

12 tips for teaching GCSE Maths to post-16 students

The goal

Early on have discussions about the benefits of gaining the minimum grade 4 required:

- Looks great on their CV, skills that employers look for in recruiting
- Evidence shows you're likely to earn more money than someone without their grade 4
- Make better life choices, eg financially, career-wise, in health

Re-vision

Learners are not starting from knowing nothing. They have seen all of the maths before, it's just they can't do it all, so it's all about revision. Re-vision the maths so they see it differently second time around; practise what they know so that they cannot get it wrong and sort out what they sort of know, addressing the misconceptions. Use the one-year route map and revision checklists to ensure you have covered all of the essential topics.

Mathematical fluency

Mathematical fluency is critical to success – from times tables to the nine key skills; addition, subtraction, multiplication, division, fractions, decimals, percentages, scale and ratio. Find out early on what they know and strengthen that; find out where the gaps are, fill them through exercises and daily practice. Use the Basic Skills tests to help uncover where the strengths and weaknesses lie.

There's also the fundamental maths knowledge that we assume that learners will have, such as converting mm to cm, the number of seconds in a minute, the number of days in each month, the number of degrees in a triangle, the value of coins and pounds and pence. Whenever you are going over a topic, always refresh the pre-requisite skills that underpin it first. Use the Fundamental Knowledge questions to help identify any knowledge gaps.

Tackle the barriers and low morale

Learners come to post-16 resits with three main barriers; low self-confidence in their own ability to do well; prior negative experience of maths learning; relevance to them.

Have a pre-determined answer for when you hear 'I hate maths!' It's a chance to have a positive discussion about what it will mean for future choices and careers. Remind learners that they don't need 100% to get a grade 4 or even grade 5 on the Foundation Tier.

Breakfast maths

Before any mock test or exam, give learners the opportunity to do some maths to warm up. This will help them to 'get their maths head on'.



Strengthen exam technique

Examiner reports tell us exactly what most learners do well and not so well. Things like poor handwriting, not clear enough workings, forgetting units. Use the 'Small things make a big difference' to work through some of these typical exam errors with your learners. In every session look at good exam technique with clear examples. Check your answer, check it again and then check it once more.

Tools for the job

Teach specific calculator skills and make sure there are plenty of practice opportunities to use a calculator. Examiners reports routinely mention weaknesses when using a ruler, compass and a protractor. Practise until they cannot get it wrong.

Command words

Ensure that learners understand the language of the exams. Spend time focusing upon the command words or verbs within the exam questions. Words such as simplify, show, draw or measure. Use the list of command words to make sure that learners understand what is required.

Identify strengths and weaknesses

Set practice papers from the start of the course. Enter the results into a mock exam analyser to help learners identify where their strengths and weaknesses lie. Then encourage them to take ownership of their own learning and to use both areas in their revision.

Practice, practice, practice

Don't neglect the maths that learners can do. Spend time going over routine maths so that they don't forget it and can readily recall it. Set up mechanisms by which they can do daily maths, as part of their revision plan. There are plenty of YouTube channels, GCSE Maths revision websites and even TikTok will help and these are the mechanisms that learners use routinely in other areas of their life so you can't beat them, join them.

Marking and question strategies

Adopt some motivating marking strategies, all your learners are aiming for at least grade 4.

- Double marking – mark first giving the actual marks the learner has got; mark again but giving back the careless error marks. This helps learners see the common silly mistakes being made which are the easiest to remedy.
- Mark without giving marks – demonstrate they've either done well or highlight what they need to revisit or reconsider without giving a mark, eg you've done really well here, just take a look at the decimal point and think if it's in the right place?
- Mark to the staples – ask learners for the marks they got and also the marks to their first mistake, then try and improve both scores at the next test.
- Ask learners to self-assess at the start of any paper – before they start answering any question, look at the first 10 questions and mark each one that looks ok with a tick or a smiley face; If they don't like the look of the question then mark with a cross or a grumpy face. Start the paper after they've done this by starting with the smiley face marks first. It should give them a confident start.

Teach your learners how to revise

Learners have little idea of what effective revision looks and feels like. Work this through with them; show them;

- how to revise
- what to revise
- when to revise
- where to revise
- and perhaps who they could revise with

Just 20 minutes of revision and practice every day will yield good results and improvements.

For our full suite of resources for teaching post-16 maths, please see [aqa.org.uk/all-about-maths](https://www.aqa.org.uk/all-about-maths)