Department for Education

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:

Name	Professor Alice Rogers
Organisation (if applicable)	London Mathematical Society
Address:	57-58 Russell Square De Morgan House WC1B 4HS

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.CONSULTATION@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.

☐ School	☐ College	☐ Academy
☐ Higher Education Institute	☐ Further Education Institute	☐ Local Authority
☐ Subject Association	☐ Parent	☐ Student
☐ Union	☐ Employer-Business Sector	☐ Governor
☐ HT/Teacher	☐ Awarding Organisations	✓ Other

Please Specify:

Learned Society

GENERAL STATEMENT

The London Mathematical Society welcomes the determination to maintain the concept of an almost universal qualification that allows students of all abilities to sit examinations in core subjects, and provide them with a grade which recognises the progress made.

We do however have some major concerns with this review process.

Our principal concern is that there is currently no national structure for the coherent development of an integrated curriculum and assessment policy for mathematics. We do not propose to go into a detailed blueprint here, and we are certainly not recommending the resurrection of QCA, but this consultation does once again flag up the need for some such structure. Countries with which we would like to be internationally competitive do appear to have well-developed mechanisms which are able to work over an appropriate timescale.

A further concern is that it is proposed to make the changes too quickly, with a risk of serious failure.

We also do not believe that the awarding bodies should play such a major role in the construction of a qualification, they are not bodies which can substitute for the national structure referred to above. It is also not clear that the competitive approach will make best use of the expertise spread between them, it is likely to waste the strengths of those in the unsuccessful bodies.

Before answering some individual questions, we would like to set down some important general points. At present GCSE Mathematics does not provide a suitable platform for A level. So strengthening the level of demand makes perfect sense for those 14-16 year olds who need to have the option of proceeding to A level, or who may wish to use their mathematics in other A level subjects. To achieve this, the strengthened qualification must avoid the premature injection of advanced material - such as calculus - and concentrate on achieving a far greater degree of fluency, competence and flexibility in basic trigonometry, geometry, algebra and coordinate geometry. (We are unclear where the demand for more advanced material has come from: university academics are happy for calculus to be dealt with at A level, and are much more concerned about the shallowness with which prerequisite material is understood by those coming into Year 12.)

Moreover, 70+% of the population need a much more realistic stepping stone at age 16, which focuses on achieving fluency, competence, and flexibility in using more basic material such as number (including decimals, measures, fractions), ratio and proportion, problems and formulae.

A further point, which does not seem to be addressed in the questions, is that it will be important that any accountability regime takes note of the full range of grades, and not simply one borderline.

Title

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

✓	Agree	☐	Disagree	☐	Not sure

Comments:

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

☐	Agree	☐	Disagree	☐	Not sure

Comments:

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

Comments:

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:

It is important to recognise that, if appropriate demands are to be made on those of high ability, a grading system which gives due recognition to those for whom even a low grade is a significant achievement is essential.

To avoid confusion with the current system a numerical grading system would be appropriate

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	☐	Other

Comments:

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	✓	No	☐	Not Sure

Comments:

Tiering will remain essential in mathematics. In this subject any individual question will be trivially easy for some, and impossibly hard for others. It will only discriminate over a relatively narrow range.

It would in fact be better to have three overlapping tiers with an individual student taking (at least) either 1 and 2 or 2 and 3. This avoids a sharp division into sheep and goats, and also avoids awarding a grade solely on the basis of a very weak performance on a paper which is rather too hard.

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

☐ Yes	☐ No	☐ Not Sure

Comments:

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

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

☐ All	☐ English	✓ mathematics
☐ sciences	☐ history	☐ geography
☐ languages	☐ None	

Comments:

7 b) If not, which aspects of English, mathematics, the sciences, history, geography or language do you believe absolutely require internal assessment to fully demonstrate the skills required, and why?

Comments:

Size requirement for syllabus

8 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	✓ Greater curriculum emphasis	☐ Other

Comments:

The time for Mathematics should be as for the Linked Pair GCSE mathematics.

It should be equivalent in volume to English Language and Literature together, and to Double Award Science.

The title of this double award in mathematics is considered in 10 below.

Examination aids

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

Comments:

A blanket ban on calculators in all Mathematics examinations would be too draconian, but all questions in any paper in which they are allowed must be carefully set so that calculators are only used where appropriate.

Formula sheets can allow candidates to tackle testing questions where the appropriate formula has to be identified from a number of possibilities. Basic formulae which students should have at their fingertips should not be included.

Candidates also need to have standard geometry kits.

Subject suites

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

☐ Yes ☐ No ☐ Not Sure

Comments:

The terminology 'pure and applied' may not be helpful at this stage. The Linked Pair pilot should be carefully considered before a detailed decision is made. The advantage of a double name such as 'pure and applied' is that it does make the size of the qualification clearer.

While an Additional Mathematics qualification of some form is desirable for those not fully stretched by the standard examinations, its emphasis should be on deep understanding of KS4 mathematics and solving hard problems which require mathematical insight, rather than early introduction of A-level topics.

An examination which relates to the standard qualification in the same way that STEP and AEA relate to A-level might be a way forward, possibly along the lines of the extension papers which existed for GCSE in the 90s.

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

☐ Yes	☐ No	☐ Not Sure

Comments:

Track Record

12 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:

Although we make a few specific suggestions below, we do not believe that this aim will be achieved without much more comprehensive policy development as explained in more detail in our main statement at the start of this response.

In mathematics, the assessment must encourage good teaching, so that problem solving and algebraic thinking are encouraged. This may mean questions which appear easy but are actually harder because they are less predictable and do not simply require routine application of recipes.

The examination needs to provide straightforward, structured questions at the start followed by longer questions in which students are not led through a solution step by step but have to structure their own answers. Both fluent technique and understanding of the underlying ideas are to be required.

There needs to be a greater emphasis on proof and geometry in the hardest paper.

Assurance of literacy and numeracy

13 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?

☐ Agree	☐ Disagree	☐ Not sure

Comments:

While it is essential that the mathematics qualifications do assure numeracy, the mathematics curriculum has many other aims which must be assured.

There need be no conflict between a qualification which assures the full range of aims of the mathematical curriculum and one which ensures numeracy, provided that assessment times are long enough.

School and Post-16 institution Support

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

a) Required to offer?

Comments:

Well constructed and clearly specified syllabuses.

Sample examinations, with a clear understanding that these indicate level of difficulty rather than a detailed, topic by topic, structure.

14 b) Prevented from offering?

Comments:

Training sessions for teachers

Textbooks and other teaching resources

(These are of course necessary, but should not be provided by the awarding bodies.)

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

Comments:

Qualification supports progression of lower achievers

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

Comments:

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

Comments:

Equalities

18 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				

Comments:

The proposals if anything increase the criticality of the CD borderline, which is has unfortunate effects at both ends of the ability range. Those for whom even (say) an E grade is an achievement are undervalued while those for whom an A grade is easy are insufficiently challenged. The major incentive on a school is to invest heavily on D into C work.

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

Comments:

The accountability regime for schools should not depend heavily on one particular borderline.

Implementation

19 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	✓ Other

Comments:

For mathematics 2015 seems the earliest date possible; it may be necessary to take longer so that the task is done well. Much more comprehensive policy development is required, as explained in more detail in our main statement at the start of this response.

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

Comments:

Once again we emphasise that much more comprehensive policy development is required, as explained in more detail in our main statement at the start of this response.

Clearly schools need to be fully informed of changes in good time; syllabus and sample materials need to be issued as soon as possible.

Teachers need to have the opportunity to be engaged in the development process, which must be integrated with curriculum development and hence a number of additional PD days need to be granted.

There needs to be time to develop teaching materials such as textbooks.

There must be funded CPD for teachers.

It will be important that Ofsted inspectors recognise that the sort of teaching which these new assessments hope to promote will not be delivered in a way which gives measurable outcomes at the end of each lesson.

21 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:

Rapid change in recent years means schools have become adept at adoption. This does not mean however that anything less than the minimum 18 months promised will result in improvement.

Languages

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

☐ Yes	☐ No	☐ Not Sure

Comments:

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

Yes	No	Not Sure

Comments:

24 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	Not Sure

Comments:

Post-16

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

☐ Yes	☐ No	☐ Not Sure

Comments:

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

Comments:

As there is a shortage of good mathematics teachers at every level, the recruitment, education and retention of a suitable workforce needs to be tackled immediately.

Choosing the best qualification in each subject

27 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	☐ Not sure

Comments:

This question presumes acceptance of a proposal giving much more of the construction of qualifications to awarding bodies than we believe should be the case.

We do not believe that so much of the construction of the qualification should be carried out by individual awarding bodies. Among other things, this risks wasting the talents of those who are able to set good mathematics examinations.

The proposed cycle is a very short; given that it will take say 4 years for an awarding body to develop a new qualification. There is also the possibility of significant change every five years, which does not seem desirable.

28 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:

We have had to supplement responses to individual questions with a more general statement, because some questions implied acceptance of parts of the proposed policy rather than inviting comment and not all issues can be addressed by individual questions.

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 ✓

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?

✓	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