

How to get a grade 7 in AQA GCSE Chemistry (Higher tier)

A grade 7 needs secure chemistry across the whole course, including the Higher-only content. The marks that lift you from a 5 to a 7 are multi-step calculations, equations with ions and electrons, and explanations with every link in the chain.

What a grade 7 asks of you

- Everything at grade 5, done reliably and quickly, so there is time left for the harder parts.
- Higher-only quantitative chemistry: moles, reacting masses, limiting reactants, concentration in mol/dm^3 , gas volumes and titration calculations.
- Ionic equations, half equations, and oxidation and reduction in terms of electrons.
- Precise, linked explanations: structure and properties, collision theory with activation energy, and equilibrium shifts with reasons.
- Working with data: calculating from tables, drawing tangents, and evaluating a method or material from the information given.
- 6-mark answers in the top level: detailed, logically ordered and fully linked.

Secure these topics first

- Quantitative chemistry (4.3): the largest block of Higher-only calculation marks, and it can come up on Paper 2 as well.
- Electrolysis (4.4.3): products from aqueous solutions, half equations at each electrode, and the extraction of aluminium.
- Acids (4.4.2): strong and weak acids, strength versus concentration, pH changing by one unit for each factor of 10 in hydrogen ion concentration, and titration.
- Energy changes (4.5): bond energy calculations, reaction profiles, cells, and the half equations in the hydrogen fuel cell.
- Rate and equilibrium (4.6): tangents, and the effect of concentration, temperature and pressure on the position of equilibrium.
- Organic chemistry (4.7): reactions of alkenes, alcohols and carboxylic acids, addition and condensation polymers, amino acids and naturally occurring polymers.
- Chemical analysis (4.8): the full set of ion tests, instrumental methods and flame emission spectroscopy.
- Using resources (4.10): the Haber process conditions as a compromise between rate, yield and cost.

Question types to master

- Moles calculations of three or four steps from a balanced equation, including limiting reactants and theoretical yield.
- Titration calculations: mean of the concordant titres, moles of one solution, the mole ratio, then the concentration of the other in mol/dm^3 and g/dm^3 .
- Writing half equations and ionic equations, balanced for atoms and charge.
- Bond energy calculations, and drawing and interpreting reaction profiles.
- Tangents to find the rate at a given time, with units.
- 3- and 4-mark 'explain' questions where every step of the reasoning is needed.
- 6-mark compare, evaluate and method questions.
- 'Suggest' and 'predict' questions in unfamiliar contexts, e.g. the products when an alkene or alcohol you haven't met reacts.

An 8-week plan

- Aim for 4 or 5 sessions of about 45 minutes a week, plus the Daily 5. Include one set of mixed calculation practice every week: that is where grade 7 marks are won.
- Week 1: sit timed mocks of both papers during the week and build a fix list. Run through 4.1 and 4.2 with the checklist, concentrating on grade 6 and 7 skills.
- Week 2: all of quantitative chemistry (4.3): moles, reacting masses, limiting reactants, concentrations, gas volumes, yield and atom economy.
- Week 3: chemical changes (4.4): redox in terms of electrons, ionic equations, strong and weak acids, titration and electrolysis half equations.
- Week 4: energy changes (4.5), then a timed Paper 1 mock. Review it the same week and redo every question you dropped marks on.
- Week 5: rate and equilibrium (4.6), with tangents and the effects of changing conditions on equilibrium.
- Week 6: organic chemistry (4.7) and chemical analysis (4.8).
- Week 7: the atmosphere (4.9) and using resources (4.10), including the Haber process and NPK fertilisers, then a timed Paper 2 mock.
- Week 8: the fix list from Progress, mixed calculation practice, and one 6-mark answer a day, rotating method, explain, compare and evaluate.

Using GCSE Paper Builder

- Notes: go to the grade-by-grade skill lists and tick off every grade 6 and 7 skill in the checklist; use the worksheet for any subtopic with an unticked skill.
- Custom paper: Medium and Hard, mixing subtopics (e.g. moles with electrolysis, or rates with equilibrium) so you practise switching topics as the real paper does.
- Once a week, build a Hard custom paper on just the quantitative chemistry subtopics (4.3) to keep your calculations sharp.
- Mock exams: full timed papers in weeks 1, 4 and 7, in exam conditions, and another pair in week 8 if you have time.
- Progress: after every mock or custom paper, redo the questions you dropped marks on until you get them fully right.
- Daily 5: keeps your weakest topics ticking over every day.
- Flashcards: choose the topics you are revising for quick recall of ion tests, the Haber process conditions, functional groups and exact definitions.
- Whiteboard: write out moles and titration calculations in full, step by step.
- If moles or 6-mark answers are holding you back, the free 30-minute trial lesson with Chhetri Academy is a quick way to get 1-to-1 help.

Timing in the exam

- About 1 minute per mark overall, but go faster on recall questions to bank time for long calculations and 6-mark answers.
- Checkpoint at 50 minutes: you should be past halfway through the marks.
- 6-mark answers: plan for 30 seconds, write for about 6 minutes.
- If a calculation stalls, write down what you have (the equation, the first step) and come back; those method marks are already banked.
- Finish with 5 to 10 minutes to recheck calculations, units and equations.

Traps at grade 7

- Forgetting the mole ratio from the balanced equation, or using the M_r of the wrong substance.
- Using cm^3 in a mol/dm^3 calculation.
- Rounding part-way through a multi-step calculation.
- Half equations with electrons on the wrong side, or charges that don't balance.
- Bond energies: subtracting the wrong way round, or not counting every bond (methane has four C–H bonds).
- Stating an equilibrium shift without the reason, or confusing 'strong' with 'concentrated'.
- A tangent that cuts through the curve, or a gradient triangle too small to read accurately.
- 6-mark answers that list correct facts but never link them.
- Evaluations with no conclusion.

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