Combined & Triple Science Revision: Spring Term 2025

3 assessments: Biology Paper 2, Chemistry Paper 2, Physics Paper 2.

Combined Science: All papers 75 minutes (1 hour 15 minutes)

Triple Science: All papers 105 minutes (1 hour 45 minutes)

Calculator, ruler, pencil, protractor are required for all assessments.

Biology Topic 5: Homeostasis and Response	R	A	G
Homeostasis			
Human nervous system			
Human endocrine system			
Control of blood glucose concentration			
Hormones in human reproduction			
Contraception			
Treating infertility with hormones (HT only)			
Negative feedback systems (HT only)			
Required Practical 6/7 – human reaction times			

Biology Topic 6: Inheritance, variation & evolution	R	A	G
Sexual and asexual reproduction			
Meiosis			
DNA & genome			
Genetic Inheritance			
Inherited disorders			
Sex determination			
Variation			
Evolution			
Selective Breeding			
Genetic Engineering			

Biology Topic 6: Inheritance, variation & evolution	R	A	G
Evidence for evolution			
Fossils			
Extinction			
Resistant bacteria			
Classification of living organisms: Linnaeus & Woese			

Biology Topic 7: Ecology	R	A	G
Communities			
Biotic and Abiotic factors			
Adaptions of animals and plants			
Levels of organisation in an ecosystem			
Carbon cycle			
Water cycle			
Biodiversity			
Waste management			
Land use & deforestation			
Global warming			
Maintaining biodiversity			
Required practical 7: Sampling techniques – quadrats and transects			

Chemistry Topic 6: Rate and Extent of Reactions	R	A	G
Calculating a rate of reaction			
Factors affecting rates of reaction: concentration, pressure, surface area, temperature, catalysts			
Collision theory & activation energy			
How catalysts increase the rate of reaction using activation energy			
Reversible reactions			
Energy changes in reversible reactions			
Dynamic equilibrium			
Dynamic equilibrium: Le Chatlelier's principle (HT only)			
Dynamic equilibrium: effect of changing concentration, pressure, temperature, catalyst (HT only)			
Required practical 11/?: affect of concentration on the rate of reaction by measuring volume of gas and colour change/turbidity.			

Chemistry Topic 7: Organic Chemistry	R	A	G
Crude oil as a mixture of hydrocarbons			
Alkane homologous series			
Fractional distillation			
Properties of hydrocarbons: boiling point, viscosity, flammability			
Cracking and formation of alkenes			

Chemistry Topic 8: Chemical Analysis	R	A	G
Pure substances			
Formulations			
Chromatography			
Calculating R_f values & analysing chromatograms			
Identifying gases – tests and results: hydrogen, oxygen, chlorine, carbon dioxide			
Required practical 12: Chromatography			

Chemistry Topic 9: Atmosphere	R	A	G
Proportion of gases in the modern atmosphere			
Earth's early atmosphere: composition and the release of carbon dioxide, water vapour, nitrogen			
Formation of the oceans			
Role of photosynthesis in increasing oxygen concentration			
How carbon dioxide decreased: photosynthesis, formation of coal and limestone			
Greenhouse gases			
Human activities which produce greenhouse gases			
Global climate change and its effects			
Carbon footprint and actions to reduce it			
Common atmospheric pollutants – formation and effects: carbon monoxide, sulphur dioxide, nitrogen oxides, particulates.			

Chemistry Topic 10: Using resources	R	A	G
Finite resources: fossil fuels and metals			
Potable water			
Production of potable water from fresh and ground water sources			
Waste water treatment			
Alternate methods for extracting metals: phytomining and bioleaching (HT only)			
Life cycle assessments			
Required practical 13/?: analysis and purification of different water samples including pH, dissolved solids and distillation			

Physics Topic 5: Forces	R	A	G
Scalar and vector quantities			
Contact and non-contact forces			
Gravity			
Resultant forces			
Forces acting at angles with scale drawings (HT only)			
Resolving forces into components (HT only)			
Work done and energy transfer by forces			
Forces and elasticity			
Distance & displacement, speed & velocity			
Distance time graphs: analysing distance and speed of journeys.			
Acceleration as the rate of change of velocity.			
Velocity-time graph analysis: analysing displacement by the area under the line, and acceleration as the gradient of the line.			
Newton's laws of motion			
Stopping distance as thinking distance + breaking distance			
Factors affecting thinking distance			
Factors affecting distance			
Momentum as the product of velocity and mass			
Conservation of momentum in collision and explaining momentum based events.			
Required practical 18/?: the relationship between force and extension for a spring.			
Required practical 19/?: investigate the effect of varying force on an object of constant mass; effect of mass on the acceleration produced by a constant force.			

Physics Topic 6: Waves	R	A	G
Transverse and longitudinal waves			
Properties of waves: time period, wave speed			
Absorption, transmission, reflection and refraction of waves			
Wave front diagrams (HT only)			
Electromagnetic spectrum			
Use of radio and microwaves in communications			
Production and transmission of radiowaves (HT only)			
Dangers and hazards of ultraviolet, x-ray, and gamma rays,			
Use of infrared sources: heating, cooking, cameras			
Use of visible light in communications			
Use of x-rays and gamma rays in medicine.			

Physics Topic 7: Magnetism and Electromagnetism	R	A	G
Poles of a magnet: rules for attraction and repulsion			
Plotting a Magnetic field			
How strength of magnetic fields vary with distance			
Determining the direction of a magnetic field			
Structure of an electromagnet			
Demonstrating the magnetic field around a straight wire			
How to vary the strength of an electromagnet: turns, current, material of the core			
Fleming’s left hand rule (HT only)			
Electric motors (HT only)			

Other useful revision resources:

https://cognitoedu.org/home - revision videos and access to past papers and exam questions with mark schemes. Follow the list of topics above.

https://sparxscience.com/ - access revision quizzes for any part of the specification

https://www.bbc.co.uk/bitesize/examspecs/z8r997h - BBC Bitesize – AQA Combined Science

https://filestore.aqa.org.uk/resources/science/specifications/AQA-8464-SP-2016.PDF - AQA Combined Science GCSE Specification. Read chapters 4, 5 and 6 for exam specific content.