Key information for your AQA Chemistry GCSE Science

You are following the **AQA Chemistry Science GCSE** specification. This is worth 1 GCSE and will be graded from 1-9

Chemistry units

1. Atomic structure and the periodic table
2. Bonding, structure, and the properties of matter.
3. Quantitative chemistry.
4. Chemical changes.
5. Energy changes.
6. The rate and extent of chemical change.
7. Organic chemistry.
8. Chemical analysis.
9. Chemistry of the atmosphere.
10. Using resources.

How will you be examined?

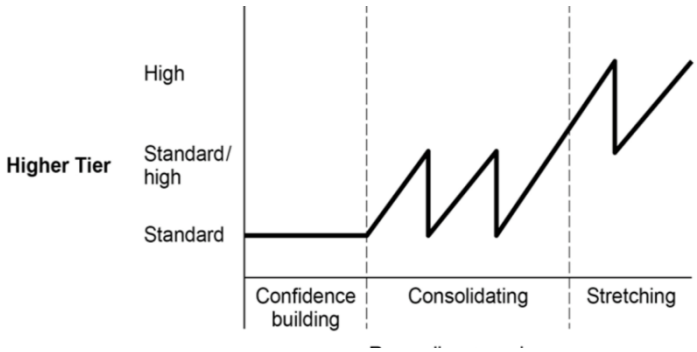
You will take 2 exams at the end of the course, each lasting 1 hour 45 minutes.
Higher tier allows you to gain grades from 4 to 9. If you get a mark below the grade boundary for a 4 you will be given U (unclassified), unless you are very close when you will be awarded 4-3.

What is in each exam paper?

- Each exam will test different units. Below are listed the content of each of the papers.
- Also at least 15% of the exam questions will test your understanding of the 8 required practicals you have carried out in your Chemistry GCSE. This will include describing the method, explaining how to present results (graph to plot) and what information can be obtained from the graph. (Refer to your separate revision booklet we have produced to help you with your required practical revision).

Paper 1:	✚	Paper 2:
What's assessed Topics 1–5: Atomic structure and the periodic table; Bonding, structure, and the properties of matter; Quantitative chemistry, Chemical changes; and Energy changes.		**What's assessed** Topics 6–10: The rate and extent of chemical change; Organic chemistry; Chemical analysis, Chemistry of the atmosphere; and Using resources.
How it's assessed • Written exam: 1 hour 45 minutes • Foundation and Higher Tier • 100 marks • 50 % of GCSE		**How it's assessed** • Written exam: 1 hour 45 minutes • Foundation and Higher Tier • 100 marks • 50 % of GCSE
Questions Multiple choice, structured, closed short answer and open response.		**Questions** Multiple choice, structured, closed short answer and open response.

How will the exams be structured?



- At the start. Standard demand questions (grades 4-5). These questions are the same as those at the end of the foundation level paper.
- In the middle, questions that start at standard demand and rise to high demand (grades 6-7). Dropping back to start at standard demand for the next question.
- Final questions are high demand questions (grades 8-9)

What resources can I use to help me revise?

- You have a revision guide given to you in year 10. Use it to revise for end of topic tests and to help with homework, so you start to familiarise yourself with it.
- Key notes in your exercise book
- Revision booklet outlining the required practicals (ready for Dec Mocks)
- Personal Learning checklists for each topic, so you know what you need to be able to do and can self-assess which parts your need to focus on more in your revision.
- Collated exam papers with answers for each module for final practice and revision (available for summer exams)
- KS4 Bitesize website.
- Doddle revision resources.

Mathematical skills tested

(Refer to your separate Maths skills booklet for detail and examples)

1	Arithmetic and numerical computation
a	Recognise and use expressions in decimal form
b	Recognise and use expressions in standard form
c	Use ratios, fractions and percentages
d	Make estimates of the results of simple calculations

2	Handling data
a	Use an appropriate number of significant figures
b	Find arithmetic means
c	Construct and interpret frequency tables and diagrams, bar charts and histograms
h	Make order of magnitude calculations

3	Algebra
a	Understand and use the symbols: =, <, <<, >>, >, ∝ , ~
b	Change the subject of an equation
c	Substitute numerical values into algebraic equations using appropriate units for physical quantities

4	Graphs
a	Translate information between graphical and numeric form
b	Understand that $y = mx + c$ represents a linear relationship
c	Plot two variables from experimental or other data
d	Determine the slope and intercept of a linear graph
e	Draw and use the slope of a tangent to a curve as a measure of rate of change

5	Geometry and trigonometry
b	Visualise and represent 2D and 3D forms including two dimensional representations of 3D objects
c	Calculate areas of triangles and rectangles, surface areas and volumes of cubes

Key ideas that go through the syllabus

The complex and diverse phenomena of the natural world can be described in terms of a small number of key ideas in chemistry.

These key ideas are of universal application, and we have embedded them throughout the subject content. They underpin many aspects of the science assessment and will therefore be assessed across all papers.

These ideas include:

- matter is composed of tiny particles called atoms and there are about 100 different naturally occurring types of atoms called elements
- elements show periodic relationships in their chemical and physical properties
- these periodic properties can be explained in terms of the atomic structure of the elements
- atoms bond by either transferring electrons from one atom to another or by sharing electrons
- the shapes of molecules (groups of atoms bonded together) and the way giant structures are arranged is of great importance in terms of the way they behave
- there are barriers to reaction so reactions occur at different rates
- chemical reactions take place in only three different ways:
  - proton transfer
  - electron transfer
  - electron sharing
- energy is conserved in chemical reactions so can therefore be neither created or destroyed.

What required practicals do I need to know about?

Below is a list of the required practicals you need to know for your Chemistry GCSE. Refer to the revision booklets to learn the method and outcome of them.

Required practical number	In which paper?	What does the required practical activity involve?
1	Paper 1	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.
2	Paper 1	Determination of the reacting volumes of solutions of a strong acid and a strong alkali by titration.
3	Paper 1	Investigate what happens when aqueous solutions are electrolysed using inert electrodes. This should be an investigation involving developing a hypothesis.
4	Paper1	Investigate the variables that affect temperature changes in reacting solutions such as; acids plus metals, acid plus carbonates, neutralisations, displacement of metals.
5	Paper 2	Investigate how changes in concentration affect the rates of reactions by a method involving measuring volume of a gas produced and a method involving a change in colour or turbidity.
6	Paper 2	Investigate how paper chromatography can be used to separate and tell the difference between coloured substances. You should also calculate Rf values.
7	Paper 2	The use of chemical tests to identify the ions in unknown single ionic compounds.
8	Paper 2	Analysis and purification of the water samples from different sources, including pH, dissolved solids and distillation.