

Maths for all to 18

All young people up to the age of 18 should study relevant maths and become confident in using it.

- From 2015, all young people will remain in education or training until at least the age of 18 in England.
- Schools and colleges will teach maths to all young people who have not achieved GCSE grade C or above ('level 2') by age 16.
- If young people have achieved level 2 maths, they should continue with AS/A level Maths or equivalent ('level 3') or take further relevant maths.
- Increased funding, as well as teacher supply and further training is needed to meet these aspirations.

- Establish a suite of qualifications that meets the mathematical needs of all post-16 learners.
- Encourage universities and employers to signal the importance of maths qualifications.
- Ensure the supply of qualified teachers is sufficient for the increase in post-16 maths.

Where are we now?

There is broad agreement about the need for young people in England to continue studying maths to at least 18.

- Maths A level entries in England have risen since 2002 from 44,000 to over 80,000 in 2013. Further Maths has almost doubled in the last few years to nearly 13,000 in 2013. (1)
- However, participation rates in A level Maths in England remain low relative to other developed countries, with only circa 20% of students taking maths post-16. (2)
- Level 3 'Core Maths' qualifications are being developed for the cohort of over 200,000 young people who have at least a GCSE grade C but who do not choose to study the subject at A level. (3)
- 50% of post-16 learners do not achieve grade C in GCSE Maths (and English) and are expected to continue studying these subjects post-16. (4)
- Resitting GCSE Maths is often a negative experience and results are generally poor, especially for those with prior grades lower than D.
- Post-16 pathways for students without a GCSE grade C in maths are currently unclear.
- Many entrants to higher education would benefit from continuing maths up to 18 but are not currently required to do so. (5)
- Employers bemoan the shortage of people with high-level mathematical skills, and the capacity of employees to apply maths in the workplace. (6)

'Core Maths' is "suitable for the 'middle group' of students – those with a grade C or above in GCSE maths at age 16 who are not taking AS/A level maths or International Baccalaureate (IB) maths as part of their 16-18 programme".

Department for Education, Technical guidance

What are the challenges?

Achieving universal participation in maths to the age of 18 is a significant task.

- There are insufficient numbers of teachers of maths to deliver these aspirations in schools and colleges. (7)
- Teachers, employers and Higher Education need significant time to become familiar with new qualifications.
- Teaching more students will cost more.
- Recent increases in maths A level participation need to be sustained. (See **Maths Snapshot: Maths education policy.**)

What needs to happen?

1. Establish a clear and coherent suite of maths qualifications to meet the needs and aspirations of all post-16 learners.

- Qualifications at all levels should be engaging and relevant to learners' needs and aspirations.
- Qualifications must be understood and valued by teachers, students, parents, advisers, employers and universities.
- A high-quality communication strategy is needed to explain the range of post-16 maths qualifications available and their different functions.
- 'Core Maths' and alternatives to re-taking GCSE are strategic development priorities and need to be adequately funded.
- Qualification pathways, either within maths, or where maths is required or encouraged, should be clear.



2. Encourage universities and employers to signal the importance of the full range of mathematics qualifications.

- Stakeholders should have confidence in the currency and mathematical usefulness of the range of qualifications.
- Universities, supported by learned societies, and professional training organisations, should clearly identify appropriate maths qualifications as entry requirements to their courses.

3. Ensure that the supply of qualified teachers is sufficient for the forthcoming increase in post-16 mathematical study.

- A teacher supply strategy is needed to meet the anticipated expansion of post-16 mathematical study. (See **Maths Snapshot: Teachers of maths.**)
- Existing teachers need high-quality, subject-specific professional development to support the delivery of new courses.
- Curriculum leaders need professional development and support materials to enable them to design inspiring study pathways for all learners up to 18.

Maths qualifications

Level 1	GCSE Maths (grades D-G)	First teaching 2015
Level 2	GCSE Maths (grades A*-C)	First teaching 2015
Level 3	AS/ A level Maths and Further Maths	First teaching 2017
	Core Maths	First teaching 2015

1: www.gov.uk/government/publications/a-level-and-other-level-3-results-england-2012-to-2013-revised

2: <http://www.nuffieldfoundation.org/uk-outlier-upper-secondary-maths-education>

3: www.gov.uk/government/uploads/system/uploads/attachment_data/file/266717/Policy_statement_on_16-18_Core_Maths_qualifications_-_final__3_.pdf

4: www.gov.uk/government/uploads/system/uploads/attachment_data/file/180504/DFE-00031-2011.pdf

5: <http://www.acme-uk.org/news/news-items-repository/2011/6/launch-of-the-acme-mathematical-needs-project>

6: www.cbi.org.uk/media/878615/7B754FFBFF7969E58025778B0053AF26__20100801-making-it-all-add-up.pdf

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