



**Ofqual consultation, *Setting the Grade Standards of new GCSEs in England*
June 2014**

1. ACME

The Advisory Committee on Mathematics Education (ACME) is an independent committee that aims to influence mathematics education strategy and policies with a view to improving the outcomes of mathematics teaching and learning in England and so secure a mathematically enabled population.

2. This response

Other organisations within and outside the mathematics education community and ACME's Outer Circle of advisers contributed their comments to this response. The response also draws upon a variety of documentation, consultation responses, letters and papers that ACME has written on GCSE in recent months.¹

3. Summary

- **The new GCSE Mathematics:** Continuing review of the revised GCSE Mathematics will require recognition of the changed size and scope of the new qualification. Assessment of the new GCSE must be closely monitored to ensure that assessment measures reward problem solving, mathematical reasoning, conceptual understanding, mathematical interpretation and communication.
- **Setting grade standards for GCSEs:**
 - ACME supports the intention to develop and adapt the current approach for setting grade standards.
 - However, there is a persistent discrepancy between grade distributions in mathematics and English. Ofqual should use the opportunity to review and correct this inconsistency.
 - Finer grade discrimination can only be justified if current issues of validity and reliability are resolved.

4. The standard of new GCSEs

ACME acknowledges the three dimensions of the standard of a qualification and has some brief comments on content and assessment, and will comment more extensively on performance standards below.

Content

4.1. The new GCSE Mathematics contains more content than the previous GCSE.² Mathematics is often perceived as more difficult than other subjects,³ so recognition of the changed size and scope of the new qualification will be needed to avoid the risk that mathematics will be perceived as still more challenging than other subjects.

¹ <http://www.acme-uk.org/policy-advice/current-areas-of-focus-for-acme/gcse>.

² <https://www.gov.uk/government/publications/gcse-mathematics-subject-content-and-assessment-objectives>.

³ <http://www.mathsinquiry.org.uk/report/>

Assessment

4.2. There have been acknowledged issues with the validity of assessment at GCSE.⁴ The proposed assessment strategy framework to be developed by awarding organisations needs to be closely monitored.⁵ Assessment in mathematics must measure and reward problem solving, mathematical reasoning, conceptual understanding, mathematical interpretation and communication. It should also promote fluency and foster mathematical knowledge and skills such as confidence with unfamiliar problems and multi-step unstructured tasks.⁶

5. Setting grade standards for GCSEs

5.1. ACME acknowledges that neither a criterion-referenced nor a norm-referenced approach to setting grade standards would be fully suitable, and supports the intention to develop and adapt the current approach, rather than introduce a new one.

Setting the standard in the first year of new GCSEs

5.2. ACME broadly supports the proposal that the new grade 4 is aligned to performance at grade C in earlier years. ACME is also content that the standard of performance required for a grade 5 should be at about a half to two-thirds of a grade higher than that required for a current grade C.

5.3. However, there are two significant caveats to be set out in relation to both of these approaches.

- First, data from the Joint Council for Qualifications (JCQ), shown in the table in the consultation document (p. 17), indicate that the difference in the percentage of students awarded each grade in mathematics and English at GCSE. The result is that the whole cohort appears to be *better* at English than at mathematics, since a considerably larger proportion of the cohort achieves grade C or above in English than in mathematics.⁷ ACME sees no reason for such a large discrepancy between the grade distributions in the only two subjects taken by almost all 16 year olds, and urges Ofqual to use the opportunity presented in developing new standards to review and correct this inconsistency. In ACME's view, this correction should override the requirement to carry forward existing standards.
- Second, it is noted in the consultation document (p.19) that in mathematics the gap in PISA performance between pupils in England and their peers in the top-performing countries in terms of measures of attainment used nationally was equivalent to an average of at least a whole grade. Ofqual proposes that the standard of performance required for a grade 5 should be at

⁴ <http://oucea.education.ox.ac.uk/wordpress/wp-content/uploads/2013/04/WCQ-report-final.pdf>

⁵ <http://comment.ofqual.gov.uk/gcse-reform-december-2013/draft-gcse-qualification-level-conditions/assessment-strategies/>:

Each awarding organisation should make sure its assessments are fit for purpose before they are taken by students. We will require each awarding organisation to develop and apply an assessment strategy for each of its GCSEs. In its assessment strategy the awarding organisation must set out how it will comply with the Conditions in respect of the assessments it uses for its GCSE qualifications. Where any shortcomings in the assessments are found, either by the awarding organisation or us, the awarding organisation must change its assessment strategy or the way it is applied.

⁶ <http://www.acme-uk.org/media/11434/acmegcsemathematicsjun13.pdf>.

⁷ See Cockcroft (1982), <http://www.educationengland.org.uk/documents/cockcroft/cockcroft1982.html> , paragraph 197.

about that implied by the international statistics, in other words, about a half to two-thirds of a grade higher than that required for a current grade C. This reflects the difference in standards in reading and science. ACME suggests that Ofqual considers carefully whether the standard for a grade 5 in mathematics should also reflect the difference in international standards in reading and science, or whether it would be better if it were more closely aligned to the actual difference between national and international standards in mathematics and therefore set at least a whole grade above the standard for current grade C.

Future system for setting grade standards

5.4. Ofqual writes (p. 21) that ‘after the first year we will be able to review and improve, using actual student scripts, the initial grade descriptions’. More detailed plans about how to monitor and evaluate the new standard setting system should be provided. A long-term plan for monitoring the standard setting system should be embedded from the outset. Given England’s system of multiple awarding organisations, it will also be important to have a system in place to ensure consistency in how grades are awarded in the same subjects across different awarding organisations.

5.5. A national reference test can provide a useful dipstick into a cohort’s performance and can help to understand any changes in the Year 11 cohort’s performance over time.⁸ If these tests are carefully set up and monitored, they offer the potential to provide more nuanced evidence concerning grade inflation.⁹

5.6. Full details for this reference test have yet to be set out, but ACME would be interested in hearing more details, for example concerning:

- the size of the cohort that would be expected to take the test
- the plans for monitoring the item bank. Questions need to be refreshed sufficiently so that they continue to work with current expectations of students. However, the bank as a whole needs to remain similar enough to allow robust comparisons over time
- innovative ways to provide incentives for students to participate in tests that they are being required to take shortly before their GCSE examinations; this involvement needs to be as authentic as possible to minimise pre-test effects
- the intended membership of an expert committee to look at evidence provided by the national reference test outcomes: membership of such a group needs to be transparent and open.

ACME would welcome discussion with the team that will be developing these tests.

6. Grades and grade boundaries: grades at the top and bottom end

6.1. ACME is broadly content with the suggestion that the new grade 7 should be equated with existing grade A. However, ACME is clear that introducing a structure with two grades that reflect

⁸ See for example the Assessment of Performance Unit (APU) in England and Wales in 1970s and early 1980s and the current Scottish Survey of Literacy and Numeracy.

⁹ <http://www.cem.org/attachments/publications/ImprovingEducation2013.pdf>;
<http://www.tes.co.uk/article.aspx?storycode=6427721>.

performance above that of the current grade A involves some risk. This risk relates to the difficulty of guaranteeing the validity and reliability of the new grades, given that there are doubts about the validity of the top grades in GCSE Mathematics at present. A tier that addresses seven grades in mathematics could only deliver valid and reliable outcomes robustly if its duration were considerably increased from that used at present. Improving the quality of questions and mark schemes so that the top grades are reliable indicators of readiness for progression in mathematics will be absolutely essential.

6.2. ACME is broadly content with the plan to set the grade 9 boundary so that half of the percentage of students previously awarded an A* in a subject is awarded a grade 9. It is acceptable to make the standard of performance required for the award of a grade 9 really exceptional. However, the same caveats apply here as did to the intention to link grades 7 and A.

6.3. ACME does not support the proposal that the proportion of students who achieve a grade 1 in the new GCSEs should be about the same as those who currently achieve either a grade F or a grade G. Whilst the principle that led to this proposal is accepted, ACME notes that the proportion of students achieving these grades in mathematics is over 10%, compared with about 5% in English (p. 17). Once again, the opportunity to rebalance the grade distributions to make them more similar across subjects should override the need to carry forward current standards precisely. The distinction between grade F and grade G has been very useful in mathematics. Receiving institutions greatly value the information provided by grades D-G in mathematics, and indeed in English. Decisions about placement on post-16 courses are often made exclusively according to GCSE Mathematics grades, especially below Grade C.¹⁰ ACME suggests that more differentiation is needed at the lower end.

¹⁰ [http://www.acme-uk.org/media/13569/august%202013%20acme%20gcse%20response%20final%20\(3\).pdf](http://www.acme-uk.org/media/13569/august%202013%20acme%20gcse%20response%20final%20(3).pdf).