



Department
for Education

Consultation Response Form

Consultation closing date: 20 August 2013
Your comments must reach us by that date

Reformed GCSE subject content consultation

If you would prefer to respond online to this consultation please use the following link: <https://www.education.gov.uk/consultations>

Publication

Information you provide in your response to this consultation may be subject to publication or disclosure in accordance with the Freedom of Information Act 2000.

Confidentiality

Please make it clear if you want all/any part of your response to be treated as confidential and explain why. If a request for disclosure of the information you have provided is received by DfE, your explanation 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.

Please tick if you want us to keep your response confidential.	
Reason for confidentiality:	

Personal data

For the purposes of the Data Protection Act, DfE is the data controller for any personal data you supply in response to this consultation. DfE will process all personal data (such as your name, address and any other identifying information) in accordance with the Data Protection Act 1998. In most circumstances, this means that your personal data will not be disclosed to third parties.

Please do **not**:

- provide information in comments boxes that might identify you unless you are content for that information to be released into the public domain; or
- provide information in your response that might lead to the identification of other living individuals

Name: Professor Alice Rogers	
Please tick if you are responding on behalf of your organisation.	<input checked="" type="checkbox"/>
Name of Organisation (if applicable): London Mathematical Society	
Address: De Morgan House 57-58 Russell Square London WC1B 4HS	

Information sharing

The Office of Qualifications and Examinations Regulation (Ofqual) is undertaking a parallel consultation on regulatory conditions for GCSEs. Please tell us if you or your organisation has responded or is intending to respond, to Ofqual's consultation:

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	Don't know	<input type="checkbox"/>
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Please only respond to the next statement if you have ticked 'no' or 'don't know' above:

If you provide comments to us that are relevant to Ofqual's consultation, we intend to forward your responses to them so they can be considered by Ofqual. If you do not want us to do this then please opt-out by ticking the box below:

I do <u>not</u> want DfE to forward my response to this consultation to Ofqual	<input type="checkbox"/>
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Please mark the box that best describes you as a respondent.

<input type="checkbox"/> Academy and/or Free School	<input type="checkbox"/> Comprehensive School	<input type="checkbox"/> State Selective School
<input type="checkbox"/> Independent School	<input type="checkbox"/> Special School	<input type="checkbox"/> Sixth Form Only
<input checked="" type="checkbox"/> Subject Association	<input type="checkbox"/> Organisations representing teachers	<input type="checkbox"/> Parent
<input type="checkbox"/> Young Person	<input type="checkbox"/> Higher Education	<input type="checkbox"/> Further Education

<input type="checkbox"/>	Local Authority	<input type="checkbox"/>	Teacher	<input type="checkbox"/>	Governor
<input type="checkbox"/>	Employer/Business sector	<input type="checkbox"/>	Awarding Organisation		

Please Specify:

Learned society for mathematics.

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

Questions 1-6 below ask you to give your views with reference to a specific subject suite:

1. *English,*
2. *Mathematics*
3. *Sciences*
4. *Geography*
5. *History*
6. *Modern and ancient languages.*

You do not need to give answers for all the subject suites - please answer only with respect to those subjects on which you have a particular view.

Please ensure that you answer questions 7-11 as well – we would like responses from everyone on those.

This response relates solely to Mathematics.

We respond below to the specific questions on mathematics. But there are vitally important matters which answers to these questions alone will not address. This preamble (a)-(g) deals with these matters.

a) The document has some good features: we particularly welcome the recognition that solid mastery of Key Stage 3 should be a significant part of GCSE mathematics.

b) However, we regret that the consultation draft (June 2013 *Mathematics GCSE subject content and assessment objectives*) in its current form would not provide a suitable basis for a GCSE specification which could be used by awarding bodies to produce the high quality qualification which the department rightly desires. Perhaps because the draft was written by a very small group to a tight schedule, the mathematics content is not well specified. Along with others in the mathematical community, we feel that an improved specification should be based on the revisions proposed in the documents:

http://education.lms.ac.uk/wp-content/uploads/2012/02/DMJ_3_no_2_2013.pdf

http://education.lms.ac.uk/wp-content/uploads/2012/02/DMG_4_no_2_2013.pdf

c) It will be necessary for a slightly larger group, funded to spend the necessary time, to produce a revised document. The group should include some Higher Education mathematical expertise as well as a teacher currently involved in successful delivery of GCSE and A-level mathematics in the classroom. Use of the above articles should make production of a final document possible within the required timeframe.

d) An additional problem is that the national curriculum at all stages up to and including Key Stage 4 should have been fully developed before revising GCSE specifications. Designing the assessment should come after determining the curriculum. Equipped with a complete national curriculum, there would be no need to separately specify GCSE content, so that unnecessary duplication is avoided, and attention could be directed at specifying the various features of the assessment.

e) While many of the assessment objectives are good, it is hard to see how assessment objectives can be clearly set down without reference to the intended structures for differentiation (qualifications, tiers etc).

f) These missing structures mean that the assessment objectives do not visibly embody the principle that assessment should not all be at the top end of the content. However much one decries 'teaching to the test' anticipating assessment does influence how mathematics is taught, it is important that assessment is designed to discourage students being rushed through a large syllabus on a topic by topic basis, and then spending months doing practice questions.

g) The ultimate structure of GCSE assessment may not need to be specified here, but it does need to be borne in mind when specifying GCSE subject content.

One unfortunate complication is that the arrangements for two GCSEs in mathematics, following on from the linked pair pilot, are not under discussion in this consultation. Indeed the methodology for deciding the volume of a qualification, with the amounts of curriculum and assessment time this implies, is far from clear.

There are many reasons why there should be two GCSEs in mathematics; and the current proposals risk a continuation of the failed tradition of trying to make one assessment structure achieve two incompatible objectives – namely that of providing certification of basic competence for all 16 year olds, and the need for a pathway that prepares as many students as possible for A level studies in numerate disciplines after age 16. The present structure achieves neither goal.

The recognition which we welcomed in (a) above suggests as a possible structure

- a demanding *basic* GCSE, which does not fully assess the abstraction in KS4 and so does not lead immediately to A level, and
- a rather different assessment which prepares for A level studies and which is designed to serve 30-40% of the cohort.

Both GCSEs should be available to all students in all schools and colleges, even if some concentrate on one, and move on to the other or to one of the new level 3 qualifications in Year 12.

In particular, it is important for any qualification to require the target candidature to tackle hard questions on elementary material so that the development of abstract thinking is not impeded by simultaneously trying to grasp new mathematical facts or

definitions. A possible route is for the 'basic' GCSE to include harder questions on important KS3 material (say Paper 1) and less demanding questions on slightly more advanced topics (say Paper 2), while the A level prerequisite GCSE should include harder problems on the basic KS4 material (say Paper 2' – covering topics like those in Paper 2 but with a much higher level of demand) and less demanding questions on more advanced KS4 material.

A full resolution of the issues under consultation will not be possible until a firm decision is made to recognise that the volume of mathematical study up to Key Stage 4 merits the availability of two GCSEs in Mathematics, as in English and Science. It will be better to delay the reform of GCSE if necessary rather than rush the project and then have to make further changes.

2. Mathematics

2a Do **the proposed subject content and assessment objectives** for mathematics cover the appropriate knowledge and understanding for GCSEs in this subject?

<input type="checkbox"/> Yes	<input type="checkbox"/> No -insufficiently demanding	<input type="checkbox"/> No- overly demanding
<input checked="" type="checkbox"/> Not Sure		

Comments:

The specification of content needs to be improved before this can be decided, but this should be the case if done along the lines suggested in the articles cited above.

The formulae listed at the end of the document do not seem entirely consistent with the rest of the document.

2b Is **the relative weighting of the assessment objectives** right for mathematics?

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Not Sure
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Comments:

These weightings may need to be considered for each tier.

2c Has the right content for mathematics been identified for high achievers, **including those going on to study A levels** in science, technology, engineering and/or mathematics (STEM)?

Yes

No

Not Sure

Comments:

The specification of content needs to be improved before this can be decided, but this should be the case if done along the lines suggested in the articles cited above.

2d Do the proposed subject content and assessment objectives for mathematics provide **assurance that essential knowledge taught at the earlier key stages is built upon and represented adequately?**

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Not Sure
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Comments:

We appreciate that such assurance is intended, but do not see that the assessment objectives are structured in a way to give this assurance.

2e Will the proposed qualifications in mathematics secure **sound progression for the purposes of further academic and vocational study?**

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Not Sure
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Comments:

This is hard to decide with AO's not related to tiering. In general for those not proceeding to A-level, the key to successful progression will be sound mastery of key stage 3 material, with some encounter with KS4 material but an assessment which is not over-demanding at this level.

8 Does the mathematics content cover **the key elements of numeracy needed for employment or further study?**

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Not Sure
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Comments:

In principle, yes, but whether this is actually the case will (obviously) depend on the way the mathematics is taught. This can be influenced in a beneficial way if the assessment in all tiers involves problems which require thought about the underlying mathematics, including simple arithmetic.

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.	<input checked="" type="checkbox"/>
E-mail address for acknowledgement: education@lms.ac.uk	

Here at the Department for Education we carry out our research on many different topics and consultations. As your views are valuable to us, please confirm below if you would be willing to be contacted again from time to time either for research or to send through consultation documents.

<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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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 on-line or 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 responses should be sent to the address shown below by 20 August 2013

Send by post to:
Qualification and Assessment Division
Department for Education
L2
Sanctuary Buildings
Great Smith Street
London
SW1P 3BT

Send by e-mail to: GCSEcontent.consultation@education.gsi.gov.uk