

# AQA GCSE 9-1 Combined Science Trilogy Higher Advance Information

This document uses the [advance information set out by AQA GCSE Combined Science: Trilogy](#) for exams 2022. It provides a list of topics from the specification that will be assessed on each paper in specification content order, not in question paper order.

## Information

- The format/structure of the papers remains unchanged.
- This advance information covers all examined components.
- For each paper the list shows the major focus of the content of the exam.
- Each paper may cover some, or all, of the content in the listed topic.
- The list below shows which required practical activities will be assessed.
- Assessment of practical skills, maths skills, and Working Scientifically skills will occur throughout all the papers.
- Topics not explicitly given in any list may appear in low tariff questions or via 'linked' questions. Linked questions are those that bring together knowledge, skills and understanding from across the specification.
- Students will still be expected to apply their knowledge to unfamiliar contexts.

A revised **physics equations sheet** which will cover all the physics equations required in the subject content will be provided as additional inserts for each examination paper, as part of the adaptations for 2022.

Biology Paper 1	Revision guide page numbers
<b>Topics</b>	
4.1.2 Cell division	16,17,18
4.2.2 Animal tissues, organs and organ systems	27,28,33,34,35,36
4.4.1 Photosynthesis	41,,42,47,48,49,50,51, 42
<b>Required Practical Activities</b>	
3: use qualitative reagents to test for a range of carbohydrates, lipids and proteins.	12,13
4: investigate the effect of pH on the rate of reaction of amylase enzyme.	31
5: investigate the effect of light on the rate of photosynthesis of an aquatic plant such as pondweed.	60
<b>Chemistry Paper 1</b>	
5.2.2 How bonding and structure are related to the properties of substances	136,137,138,139,140,141,142,143,144,145,146,
5.3.2 Use of amount of substance in relation to masses of pure substances	150,151,156,157(158,159)
5.4.1 Reactivity of metals	162,163,164,165
5.4.2 Reactions of acids	166,167,170,171
5.4.3 Electrolysis	173,174,175,176,177,178,179
5.5.1 Exothermic and endothermic reactions	181,182,183,184,185.186
<b>Required Practical Activities</b>	
8: preparation of a pure, dry sample of a soluble salt from an insoluble oxide or carbonate, using a Bunsen burner to heat dilute acid and a water bath or electric heater to evaporate the solution.	168
9: investigate what happens when aqueous solutions are electrolysed using inert electrodes. This should be an investigation involving developing a hypothesis.	178,179
10: investigate the variables that affect temperature changes in reacting solutions	182

such as, eg, acid plus metals, acid plus carbonates, neutralisations, displacement of metals.	
<b>Physics Paper 1</b>	
6.1.1 Energy changes in a system, and the ways energy is stored before and after such changes	238,239,240,241
6.2.4 Energy transfers	246,247,248,249,250
6.3.1 Changes of state and the particle model	269, 271,,272,273,274
6.3.3 Particle model and pressure	269,270,271,272,273,274,275
6.4.1 Atoms and isotopes	277,276,279,
6.2.4 Atoms and nuclear radiation	280,281,282,283,284,285,286
<b>Required Practical Activities</b>	
14: an investigation to determine the specific heat capacity of one or more materials. The investigation will involve linking the decrease of one energy store (or work done) to the increase in temperature and subsequent increase in thermal energy stored.	243,244,245
16: use circuit diagrams to construct appropriate circuits to investigate the I–V characteristics of a variety of circuit elements, including a filament lamp, a diode and a resistor at constant temperature.	260,261
<b>Biology Paper 2</b>	
4.5.3 Hormonal control in humans	72,73,74
4.7.2 Organisation of an ecosystem	100,101,102,103,105
4.7.3 Biodiversity and the effect of human interaction of an ecosystem	111,112,113
<b>Required Practical Activities</b>	
7: measure the population size of a common species in a habitat. Use sampling techniques to investigate the effect of a factor on the distribution of this species.	106,107,108
<b>Chemistry Paper 2</b>	
5.6.1 Rates of reaction	188,189,190,191,192
5.6.2 Reversible reactions and dynamic equilibrium	201,202
5.7.1 Carbon compounds as fuels and feedstock	204,205,206,207,208
5.8.1 Purity, formulations and chromatography	211,212,213

5.9.1 The composition and evolution of the Earth's atmosphere	217,218
5.9.3 Common atmospheric pollutants and their sources	223,224
5.10.1 Using the Earth's resources and obtaining potable water	232,233,234,235
<b>Required Practical Activities</b>	
11: Investigate how changes in concentration affect the rates of reaction by a method involving measuring the volume of gas produced and a method involving a change in colour or turbidity. This should be an investigation involving developing a hypothesis	198
12: Investigate how paper chromatography can be used to separate and tell the difference between coloured substances. Students should calculate RF values	213
<b>Physics Paper 2</b>	
6.5.1 Forces and their interactions	288,289,290,292,293,294,295,
6.5.4.1 Describing motion along a line	298,299
6.5.4.2 Forces, accelerations and Newton's Law's of motion	300,301, 302, 303, 304, 305, 306,307
6.5.5 Momentum	310,311
6.6.2 Electromagnetic waves	312, 313,314,315,318,319, 320, 321
6.7.2 The motor effect	324,325,326,327
<b>Required practical activities</b>	
21: Investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of the surface	320