

Reforming Key Stage 4 Qualifications

Consultation Response Form

The closing date is: 10 December 2012
Your comments must reach us by that date.

Information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information regimes, primarily the Freedom of Information Act 2000 and the Data Protection Act 1998.

If you want all, or any part, of your response to be treated as confidential, please explain why you consider it to be confidential.

If a request for disclosure of the information you have provided is received, your explanation about why you consider it to be confidential will be taken into account, but no assurance can be given that confidentiality can be maintained. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department.

The Department will process your personal data (name and address and any other identifying material) in accordance with the Data Protection Act 1998, and in the majority of circumstances, this will mean that your personal data will not be disclosed to third parties.

Please tick if you want us to keep your response confidential.

Reason for confidentiality:

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Organisation (if applicable)	Mathematics in Education and Industry (MEI)
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If your enquiry is related to the policy content of the consultation you can contact The Department on:

Telephone: 0370 000 2288

e-mail: KS4QualReform.CONULTATION@education.gsi.gov.uk

If your enquiry is related to the DfE e-consultation website or the consultation process in general, you can contact the Consultation Unit by e-mail: consultation.unit@education.gsi.gov.uk or by telephone: 0370 000 2288 or via the Department's ['Contact Us'](#) page.

Please mark the box that best describes you as a respondent.

<input type="checkbox"/> School	<input type="checkbox"/> College	<input type="checkbox"/> Academy
<input type="checkbox"/> Higher Education Institute	<input type="checkbox"/> Further Education Institute	<input type="checkbox"/> Local Authority
<input type="checkbox"/> Subject Association	<input type="checkbox"/> Parent	<input type="checkbox"/> Student
<input type="checkbox"/> Union	<input type="checkbox"/> Employer-Business Sector	<input type="checkbox"/> Governor
<input type="checkbox"/> HT/Teacher	<input checked="" type="checkbox"/> Other	

Please Specify:

MEI is an educational charity that supports mathematics education. It is the major independent curriculum development body for mathematics and a major provider of professional development for secondary and sixth form mathematics teachers.

MEI runs the Further Mathematics Support Programme (FMSP) and is a partner in the consortium that runs the National Centre for Excellence in Teaching Mathematics (NCETM).

Title

1 Do you agree that the new qualifications should not be called "GCSEs"?

Agree Disagree Not sure

Comments:

If the name is not changed, it is likely that inappropriate comparisons will be made between students' achievement on 'old' and 'new' GCSEs.

2 a) Do you agree that the new qualifications should be called English Baccalaureate Certificates?

Agree Disagree Not sure

Comments:

'Baccalaureate' implies a degree or diploma. The term might be used correctly for an overarching qualification, but does not seem appropriate for a single subject, as it is used on page 6 of the consultation document - 'English Baccalaureate Certificate in physics'.

Furthermore, in many countries the term 'Baccalaureate' is used for qualifications that qualify students for entry to university. The proposed new KS4 qualifications are at a lower level than this and the use of the term may therefore be misleading.

2 b) If not, what alternative title should be adopted?

Comments:

Secondary Level Certificate (SLC) or Level 2 Certificate of Education

High expectation of performance and accurate grading

3 Do you agree with our expectations for grading structures, set out in paragraphs 5.4 to 5.5?

Agree

Disagree

Not sure

Comments:

None

Tiering

4 Do you believe that we should insist on a common grading structure for all English Baccalaureate Certificates or should we allow Awarding Organisations the freedom to innovate?

Common Grading Structure

Freedom to innovate

X Other

Comments

A common grading structure is easily understood by students, parents and employers.

However, it may be useful in mathematics to award an overall grade, with separate grades for mastery of content and problem-solving skills. Mathematical problem solving skills are highly valued by employers and higher education. Research should be done to investigate whether it is possible and practical to give a separate grade for mathematical problem solving.

No tiering

5 Do you agree that it will be possible to end tiering for the full range of subjects that we will be creating new qualifications for?

Yes

X No

Not Sure

Comments:

Ending tiering may be appropriate for some subjects, but it would not work for mathematics. There is considerable evidence that the range of achievement in mathematics at age 16 is very wide. Furthermore, mathematics assessment tends to differentiate by question, rather than by outcome; questions that mathematically-able students find easy can seem impossible to average students, whereas the essay-style questions commonly used in other subjects can stimulate a full range of responses from students of different abilities. We need a mathematics qualification that can challenge the mathematically-able, whilst also providing assurance of numeracy for all. Without tiered assessment, it is not possible to meet the needs of all students in mathematics.

Paragraph 3.5 states: *'The current structure of GCSEs fails lower attaining students. First, lower grades at GCSE provide a weak foundation for progression. Future prospects for students attaining lower grades in English and mathematics GCSE are very poor. A student who fails to get a D or better in English or mathematics by the end of Key Stage 4 has only a one in ten chance of continuing to study these GCSEs after the age of 16, and only a one in fifty chance of securing a C grade by 19. Yet, as Professor Alison Wolf pointed out in her Review of Vocational Education, securing the C grade is of critical importance to students' future opportunities.'* MEI supports strongly the need to improve mathematics education for students who find mathematics difficult, but removing tiering is not the way to address it. If the EBC is developed in conjunction with good post-16 pathways, a lower-tier EBC could be seen as a stepping stone to the next stage.

Following the move from three tiers to two for GCSE Mathematics, MEI surveyed mathematics teachers and found that they believed the transition to A level had been made more difficult.

<http://www.mei.org.uk/index.php?page=discussions&discussionid=7>.

The new two tier GCSE Mathematics examinations were required to have 50% of the marks focused on the lowest two grades and 25–30% of the marks focused on the top two grades. The reason for the change was good: ensuring that the pass mark for grade C at higher tier was not too low. However, more mathematically-able students are not sufficiently challenged because the proportion of questions targeted at A and A* grade on the higher tier examinations is quite low and students can achieve sufficient marks to achieve high grades by performing well on the less challenging questions. Removing tiering would make this worse.

One possible solution would be to have three papers, a Foundation paper assessing material from grade G to grade E, an Intermediate paper assessing grade D to grade B and a Higher paper assessing material at grades A and A*. All students would be required to take the Intermediate paper. Mathematically-able students would also take the A and A* paper, weaker students would also take the Foundation Paper. The method of aggregation of marks for grading purposes across the two papers taken by each student would require careful consideration. For each tier this structure encourages mastery of the lower-level material, whilst

ensuring that the highest-level material available within the tier can be properly assessed. Clear advantages of this system of tiering over the current one would be:

- Weaker students would be properly assessed on the lower grade content, ensuring they focus on mastering the basic skills needed for progression.
- The all-important grade C would be awarded on the same examination paper for all students.
- Students achieving the highest grades would have achieved those grades by addressing questions at A/ A* level, rather than through accumulating marks by not making errors on the easier questions. This would ensure the A/A* content is properly covered in mathematics lessons, which would improve preparation for further study.

Teaching to the test

6 Are there particular approaches to examinations which might be needed to make this possible for some subjects?

X Yes

No

Not Sure

Comments:

It must be recognised that teaching-to-the-test is, at least to some extent, inevitable; it has always happened and always will.

GCSE Mathematics examination questions have often been either single step, or highly structured, so students do not have to work out a strategy for solving the problem, they just have to carry out the steps. A recent development in GCSE Mathematics has been to introduce some less structured questions, to emphasise the more demanding problem-solving aspect. Early indications suggest that this is an improvement, but it is too early to draw firm conclusions. Time is needed for teachers to adapt their teaching to the new requirements.

Assessments with more validity need to be developed, to ensure the tests encourage and identify the skills students need. This will require more questions where candidates are required to choose their own method of solution.

Fluency with basic mathematics and the ability to use mathematics to solve problems are vital skills for students' future education and employment. Ongoing research, including evidence from the twin pilot, should inform the development of mathematics assessments with more validity, to encourage students to develop transferable mathematical skills that they can use and apply in contexts outside mathematics examinations.

Assessed 100% by examination, or minimising reliance on internal assessment

7 We intend that English Baccalaureate Certificates should be assessed 100% by externally marked examinations. Do you agree?

<input type="checkbox"/> All	<input type="checkbox"/> English	<input type="checkbox"/> mathematics
<input type="checkbox"/> sciences	<input type="checkbox"/> history	<input type="checkbox"/> geography
<input type="checkbox"/> languages	<input type="checkbox"/> None	X Not sure

Comments:

Ofsted's International Comparisons in Senior Secondary Assessment found that *"Several of the qualifications involve teacher or school-based assessment where up to 50 per cent of the final grade is made up of such assessment tasks. Such assessment can broaden a qualification and allow students to be tested on the application of IT, extended problem-solving and the use of mathematics as a tool for modelling that cannot be tested in an examination environment."* It does not make sense to discount the possibility of internal assessment when international comparison work suggests that it has benefits. The important thing is to assess the skills we want students to develop. The validity of assessment is of paramount importance.

Some countries/jurisdictions that out-perform the UK in international comparisons of performance in mathematics make significant use of internal assessments. These should be properly investigated before any decision is taken to have 100% external assessment.

Without further investigation, no valid judgement can be made about whether 100% assessment by examination might be right for mathematics, or for any other subject.

Examination Aids

8 Are there any subjects where examination aids are necessary to the application of subject-specific knowledge and skills? If yes please specify.

Comments:

It is appropriate for calculators to be available in written mathematics and science examinations. Their use enables students to access higher-order problems, such as applying trigonometry in context, which require more sophisticated skills. Furthermore, the use of technology for performing calculations is widespread in higher education and employment and students should be prepared for this through using technology as part of teaching, learning and assessment in school mathematics and science.

Research/development work should be undertaken to investigate the use of computer technology to enhance teaching, learning and assessment at this level in mathematics and science.

Michael Gove has been reported as encouraging schools to consider the iGCSE in advance of the introduction of the new qualifications. Unlike GCSE, which has a non-calculator paper, iGCSE Mathematics allows calculators throughout. It would be perverse to encourage schools to move to a specification which allows calculators throughout and then replace it with one which does not allow them at all.

Size requirement for syllabus

9 Should our expectation be that English Baccalaureate Certificates take the same amount of curriculum time as the current GCSEs? Or should schools be expected to place greater curriculum emphasis on teaching the core subjects?

Same amount of curriculum time

X

Greater curriculum emphasis

Other

Comments:

Mathematics and English are fundamental for successful progression to further education or employment in any field and should have additional curriculum time. However, it is important that an appropriate balance is achieved and arts subjects are not squeezed out.

Examination aids

10 Which examinations aids do you consider necessary to allow students to fully demonstrate the knowledge and skills required?

Comments:

In mathematics at this level students need access to a calculator to demonstrate fully their knowledge and skills.

However, an element of the examination should confirm that students have the arithmetic and estimation skills to answer everyday questions without the use of a calculator.

Subject suites

11 Do you agree that these are appropriate subject suites? If not, what would you change?

Yes

No

X Not Sure

Comments:

None

12 Is there also a need for a combined science option covering elements of all three sciences?

Yes

No

X Not Sure

Comments:

Consideration should be given to co-ordinating EBC Mathematics with mathematical demands in other subjects (particularly the Sciences and Geography).

Track Record

13 What qualities should we look for in English Baccalaureate Certificates that will provide evidence that they will support students to be able to compete internationally?

Comments:

In Mathematics the qualification should encourage the ability to apply numeracy for all students. It should also provide appropriate challenge to inspire the more mathematically-able and prepare them for higher level study.

The structure suggested in our response to question 5 could achieve this.

Assurance of literacy and numeracy

14 Do you agree that we should place a particular emphasis on the successful English language and mathematics qualifications providing the best assurance of literacy and numeracy?

X Agree

Disagree

Not sure

Comments:

These qualifications should set a universally understood standard for these fundamental skills. In mathematics what is needed is more than just 'numeracy', it is effective mathematical communication.

Literacy and mathematical communication skills are important across the curriculum and in later life.

School and Post-16 institution Support

15 a) In order to allow effective teaching and administration of examinations, what support do you think Awarding Organisations should be:

a) Required to offer?

Comments:

1. High quality specifications that enable all students to learn and be assessed at a level appropriate to their potential.
2. Assessments that assess what it is that we want pupils to learn (valid assessments), as well as being reliable.
3. Well-developed, well-maintained and simple administration systems for the delivery of assessments.
4. Serious curriculum development and assessment innovation, with opportunities for schools to participate in well-founded, Ofqual-approved trials and pilots.

15 b) Prevented from offering?

Comments:

1. Endorsement of textbooks should not be permitted.
2. Those who set examinations should not be able to use their status to help market books, resources, professional development or other advice relating to the examinations they set.

16 How can Awarding Organisations eliminate any unnecessary burdens on schools and post-16 institutions relating to the administration of English Baccalaureate Certificates?

Comments:

Efficient, cost effective administration of examinations.

It is vitally important to achieve the correct balance between simplicity of administration and validity of assessment.

Qualification supports progression of lower achievers

17 Which groups of students do you think would benefit from a "Statement of Achievement" provided by their school?

Comments:

If the 'Statement of Achievement' is only awarded to students who are not entered for qualifications, it immediately brands such students as 'low achievers', which will reduce their chances of successful progression to further education and employment. It would be far better for ALL students to be awarded 'Statements of Achievement'; the large majority would also have the new qualifications, but the statement could provide valuable information for all.

Much more thought is needed to devise effective methods for reporting on the progress of students who are not ready to take the new qualifications at age 16.

18 How should we ensure that all students who would benefit from a "Statement of Achievement" are provided with one?

Comments:

See comments for question 17.

Equalities

19 a) Do you believe any of the proposals in this document have the potential to have a disproportionate impact, adverse or positive, on specific pupil groups?

Adverse impact

Positive impact

Both

No impact

Presumably the new qualifications will be compulsory for maintained schools, either through legislation or by being the only qualifications which count for performance tables. Independent schools will retain the freedom to use tried and tested qualifications, such as iGCSE, or GCSE (if Wales continues to offer it). It is hoped that the new qualifications will provide a better educational experience for students than current GCSEs. However, if this turns out not to be the case, students at maintained schools will be disadvantaged compared to students at independent schools because their school will not have any alternative to the EBC. Consequently, students from less advantaged backgrounds will be more at risk from any adverse impact that may arise from the changes.

This possibility is not just hypothetical. The design flaws which Ofqual has recently identified in English GCSEs were clearly not apparent at the time the qualifications were accredited.

19 b) If they have potential for an adverse impact, how can we reduce this?

Comments:

It is hard to see how this potential adverse impact could be reduced. This illustrates the high risk of rapid, un-piloted change to the education system.

Implementation

20 Should we introduce reformed qualifications in all six English Baccalaureate subjects for first teaching in secondary schools in 2015, or should we have a phased approach, with English, mathematics and sciences introduced first?

In all six subjects from 2015

Phased approach

X Other

Comments:

First teaching in 2015 will require development to be rushed, which could have serious negative consequences.

Since this is a new approach to qualification design, it makes sense to try it with one or two subjects first. The potential for disaster will be significantly increased if mathematics and English are two of the first subjects introduced.

21 How best can we prepare schools for the transition to these reformed, more rigorous qualifications?

Comments:

Changing national culture towards education cannot be achieved through merely tinkering with assessment.

The proposed changes are far-reaching and it will be necessary to win the hearts and minds of the teaching profession, and of parents and pupils, if the changes are to be successful. This means proper funding for resources and CPD and realistic timescales for the changes.

22 How long will schools need to prepare to teach these reformed qualifications?

Up to 12 months 12 - 18 months More than 18 months
 Other

Comments:

Depending on what other changes are happening concurrently, once all resources and systems are in place, at least a full academic year will be required for subject-specific CPD in mathematics.

It takes time to develop good textbooks and teaching materials, and the scale of CPD required is huge. Rushed development is likely to compromise quality.

Languages

23 Should all languages in which there is currently a GCSE be included in our competition?

Yes

No

X Not Sure

Comments:

None

24 Should the number of languages for which English Baccalaureate Certificates are identified be limited? If so, which languages should be included?

Yes

No

X Not Sure

Comments:

None

25 Given the potential number of new languages qualifications to be developed, should they be introduced to a later timescale than history and geography English Baccalaureate Certificates?

Yes

No

X Not Sure

Comments:

None

Post-16

26 Should we expect post-16 institutions to be ready to provide English Baccalaureate Certificates at the same time as secondary schools?

Yes

No

X Not Sure

Comments:

If the new qualifications were introduced for first teaching from September 2015, presumably the first examinations would be in June 2017. Students who have taken GCSE courses and who wish to re-sit to improve their grades should be able to do so in 2016 and 2017. This means that for two years after the new qualifications have been introduced, post-16 institutions must continue to prepare students for 'legacy qualifications' in GCSE Mathematics.

It could be argued that such students should have the choice of taking the new qualifications instead of GCSEs. This would mean post-16 institutions would need to be ready to provide the new qualifications, as well as GCSEs, over this period.

27 How best can we support post-16 institutions to prepare to provide English Baccalaureate Certificates?

Comments:

A properly funded CPD programme in mathematics will be needed to prepare post-16 teachers to provide the new mathematics qualification.

Choosing the best qualification in each subject

28 Do you agree that five years is an appropriate period for the new qualifications to feature in the performance tables before the competition is rerun?

Agree

Disagree

X Not sure

Comments:

It would be **far** better to have centrally set assessments for each subject that are offered by all of the awarding bodies. All students would take the same assessments and awarding bodies would compete on the basis of efficient administration and support services to schools. The key stage 3 SATS in mathematics were an excellent example of high-quality, centrally set assessment. EBCs should be set in this way.

If the proposed competition method is used, whatever the timescale, it is **ESSENTIAL** that there be proper curriculum and assessment innovation and development, and detailed trialling and piloting, during the period of the "franchises".

A franchise-holder must be **REQUIRED** to do this as a condition of the licence (and, preferably, a statutory duty too), and must show real evidence of a track record of having done so in the past.

Awarding Organisations that are not franchise holders should be permitted to bring forward innovations and organise approved trials and pilots, and a developmental budget should be available from the DfE to enable this to be done.

Otherwise:

1. There will be no development at all during a franchise.

2. Awarding Organisations will promise the earth in terms of wonderful new ideas each time the competition is run, but there will be no evidence base to support (or deny) the validity of anything that is proposed.
3. Wrenching changes might come every 5 years, with no assurance that the change might be beneficial – or that it might be very bad NOT to make a change.

29 Please let us have your views on responding to this call for evidence (e.g. the number and type of questions, whether it was easy to find, understand, complete etc.).

Comments:

It was helpful to have the response form available as a Word document; this has facilitated internal discussion when completing it. However, the questionnaire does not always match the consultation document; proof reading before publishing and ensuring that both documents contained the same questions with the same wording and numbering would have improved this. Specific examples of difficulties in completion include the following.

Question 6 appears to be asking how to encourage teaching to the test; we have assumed that the opposite was intended.

Question 7 does not include a “not sure” option so we have added one.

Thank you for taking the time to let us have your views. We do not intend to acknowledge individual responses unless you place an 'X' in the box below.

Please acknowledge this reply X

Here at the Department for Education we carry out our research on many different topics and consultations. As your views are valuable to us, would it be alright if we were to contact you again from time to time either for research or to send through consultation documents?

X Yes

 No

All DfE public consultations are required to meet the Cabinet Office [Principles on Consultation](#)

The key Consultation Principles are:

- departments will follow a range of timescales rather than defaulting to a 12-week period, particularly where extensive engagement has occurred before
- departments will need to give more thought to how they engage with and consult with those who are affected

- consultation should be 'digital by default', but other forms should be used where these are needed to reach the groups affected by a policy; and
- the principles of the Compact between government and the voluntary and community sector will continue to be respected.

Responses should be completed and emailed to the relevant consultation email box. However, if you have any comments on how DfE consultations are conducted, please contact Carole Edge, DfE Consultation Coordinator, tel: 0370 000 2288 / email: carole.edge@education.gsi.gov.uk

Thank you for taking time to respond to this consultation.

Completed questionnaires and other responses should be sent to the address shown below by 10 December 2012

Send by post to:

Public Communications Unit
Level 1 Area C
Castle View House
East Lane Runcorn
WA7 2GJ

Send by e-mail to: KS4QualReform.CONSULTATION@education.gsi.gov.uk