

## Consultation Questions

This consultation considers proposals for the reform of A levels in England.

We are seeking views from higher education, employers, learned societies, colleges, schools and others so that A levels are the best that they can be.

The responses to this consultation will be independently evaluated and the evaluation published. If you do not want your response to this consultation published, you must state clearly that your response is confidential to us.

The deadline for responses to this survey is **11th September 2012**.

### How to respond:

Please respond to the questions we have asked using one of the following methods:

- completing the online response form at <http://comment.ofqual.gov.uk/a-level-reform/respond>
- emailing your response to [consultations@ofqual.gov.uk](mailto:consultations@ofqual.gov.uk), please include the consultation title in the subject line
- posting your response to A Level Reform Consultation, Reform Team, Ofqual, Spring Place, Coventry Business Park, Herald Avenue, Coventry, CV5 6UB

**Questions on Section 1: Background and purpose**

**The following questions refer to Section 1: Background and purpose.**

**1. I believe that all equality issues have been considered in the accompanying equality analysis.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**2. Do you have any comments or suggestions?**

The equality analysis acknowledges that a move from a modular format will disadvantage some learners, but it does not identify ways in which these learners might be supported to compensate for this. This remains a concern to some members of the Mathematical Association. Whilst we thoroughly endorse the use of synoptic questions at all stages of assessment, we have concerns about a move from a modular assessment system not only for the weaker learners, but also for older learners and for the strongest candidates who currently take early modules, or take additional modules. This flexibility has allowed our best mathematicians scope to enjoy and extend their studies in preparation for STEM university courses and careers.

**Questions on Section 2: What we hope to achieve**

**The following questions refer to Section 2: What we hope to achieve.**

**3. I support the general principles as set out in this section.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**4. I support the need for comparability of demand and content in different specifications in a subject.**

Yes

No

**Do you have any comments or suggestions?**

MA members agree that it is important to move towards comparability of standards across all A levels. We are concerned that some fragmentation may occur when examination boards and universities are negotiating specifications within a subject area. We are broadly comfortable with the current core content for mathematics. We would welcome the proposal from the Government select committee (3<sup>rd</sup> July 2012) that Ofqual convene national subject committees drawing membership not only from universities but also the teaching profession, professional associations and other learned bodies to agree a common core. We feel it is vital that there is consistency without complete prescription, to ensure the desired outcome of equal access to the full range of universities. Comparability needs to be ensured across the subject titles, including the Applied strands in mathematics. If the current core content is acceptable to the professional bodies and learned societies, then we feel that it should be carried forward into new A level specifications.

We also believe it is vital that A levels maintain credibility with employers as for a substantial number of learners this is their exit qualification from full time education.

**Questions on Section 3: Design rules - The purpose of A levels.**

**The following questions refer to Section 3: Design rules - The purpose of A levels.**

**5. I believe that Condition 1 adequately defines an appropriate primary purpose of A levels for regulation.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

( ) Strongly disagree

**Do you have any comments or suggestions?**

As mentioned above, it is important that specifications for A level mathematics allow for the diverse end points of learners, not only in the wide range of university courses other than mathematics, but also into a wide range of careers. Under the current modular system, learners are able to opt for statistics or mechanics or, in some specifications, decision mathematics modules, according to the needs of their courses. It is vital that this will be still be possible within components of linear AS and A level courses. It is also important to define ways in which mathematics and further mathematics components can be combined, and possibly used to optimise final grades.

A levels are currently well respected across the world, and it is important that changes do not lead to confusion and loss of status internationally. In the past, an important strength of UK education has been in teaching and assessing the application of skills within mathematics, and this fits comfortably with the demands of industry, as well as further education. Assessment should include problem solving elements whether within externally or internally assessed components. It is critical for the A level qualification that the validity of any assessment is genuinely improved, not only for its reputation but also for the teaching and learning programmes involved.

In an environment when university education has become somewhat less attractive to learners from poorer backgrounds, we should acknowledge and address the needs of employers as well as academics in the design of A level mathematics specifications. The style of an A level in mathematics should therefore be such that it can meet the common needs of a variety of other users of higher level mathematics too.

It should not be an objective of the GCE qualification to provide a basis for accountability. There may well be such use of data, but the primary purpose of the qualification is for learners to progress their education, developing both knowledge and skills to prepare them for later life. We have seen an alarming tendency at GCSE to teach to the test in mathematics, which Ofsted (Made to Measure, 2012) has identified as a barrier to the development of understanding and ability to apply knowledge in learners.

Questions on Section 3: Design rules - Size and grading.

The following questions refer to Section 3: Design rules

Condition 2 - Size and grading.

**6. A new grading structure should be introduced for new A levels.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Do you have any comments or suggestions?**

Some members of the MA think that it would be advisable to introduce a new grading structure to emphasise the beginning of the new specifications – this could be in the form of a standardised score, as discussed under question 7.

**7. The current number of grades, as specified in Condition 2, is appropriate for discrimination.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Do you have any comments or suggestions?**

Although universities use numerical scores there are still many situations where grades are used. This rather crude scale can imply significant differences where none exists when learners score close to a grade boundary. In order to avoid this arbitrary distinction, we suggest that a standardised score would provide a more finely tuned system. This would also support a move away from what is effectively norm referencing and towards a system where taking an examination in a particular sitting has no effect on the learner's final mark.

There is some risk in continuing with the current grading system when comparing grades under two different systems, and advantages to taking the opportunity to change it, not only to avoid confusion between the old and new systems, but also to take advantage of a reform to improve it.

**8. Even considering the other changes being made to A levels, the A\* grade (or similar) should be retained as it will continue to facilitate differentiation of achievement.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**9. The expectations for the performance of learners should be set out for the upper and lower levels of the grading scale (currently grades A and E).**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Do you have any comments or suggestions?**

(Question 8) The A\* grade reflects a laudable level of accuracy as well as mastery of skills, but does not currently reflect additional depth of thinking. A level assessment needs to provide more challenging problem solving questions for mathematics to test this depth of thinking. MA members would like to see the continuation and possibly development of the STEP and AEA type examinations to challenge the most able learners with higher level problem solving. In order to address the shortage of high calibre learners in STEM subjects, further funding may be needed to help a wider range of schools offer their learners effective support at this level.

**The following questions relate to the options regarding the future structure of A levels:**

**Condition 3 - Qualification structure and availability of assessments**

**9. The opportunity for assessment in January should be removed.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

NOTE: although we believe that the current system of January examination is causing undesirable levels of disruption to the teaching year, we are concerned about the extra pressure on learners who take further mathematics as an extra subject (at present some even take the equivalent of 3 A levels in mathematics). Taking so many components in one sitting will need careful scheduling to avoid overburdening our brightest mathematicians, for example by ensuring appropriate grouping of components to facilitate focussed revision.

The issue of additional pressure on 'special consideration' appeals also needs to be considered.

**10. I believe that Option 1 is the right option - Removing the AS qualification – which would mean a return to a linear two year course of study.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**11. I believe that Option 2 is the right option - Making the AS a standalone qualification but where the results do not contribute to the A level.**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**12. I believe that Option 3 is the right option - Retaining the AS qualification in its present form – but making changes as outlined in paragraphs 48-53.**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Do you have any comments or suggestions on these three options?**

Whilst most respondents to the MA felt strongly about the advantages of a two-year linear course, the position of further mathematics within the suite of mathematics qualifications is crucial here. Over recent years the uptake of further mathematics AS level has increased significantly, and that in turn has led to learners continuing to a full A level in further mathematics. This enhanced programme provides them with excellent foundations for careers in STEM areas, as well as university courses in mathematics and engineering and physics. To lose the AS qualification altogether would narrow learners' options to change emphasis as they mature through the first year of A level study, and further mathematics could lose out from the removal of the AS route.

Whilst Option 2 allows for separation of AS and A level, there is some concern about how schools would deliver separate courses, and it was suggested that learners and their parents would want to take an AS if it existed. This option was favoured by some respondents.



**The following questions relate to Option 3 - Retaining the AS qualification – but making changes as outlined in paragraphs 48-53.**

**13. The opportunity for AS/A2 assessment and therefore resits in January should be removed.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**14. I believe that where a learner resits an assessment the highest mark should count towards the learner's qualification.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**15. AS and A2 should contribute equally to the overall outcome of A levels.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**I think that the weighting should be split as follows:**

A suggestion was made that the weighting for AS might be slightly lower than 50% - for example 45%, in recognition of the teaching time allowed, but others felt that the time allocated was not very different as in practice it can be difficult to generate teaching momentum in the late summer term. We would not favour any weighting less than 40% for AS, and are concerned that a significant move away from this would fail to acknowledge the importance of AS content.

**Do you have any further comments or suggestions?**

We assume that learners will be able to retake a complete qualification and this seems to clash with other statements in paragraph 56. There also seems to be some inequality between subjects with internal and external assessment components which needs clarification.

Over recent years, AS mathematics module examinations have often taken place in May. With the removal of January assessments it would seem timely to review the schedule, and re-schedule AS examinations for the second half of the summer term.

In order to accommodate alternative modes of delivery for mathematics and further mathematics appropriate to different settings, it would be helpful if the wording eventually used on components required to be taken in the same season allowed divisions between the (typically) two years to be 4 units to 8 units or 5 to 7 units etc. Currently it is not possible to assume a particular timing for A2 mathematics relative to AS further mathematics as centres have very different timetable models for their 'double' mathematicians.

**Questions on Section 3: Design rules - A level design**

**The following questions refer to Section 3: Design rules - A level design.**

**16. To enable Ofqual to secure standards in A levels (GCEs), the rules outlined in Condition 4 are:**

**Needed?**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Sufficient?**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Do you have any comments or suggestions?**

Ofsted has recently criticised the lack of problem solving and investigation in mathematics teaching and learning. It would help to ensure that teachers and learners address these shortcomings if 'extended writing' were replaced with 'extended response' with some clarification in the case of mathematics that this includes problem solving and reasoned responses/proof.

**17. To enable Ofqual to secure standards in A levels (GCEs), the rules outlined in Condition 5 are:**

**Needed?**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Sufficient?**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Do you have any comments or suggestions?**

Synoptic questions are not necessarily going to test problem solving skills and extended reasoning/proof, and these are important feature of mathematics learning and assessment. Some demands for these to be included should form part of the proposed reforms.

**18. To enable Ofqual to secure standards in A levels (GCEs), the rules outlined in Condition 6 are:**

**Needed?**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Sufficient?**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Do you have any comments or suggestions?**

Making the purpose and balance clear does not form a sufficient condition for a suitable purpose and balance, let alone to secure standards. There need to be agreed requirements at least at a minimum level for ensuring a healthy balance between knowledge and application.

**19. To enable Ofqual to secure standards in A levels (GCEs), the rules outlined in Condition 7 are:**

**Needed?**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Sufficient?**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Do you have any comments or suggestions?**

This condition on the proportion of external assessment and comparable requirements is necessary but by definition not sufficient to secure standards. Other conditions are required.

**20. I believe that a minimum of 60 per cent external assessment is the correct proportion for most subjects.**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Do you have any comments or suggestions?**

This would be acceptable for a mathematics specification.

**21. I believe that the weighting of synoptic assessment should be flexible.**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Do you have any comments or suggestions?**

The amount of synoptic assessment should be similar in different subjects, and should certainly be consistent across different specifications for mathematics/further mathematics. In mathematics, synoptic assessment is seen as important but should also be taken in partnership with application and problem solving questions.

**Questions on Section 3: Design rules - Qualification support**

**The following questions refer to Section 3: Design rules - Qualification support.**

**22. I believe that universities should be able to provide this level of engagement.**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**23. I believe that the level of support required is sufficient to demonstrate that the qualification will allow progression to study at higher education.**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Do you have any comments or suggestions?**

It is to be hoped that universities will have the capacity and commitment to be involved with examination boards, but it is also essential that their input is balanced by others' perspectives. Top down reform has not always worked as expected, and it is important that specifications are appropriate in the context of GCSE content and the learning capacities and styles in schools and colleges.

Universities themselves have differing styles of assessment, and it is essential that examination boards look to professional and teaching representatives as well as universities when developing specifications. The requirement to provide such expertise may need to be backed by funding to allow adequate time for in-depth discussions between all parties if genuine engagement is to be facilitated.

**24. Do you have any suggestions about how we might categorise universities as defined in Condition 8?**

No

**25. Would you propose a different number or proportion of universities providing support?**

Yes

No

**Do you have any comments or suggestions?**

We think that representatives of all groups of universities should be involved in all specifications to avoid fragmentation.

**26. I believe that the level of support required is sufficient to demonstrate that most universities will accept a qualification for entry.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**Do you have any comments or suggestions?**

See above – representatives of each type of university should be involved in each specification.

**27. I believe that the support required should also provide additional assurances to those set out in paragraphs 73 and 74.**

Yes

No



**If your answer is Yes, please give further details:**

We think that it is important for other groups to be represented, and this should be more heavily emphasised and integral to the development of specifications. These groups should include representatives of subject associations and learned bodies, as well as the teaching profession and employers. In other words, 'requirement' replaces 'expectation' in point 29.

**28. I believe that exam boards should be expected to consult schools, colleges and employers specifically for each qualification.**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Questions on Section 4: Exceptions**

**The following questions refer to Section 4: Exceptions.**

**29. Exceptions to Condition 1 should be allowed in relation to the purpose of A levels.**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**30. Exceptions to Conditions 4–7 should be allowed in relation to the design of A levels.**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree

**31. Exceptions to Condition 8 should be allowed in relation to the support secured for an A level.**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**32. If you anticipate that there will be particular challenges for specific subjects which may require exceptions, please outline them below.**

We are very concerned about the position of further mathematics, and think that it will require special consideration in the reform programme to ensure attractive, worthwhile and challenging specifications can be constructed to fit alongside A level mathematics.

**Questions on Section 5: Making sure standards are right year on year**

**The following questions refer to Section 5: Making sure standards are right year on year.**

**33. These review arrangements are sufficient and appropriate to secure standards.**

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

**Do you have any comments or suggestions?**

The MA is pleased that universities are to play a part in the development of specifications, and looks forward to providing complementary expertise in 16-19 education and assessment from within its membership. We are concerned by a move away from a defined core, and concerned whether Ofqual has sufficiently robust procedures to ensure comparability of specifications in mathematics and further mathematics in the absence of nationally agreed content.

**Questions on Section 6: Implementation**

**The following questions refer to Section 6: Implementation.**

**34. I support the proposed staged approach to the reform of A levels.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**35. I agree that all current A levels should have been reviewed by 2018.**

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

**36. I agree that the priority subjects for implementation in September 2014 should be:**

Please rank in order of preference, 1 being your first choice.

\_\_\_\_\_physics, chemistry, biology

\_\_\_\_\_French, German and Spanish

\_\_\_\_\_mathematics

\_\_\_\_\_English literature

\_\_\_\_\_geography and history

\_\_\_\_\_a combination

### **Do you have any suggestions for other subjects/combinations of subjects?**

We do not think it advisable that mathematics is made a priority subject. The key position of mathematics at the heart of STEM education means that it is essential that mathematics assessment is robust. In particular, the mathematics community needs time to develop appropriate models to allow viable programmes of study for mathematics and further mathematics courses. The current modular system has allowed mathematics/further mathematics to regain ground lost after the Curriculum 2000 reforms, and we are seeing steadily increasing uptake in both qualifications.

#### **General questions**

### **37. Do you have any additional comments in relation to all proposals as set out in Sections 1- 6.**

A level mathematics under its modular form has been fit for purpose for a wide range of learners. The flexibility of the current structure has allowed for some specialisation eg by opting for statistics, mechanics or decision mathematics alongside the core modules. This has contributed to the large increase in uptake since 2003. We have already highlighted the key role of further mathematics in contributing towards meeting the need for STEM graduates, apprentices and employees. The growth in further mathematics has been made possible not only by a specialist support network, but also by the very nature of a modular course. We are concerned about the impact of proposed changes on this very positive progress and would like our association and other professional mathematics bodies to play a part in ensuring that further mathematics remains an accessible option for as wide a range of learners as possible.

#### **Your details**

**Name\***

Jenny ORTON

**Organisation\***

School/College

Training Provider

Higher Education Institute

Awarding Organisation

Learner/Learner

Parent/Carer

Employer

Representative group/Interest Group

Government Body/Organisation (national and local)

Other (including General Public)

**School / College type**

- Academy and/or Free School
- Comprehensive
- State Selective
- Independent
- Special School
- FE/Sixth Form
- None of the above

**Is your institution a member of any of the following groups?**

- Russell Group
- Million+
- 1994 Group
- University Alliance
- GuildHE
- UUK
- None of the above

**Your role**

Chair, Post 16 Subcommittee of the Mathematics Association

**How many staff does your business employ (full or part time)?**

- Less than 50
- 50 to 249
- 250 or more

**Representative group / interest group type**

- Learned Body / Subject expert group
- Equalities group
- Unions
- Sector Skills Council (SSC)
- QAA
- UCAS
- Other voluntary or community group
- None of the above

**Organisation name\***

The Mathematical Association

**Nation\***

- England
- Wales
- Scotland
- Northern Ireland
- International

**Email address\***

Jennifer@orton.demon.co.uk

**May we contact you for more information?**

Yes

**Would you like us to treat your response as confidential?**

Yes

**We are changing the way we communicate. We want to write clearly, directly and put the reader first. Overall, do you think we have got this right in this document?**

Yes

No

**Do you have any comments or suggestions?**

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