AQA . YEAR 12 PREPARATION

Moving from GCSE to AQA A Level Physics

A practical guide to the jump from GCSE into the first year of AQA Physics, with the maths you need, the topics ahead, worked examples and a realistic summer plan.

For Year 11 pupils | AQA 7407 / 7408 | 2-3 short sessions per week

Is AQA A Level Physics harder than GCSE?

Yes - but not because the ideas are impossible. The questions just expect more decision-making.

GCSE-STYLE QUESTION

A car travels 100 m in 5.0 s. Calculate its speed.

AQA AS-STYLE QUESTION

In a required practical, a trolley passes through two light gates a measured distance apart. Explain how the readings, and their uncertainties, could be used to decide whether the trolley is accelerating.

What changes

- 1. Equations become tools, not facts
- 2. Maths becomes part of the physics
- 3. New ideas appear early

The GCSE topics to lock down first

Forces, motion and materials
speed, acceleration, resultant force, Newton's laws, momentum, forces, springs and Hooke's law

Energy
kinetic and gravitational PE, work, power, efficiency, conservation of energy

Electricity
current, p.d., resistance, charge, series and parallel circuits, circuit diagrams

Waves and atomic structure
wave speed, frequency, wavelength, EM spectrum, reflection, refraction, nuclear model, radiation, half-life

Key skills to nail

- Rearrange equations fluently BEFORE you put numbers in.
- Use standard form and unit prefixes (k, m, micro, n) without slipping.
- Read graphs: on a velocity-time graph the gradient is acceleration and the area is displacement.
- Pick the physics principle first, then choose the equation.
- Always write units and check the answer is a sensible size.

Common mistakes to avoid

- Looking for the exact equation too quickly
- Writing answers without units
- Rounding too early
- Treating practical work as separate

Your summer in 6 steps

Around 2-3 short sessions per week, each 30-45 minutes. Enough to make a real difference without ruining your summer.

1. Week 1: Refresh core GCSE equations - Speed, acceleration, force, energy, power, charge, current, p.d., resistance, wave speed.
2. Week 2: Algebra and standard form - Rearranging with squares and roots, powers of ten, prefixes, calculator technique.
3. Week 3: Graph and uncertainty skills - Axes, scales, lines of best fit, gradients, areas and basic uncertainties.
4. Week 4: Forces, energy and materials - Mechanics and materials are a major early AQA topic.
5. Week 5: Electricity and circuits - Current, p.d., resistance, series and parallel, I-V characteristics.
6. Week 6: Meet a new idea - particles - AQA introduces particles and radiation early, so a gentle preview helps.

Preview your AS course (AQA, sections 3.1-3.5)

These are the topics you will meet in the first year of AQA Physics (the AS content). Tick the ones you have already heard of or feel ready for.

- [ ] **3.1 Measurements and their errors**
  3.1.1 Use of SI units and their prefixes - 3.1.2 Limitation of physical measurements - 3.1.3 Estimation of physical quantities
- [ ] **3.2 Particles and radiation**
  3.2.1 Particles - 3.2.2 Electromagnetic radiation and quantum phenomena
- [ ] **3.3 Waves**
  3.3.1 Progressive and stationary waves - 3.3.2 Refraction, diffraction and interference
- [ ] **3.4 Mechanics and materials**
  3.4.1 Force, energy and momentum - 3.4.2 Materials
- [ ] **3.5 Electricity**
  3.5.1 Current electricity

Questions pupils ask

Is AQA A Level Physics harder than GCSE?
It is more demanding because you apply ideas more flexibly, the maths matters more, and questions are less predictable. The ideas build on GCSE, so strong foundations make the jump much easier.

What should I revise before starting AQA A Level Physics?
Revise GCSE forces, motion, energy, electricity, waves and atomic structure, plus equations, units, standard form, graph skills, percentage uncertainty and rearrangement.

Does AQA have AS-only content?
No. AQA AS content (sections 3.1-3.5) is shared with the first year of the full A Level, so anything you learn in year one counts towards both.

Where to practise: join PhysicsUK

This guide gets you ready. PhysicsUK is where you practise the skills and prove you can do them:

- ExamBOT - exam-style papers marked instantly with feedback
- ProblemBOT - multi-step problems with full worked solutions
- QWC - written answers marked against the mark scheme
- MCQ quizzes and a daily question to keep knowledge warm
- Track your progress and target your weakest topics

Try it free as a guest, then become a member to unlock full practice, save your progress and see what you can achieve.

Start now at www.physicsuk.co.uk

Read the full interactive guide (quizzes, trainers and audio) at:
www.physicsuk.co.uk/aqa-a-level-physics-gcse-to-as-transition-guide