

Ofqual A level reform consultation

Response from MEI

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, 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?

- Your equality analysis states:

We note that our proposals regarding the elimination of modular assessments, following the input from respondents to recent research, may have a potential impact on learners. In particular, we recognise that a single high-stakes examination system may not be suitable for all candidates.

Many students have a 'high-risk' perception of mathematics. Modular assessments reduce the 'high-stakes' nature of examinations and give a wider range of students the confidence to choose AS/A level Mathematics. Modular assessments are a formative learning experience for students, helping them to establish the standard and increase their confidence. At a time when it is widely recognised that we need to encourage more students to study mathematics beyond GCSE level, it would be a very high-risk strategy to introduce changes that may deter students from choosing to study AS/A level

Mathematics.

The modular nature of AS/A level Mathematics and Further Mathematics facilitates the increased uptake of Further Mathematics and the work of the Further Mathematics Support Programme. The number of students taking A level Further Mathematics has more than doubled in the last 5 years, a change that is greatly valued by our leading university STEM departments. It would be a tragedy if changes to the structure of A levels resulted in a reduction in the number of students taking Further Mathematics, destroying a major success in A level provision and undoing years of good work.

Many believe that modularity has had a positive influence on girls' uptake of AS/A level Mathematics, perhaps because girls are more risk averse than boys. Much work has been done to increase girls' uptake of mathematics and it would be very unfortunate if an unintended consequence of A level reform were to put girls off taking mathematics. Research should be carried out to assess the effects of the removal of modular examinations on girls' subject choices.

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?

- The mechanism by which universities would determine subject content is unclear. There seems to be a consensus that the content of the current AS/A level Mathematics core is about right.
- It would be sensible for all AS/A level Mathematics specifications to continue to include the same core within their overall content, so that universities and employers are aware what mathematics students have studied.
- It is also fundamentally important that there be broad comparability of demand between subjects, as well as between different specifications for the same subject, otherwise there is a risk that students will be more likely to choose less demanding subjects, or be encouraged by their schools and colleges to choose them.
- AS/A levels, and AS/A level Mathematics in particular, are not only about qualifying for university. They also help prepare people for employment, so employers and their representative bodies should also have a voice in determining subject content.

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.

CS discussion draft 3, 11/09/12

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?

- **The consultation is about A levels as a whole. We do not believe this is appropriate; reforms that may work for some subjects would not work for others, and could prove very damaging. As a curriculum development body for mathematics, MEI is responding to this consultation from the viewpoint of AS/A level Mathematics and Further Mathematics. Our responses relate to mathematics qualifications only.**
- It is important to recognise that AS/A level Mathematics and Further Mathematics are taken primarily to support the future studies of students going on to degree courses and careers in subjects other than mathematics (less than 10% of A level Mathematics students go on to study Mathematics at university), so the needs of a variety of subjects, including physical sciences, social sciences, engineering and economics/business should be considered when designing AS/A level Mathematics and Further Mathematics specifications. The 2011 Russell group report '[Informed Choices](#)' lists Mathematics and Further Mathematics as major 'facilitating subjects', i.e. those that are most frequently required for entry to university courses.
- An increasing number of universities are now encouraging prospective mathematics undergraduates to take AS/A level Further Mathematics, as well A level Mathematics.
- A key purpose of A levels is to provide a suitable course of study to allow 16-18 year olds to further their understanding – this is especially true of A level Mathematics. Condition 1 should recognise this; as it stands, condition 1 is overly utilitarian about the purpose of A Levels.
- The use of A level grades to form a basis for school and college accountability measures at age 18 can discourage schools and colleges from advising students to take A level Mathematics if they are likely to get a better grade in a different subject, even when the students' best interests would be served would if they took A level Mathematics. It is reasonable that the A level grades should be used as one element of school and college accountability measures, but not that they should form their basis. School and college accountability should not be a purpose of A level design.
- There is also a danger that using A level grades to form a basis for school and college accountability measures at age 18 will continue to encourage the 'teach-to-the-test' culture that is currently distorting teaching and learning in many schools and colleges.

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?

- Giving the grades different labels would help prevent invalid comparison of students' attainment between 'old' and 'new' A levels.

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?

- The A* grade (see qu 8), as currently awarded, is not appropriate for mathematics. However, an A* grade that identifies real mathematical ability certainly is needed. Students currently achieve an A* in A level Mathematics by scoring very highly on standard questions, i.e. for not making careless mistakes, rather than for demonstrating real mathematical flair. It would be far better to identify mathematically gifted students in some other way, which would test their ability to answer questions with less structural scaffolding and allow them to demonstrate creative mathematical problem solving skills.
- Assessing A* in a more appropriate way would also highlight the value of high-level mathematical problem solving skills to students, and encourage teachers to foster these skills among our best young mathematicians. These skills are greatly valued by universities and employers.

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?

- See question 7 for comments relating to the A* grade.

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

Condition 3 - Qualification structure and availability of assessments

10. The opportunity for assessment in January should be removed.

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

11. 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

12. 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

13. 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?

- Option 1 would be a very negative step. The assessment of AS level at the end of year 12 helps to ensure that students are motivated to work hard in the first year of a two-year A level course and gives a valuable indication of progress and potential, which is useful to students, teachers and universities. Furthermore, AS Mathematics and FM, which could be taken over two years, form a very useful qualifications for many students, improving their preparation for university across a wide range of subjects and helping to

increase participation in mathematics beyond GCSE level.

- Research is needed to determine the likely effects of changing the relative weightings of AS and A2, or decoupling AS from A2 so that AS marks do not contribute to A2 grades. Awarding bodies could carry investigate this using previous years' data (the results of such analysis should be treated with great caution as the behaviour of students and teachers will change if the weightings change), and any possible new arrangements should be properly piloted.

Mathematics is a 'synoptic subject', which continually builds on itself. Before the introduction of the AS level, many A level Mathematics students did insufficient work in year 12 and so built inadequate foundations on which to develop their mathematical skills in year 13. There is a danger that if AS performance did not count towards the final A level grade, this problem would arise again.

- Paragraph 51 proposes that all future A level qualifications are no longer split into modules. This would be a very negative step for AS/A level Mathematics and Further Mathematics – see comment re Q16. For this reason we are not able to respond positively to option 3.

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

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

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

15. I believe that where a student resits an assessment the highest mark should count towards the student's qualification.

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

16. 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:

- Research is needed to inform this – see the response to question 13.

Do you have any further comments or suggestions?

- Paragraph 51 proposes that all future A level qualifications are no longer split into modules. This would be a very negative step for AS/A level Mathematics and Further Mathematics. The modular applied options within A level Mathematics and Further Mathematics allow students to make appropriate choices in line with their aspirations; potential social scientists can benefit from statistics options, whereas potential engineers and physicists can benefit from mechanics options, and potential business students can benefit from decision mathematics options.

The modular applied options also help schools and colleges to timetable Mathematics and Further Mathematics efficiently and if they were lost it is likely that fewer schools and colleges would be able to offer Further Mathematics.

Ofqual's international comparison work raised the following issue:

'The number of different mathematics assessments at a variety of levels available to students in many education systems was also in contrast to A level Mathematics. Is there a need for A level Mathematics to have further lower-level options in addition to AS?'

MEI believes that there should be additional mathematics options available for students who do not wish to take AS Mathematics. This can best be achieved in a modular system which enables transfer between pathways. This idea is expanded upon in MEI's recent discussion paper, ['How might A level Mathematics be improved?'](#).

- The removal of the modular structure for A level Mathematics and Further Mathematics may also have the effect of putting students off taking them, by raising the stakes of individual examinations and making them seem 'higher risk'. The uptake of both A level Mathematics and Further Mathematics has increased very significantly in recent years and proper consideration should be given before making any changes that could jeopardise these increases. It would be disastrous if A level Mathematics and Further Mathematics numbers fell as a consequence of the A level reforms.
- Teachers' views should be sought on January examinations in AS/A level Mathematics; there are arguments, both for and against, which should be carefully assessed. These arguments are explained in MEI's recent discussion paper, ['The case for and against January sittings of AS/A level Mathematics papers'](#).
- AS examinations could count towards the AS grade only and A2 examinations could count towards the A2 grade only (with the award of an A2 being dependent on having passed the associated AS). However, careful work should be done to consider what potential unintended consequences might arise from such a change.

Questions on Section 3: Design rules - A level design

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

17. 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?

- An exception to the extended writing requirement will be needed for mathematics, as noted in paragraph 75.
- Research should be done to determine whether multiple-choice could be a valid form of assessment for some aspects of AS/A level Mathematics.
- Requiring a variety of question types, while undoubtedly important, is not in itself, sufficient to secure standards.

18. 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?

- Requiring synoptic assessment, while undoubtedly important, is not in itself sufficient to secure standards in A levels.
- More appropriate assessment for the A* grade in A level Mathematics, as suggested in our comments following question 7, would strengthen synoptic assessment in A level Mathematics.

19. 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?

- Being clear about the purpose, nature and requirements of assessment, while undoubtedly important, is not in itself sufficient to secure standards.
- Important skills for A level Mathematics should also include applying mathematics to solve unfamiliar problems, mathematical modelling, interpretation of solutions and comprehension.

20. 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?

- Assessment requirements relating to proportions of external assessment or comparability across awarding bodies, while undoubtedly important, are not in themselves sufficient to secure standards.

21. 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?

- MEI is qualified to answer this question for mathematics, and we believe a minimum of 60% to be appropriate; other subjects may be different.

22. 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?

- Different specifications for the same subject should have the same weighting of synoptic assessment. It may be appropriate for different subjects to have different weightings.
- Mathematics builds on itself, it is a synoptic subject. This makes it especially difficult to measure synopticity in mathematics.

Questions on Section 3: Design rules - Qualification support

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

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

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

24. 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?

- Mathematics departments should certainly be involved with AS/A level Further Mathematics but university experts from other subjects and employers' representatives should be the main drivers for AS/A level Mathematics as it serves so many different degree courses.
- It is essential that the university representatives involved understand the relationship between the outcomes they want, A level assessment, what actually happens in the classroom and what influences 16 year-olds to choose to take mathematics (or to choose not to take it). This will involve universities working with practising A level teachers.
- The FMSP already plays a key role in providing an interface between school/college mathematics and universities and is well placed to make a key contribution.

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

None.

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

- Yes
- No

Do you have any comments or suggestions?

- Without knowing the basis of the numbers given in condition 8 it is not possible to give a meaningful response.

27. 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?

- Only universities can answer this question.

28. 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:

29. 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.

30. 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

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

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

32. 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

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

- It could be argued that mathematics is an exception to everything in this consultation because of the multiplicity of its end users, across a very wide range of academic disciplines and careers.
- Mathematics will certainly require an exception to the extended writing requirement of condition 4.

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.

34. 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?

- What processes will Ofqual use to ensure the quality and standard of assessments are in line with awarding body proposals? How will Ofqual be sure that awarding bodies monitor that the requirements set for schools and colleges are met, or that markers are of the appropriate standard, are properly trained and work to a consistently high quality? If standards change, how will that be recognised?

Questions on Section 6: Implementation

The following questions refer to Section 6: Implementation.

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

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

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

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

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

- Changes to A level Mathematics should not be implemented in September 2014. Mathematics is a key facilitating subject, and new post-16 mathematics pathways need to be developed to help fulfil Michael Gove's ambition to increase greatly participation in mathematics. To produce a coherent curriculum, the development of new level 3 Mathematics pathways must take place alongside A level Mathematics reform. If the A level Mathematics reforms are not effective, the whole A level reform process will be undermined. It is vital that reforms are not rushed, so that appropriate development and consultation can take place. For this reason changes to A level Mathematics should not be attempted for implementation before September 2016 at the earliest.

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

- It is for those with specialist knowledge in other subjects to suggest when changes to their A levels should be implemented.
- It would seem sensible to introduce new A levels in all subjects simultaneously, ensuring students' subject choices are not influenced by perceived differences in standard between those subjects with 'old' A levels compared to those with 'new' A levels.

General questions

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

- Changes must be considered very carefully and not rushed for any reason. A level Mathematics numbers plummeted as a result of the Curriculum 2000 reforms. It would be disastrous if similar unintended consequences were to happen again.
- In recent years considerable work has been done to increase the numbers of students taking AS/A level Mathematics and Further Mathematics. This work has been highly successful and very significant gains have been made. JCQ data show that between 2003 and 2012 AS and A level Mathematics entries in England have increased by 135% and 72% respectively and AS and A level Further Mathematics entries in England have

increased by 539% and 152% respectively. It would be a tragedy if rushed reforms put these impressive gains at risk.