas - Fractional distillation of crude oil - The alkane homologous series - Complete and incomplete combustion - Combustible fuels and pollution - Breaking down hydrocarbons 	144-151	155-162	
Earth and atmospheric science <ul style="list-style-type: none"> - The early atmosphere - The changing atmosphere - The atmosphere today - Climate change 	152-154	163-165	
Physics content in paper 1 only			
Motion <ul style="list-style-type: none"> - Vectors and scalars - Distance/time graphs - Acceleration - Velocity/time graphs 	155-160	166-171	
Forces and motion <ul style="list-style-type: none"> - Resultant forces - Newton's first law - Mass and weight - Newton's second law (core practical: investigating acceleration) - Newton's third law 	161-168	172-181	

Combined science

<ul style="list-style-type: none"> - <u>Momentum</u> - Stopping distances - Breaking distance and energy - Crash hazards 			
Conservation of energy <ul style="list-style-type: none"> - Energy stores and transfers - Energy efficiency - Keeping warm - Stored energies - Non-renewable resources - Renewable resources 	169-174	182-187	
Waves <ul style="list-style-type: none"> - Describing waves - Wave speeds (core practical: Investigating waves) - Refraction 	175-180	188-193	
Light and the electromagnetic spectrum <ul style="list-style-type: none"> - Electromagnetic waves (core practical: Investigating refraction) - The electromagnetic spectrum - Using the long wavelengths - Using the short wavelengths - EM radiation dangers 	181-185	194-199	
Radioactivity <ul style="list-style-type: none"> - Atomic models - Inside atoms - Electrons and orbits - Background radiation - Types of radiation - Radioactive decay - Half life - Using radioactivity - Dangers of reactivity 	186-198	200-212	
Physics content in paper 2 only			
Energy – forces doing work and forces and their effects	199-201	213-218	

Combined science

<ul style="list-style-type: none"> - Work and power - Objects affecting each other - <u>Vector diagrams</u> 			
Electricity and circuits <ul style="list-style-type: none"> - Electric circuits - Current and potential difference - Current, charge and energy - Resistance - More about resistance (core practical: investigating resistance) - Transferring energy - Power - Transferring energy by electricity - Electrical safety 	202-215	219-232	
Magnetism, the motor effect and electromagnetic induction <ul style="list-style-type: none"> - Magnets and magnetic fields - Electromagnetism - <u>Magnetic forces</u> - Transformers - Transformers and energy 	216-220	233-239	
Particle model <ul style="list-style-type: none"> - Particles and density (Core practical: investigating densities) - Energy and changes in state - Energy calculations (Core practical: Investigating water) - Gas temperature and pressure 	221-227	240-246	
Forces and matter <ul style="list-style-type: none"> - Bending and stretching (Core practical: investigating springs) - Extension and energy transfers 	228-231	247-250	