

AQA

**GCSE Combined Science
Course Handbook**

AQA GCSE Trilogy Combined Science

Students study Biology, Chemistry and Physics and are awarded two GCSE grades between 9-9 and 1-1.

Specification

The specification can be found via a Google search for "AQA Trilogy GCSE Combined Science" or by using the QR code below.



Past Exam Papers

The exam papers from 2018 can be found via a Google search for "AQA Trilogy GCSE Combined Science past papers" or by using the QR code below.



Exam Papers

Paper	Duration
Biology Paper 1	1hr 15 min
Chemistry Paper 1	1hr 15 min
Physics Paper 1	1hr 15 min
Biology Paper 2	1hr 15 min
Chemistry Paper 2	1hr 15 min
Physics Paper 2	1hr 15 min

Recommended Revision Resources

CGP Books publish a wide range of revision resources for AQA GCSE Combined Science. They are widely available.

HIGHER Tier

Revision Guides	ISBN	CGP Code
New GCSE Combined Science AQA Higher Complete Revision & Practice w/ Online Ed, Videos & Quizzes	9781789085778	SCAHS42
Revision Question Cards		
9-1 GCSE Combined Science: Biology AQA Revision	9781789080551	SCBAF41
9-1 GCSE Combined Science: Chemistry AQA Revision	9781789080568	SCCAF41
9-1 GCSE Combined Science: Physics AQA Revision	9781789080575	SCPAF41
OR		
New 9-1 GCSE Combined Science AQA Revision Question Cards: All-in-one Biology, Chemistry & Physics	9781789084665	SCAF41

Foundation Tier

Revision Guides	ISBN	CGP Code
New GCSE Combined Science AQA Foundation Complete Revision & Practice w/ Online Ed, Videos & Quizzes	9781789085785	SCAFS42
Revision Question Cards		
9-1 GCSE Combined Science: Biology AQA Revision	9781789080551	SCBAF41
9-1 GCSE Combined Science: Chemistry AQA Revision	9781789080568	SCCAF41
9-1 GCSE Combined Science: Physics AQA Revision	9781789080575	SCPAF41
OR		
New 9-1 GCSE Combined Science AQA Revision Question Cards: All-in-one Biology, Chemistry & Physics	9781789084665	SCAF41

All Courses - Maths Skills	ISBN	CGP Code
Grade 9-1 GCSE Science: Essential Maths Skills - Study & Practice	9781782947042	SMR42

Online Revision

BBC Bitesize

BBC Bitesize has a comprehensive series of revision materials specifically for AQA Combined Science. These include notes, videos and tests. These can be found, for all three sciences by doing a Google search for "BBC Bitesize AQA combined science" or by using the QR code below.



My-gcsescience

my-gcsescience.com is a website that offers a series of packages of science revision materials. The most basic is free but, still worth signing up for. There are two paid packages. However, there are also a number of AQA specific videos available free on Youtube which you can find by using the QR code below.



Primrose Kitten

Don't be fooled by the name, primrosekitten.com is full of useful resources for science revision. The website is the homepage for a Youtube channel of a science teacher.



Physics and Maths Tutor

Not just a website for Physics and Maths but, Chemistry and Biology too. Go to the homepage physicsandmathstutor.com and click on the science you want to revise. Remember you're doing AQA.



Maths Skills

Up to 20% of the marks on Combined Science exam papers are awarded for the application of maths skills such as drawing and interpreting graphs, percentages, ratios, rearranging equations and significant figures. Edexcel have produced a useful guide that can be obtained by using the QR code below. (It's also relevant to AQA)



Content examined on Biology Combined Science papers

Topics 1 to 4 are on Paper 1. Topics 5 to 7 are on Paper 2

1. Cell Biology

Eukaryotes and prokaryotes, animal and plant cells, cell division, transport in cells.

Required practical activity 1: use a light microscope.

2. Organisation

Principles of organisation, animal tissues, organs and organ systems, plant tissues, organs and systems.

3. Infection and Response

Viral and bacterial diseases, vaccination, antibiotics and painkillers

4. Bioenergetics

Photosynthesis, respiration.

Required practical activity 2: investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue.

Required practical activity 3: use qualitative reagents to test for a range of carbohydrates, lipids and proteins.

Required practical activity 4: investigate the effect of pH on the rate of reaction of amylase enzyme.

Required practical activity 5: investigate the effect of light intensity on the rate of photosynthesis

5. Homeostasis and Response

Homeostasis, the human nervous system, hormonal coordination in humans, hormones in human reproduction.

Required practical activity 6: plan and carry out an investigation into the effect of a factor on human reaction time.

6. Inheritance, variation and evolution

Reproduction, variation and evolution, development of genetics and evolution, classification of living organisms.

7. Ecology

Adaptations, interdependence and competition, organisation of an ecosystem, biodiversity.

Required practical activity 7: measure the population size of a common species in a habitat.

Content examined on Chemistry Combined Science papers

Topics 8 to 12 are on Paper 1. Topics 13 to 17 are on Paper 2

8. Atomic Structure and the Periodic Table

A simple model of the atom, symbols, relative atomic mass, electronic charge and isotopes, the periodic table.

9. Bonding, Structure and Properties of Matter

Chemical bonds, ionic, covalent and metallic, how bonding and structure are related to the properties of

Substances, structure and bonding of carbon.

10. Quantitative Chemistry

Chemical measurements, conservation of mass and balanced chemical equations, relative formula mass, use of amount of substance in relation to masses of pure substances, mole (HT only), amounts of substances in equations (HT only), concentration of solutions.

11. Chemical Changes

Reactivity of metals, reactions of acids, electrolysis.

Required practical activity 8: preparation of a pure, dry sample of a soluble salt.

Required practical activity 9: investigate what happens when aqueous solutions are electrolysed using inert electrodes.

12. Energy Changes

Exothermic and endothermic reactions, reaction profiles.

Required practical activity 10: investigate the variables that affect temperature changes in reacting solutions.

13. Rate and Extent of Chemical Change

Rate of reaction, reversible reactions and dynamic equilibrium.

Required practical activity 11: investigate how changes in concentration affect the rates of reactions.

14. Organic Chemistry

Carbon compounds as fuels and feedstock, crude oil, hydrocarbons and alkanes, fractional distillation, properties of hydrocarbons, cracking and alkenes.

15. Chemical Analysis

Purity, formulations and chromatography, identification of common gases.

Required practical activity 12: investigate how paper chromatography can be used to separate coloured substances.

Required practical activity 13: analysis and purification of water samples from different sources, including pH, dissolved solids and distillation.

16. Chemistry of the Atmosphere

The composition and evolution of the Earth's atmosphere, carbon dioxide and methane as greenhouse gases, common atmospheric pollutants and their sources.

17. Using Resources

Potable water, alternative methods of extracting metals (HT only), life cycle assessment and recycling

Content examined on Physics Combined Science papers

Topics 18 to 21 are on Paper 1. Topics 22 to 24 are on Paper 2

18. Energy

Energy stores and systems, energy changes in systems, power, conservation and dissipation of energy, national and global energy resources.

Required practical activity 14: an investigation to determine the specific heat capacity of one or more materials.

19. Electricity

Current, potential difference and resistance, series and parallel circuits, domestic uses and safety, energy transfers, the National Grid.

Required practical activity 15: use circuit diagrams to set up and check appropriate circuits to investigate the factors affecting the resistance of electrical circuits.

Required practical activity 16: use circuit diagrams to construct appropriate circuits.

20. Particle Model of Matter

Changes of state and the particle model, internal energy and energy transfers, particle model and pressure.

Required practical activity 17: use appropriate apparatus to make and record the measurements needed to determine the densities of regular and irregular solid objects and liquids.

21. Atomic Structure

Atoms and isotopes, atoms and nuclear radiation.

22. Forces

Forces and their interactions, work done and energy transfer, forces and elasticity, forces and motion, momentum (HT only).

Required practical activity 18: investigate the relationship between force and extension for a spring.

Required practical activity 19: investigate the effect of varying the force on the acceleration of an object of constant mass.

23. Waves

Transverse and longitudinal waves, electromagnetic waves.

Required practical activity 20: make observations to identify the suitability of apparatus to measure the frequency, wavelength and speed of waves in a ripple tank.

Required practical activity 21: investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface

24. Magnetism and Electromagnetism

Permanent and induced magnetism, magnetic forces and fields, the motor effect.

AQA GCSE Science Command Words

These command words tell you what to you need to do when you are doing exam questions.

Balance	Students need to balance a chemical equation.
Calculate	Students should use numbers given in the question to work out the answer.
Choose	Select from a range of alternatives.
Compare	This requires the student to describe the similarities and/or differences between things, not just write about one.
Complete	Answers should be written in the space provided, for example, on a diagram, in spaces in a sentence or in a table.
Define	Specify the meaning of something.
Describe	Students may be asked to recall some facts, events or process in an accurate way.
Design	Set out how something will be done.
Determine	Use given data or information to obtain and answer.
Draw	To produce, or add to, a diagram.
Estimate	Assign an approximate value.
Evaluate	Students should use the information supplied, as well as their knowledge and understanding, to consider evidence for and against when making a judgement.
Explain	Students should make something clear, or state the reasons for something happening.
Give	Only a short answer is required, not an explanation or a description.
Identify	Name or otherwise characterise.
Justify	Use evidence from the information supplied to support an answer.
Label	Provide appropriate names on a diagram.
Measure	Find an item of data for a given quantity.
Name	Only a short answer is required, not an explanation or a description. Often it can be answered with a single word, phrase or sentence.
Plan	Write a method.
Plot	Mark on a graph using data given.
Predict	Give a plausible outcome.
Show	Provide structured evidence to reach a conclusion.
Sketch	Draw approximately.
Suggest	This term is used in questions where students need to apply their knowledge and understanding to a new situation.
Use	The answer must be based on the information given in the question. Unless the information given in the question is used, no marks can be given. In some cases students might be asked to use their own knowledge and understanding.
Write	Only a short answer is required, not an explanation or a description.