



Elizabeth Truss MP

Parliamentary Under Secretary of State for Education and Childcare

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Professor David Arrowsmith
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5 June 2013

Dear David,

Thank you for inviting me to the Heads of Department of Mathematical Sciences Conference. I enjoyed our lively discussion about Maths Free Schools, and wanted to write to you to continue my advocacy of them. I would also like to take this opportunity to share some further information about our proposed core maths qualifications and about further maths. I'd appreciate it if you could distribute this to HoDoMS members.

Specialist Maths Free Schools

This country has some brilliant University maths departments and world famous mathematicians, but there is no denying there is a big jump between studying maths in schools and colleges – even for those students taking A-Level Further Maths – and what those young people go on to study at university. Our aim is for the new specialist maths schools to bridge the gap between school and university maths and in doing so, demonstrate how new approaches can bring dramatic improvements in performance that could be applied more widely.

As I said at HoDoMS, the Secretary of State has provisionally approved two such schools: one led by King's College London and the other by the University of Exeter. I want to encourage other universities to consider whether they could run similar schools: selective, innovative, and stretching our brightest and best young mathematicians. It is a logical extension of the role that dozens of universities have already played in sponsoring Academies.

I also wanted to highlight to your colleagues that Professor Les Ebdon, Director of the Office for Fair Access, is enthusiastic about the role university led Maths Free Schools can have in encouraging more young people to go on to study maths at university, and to reap the benefits that brings. Professor Ebdon has also confirmed to me that he considers the sponsorship and development of Maths Free Schools as contributing to higher education 'widening access'

activity, and that it would be perfectly legitimate to allocate funding ring-fenced for improving access for underrepresented groups towards the establishment of such schools.

Unlike our usual practice for Free Schools, there is no competitive application process for Maths Free Schools. Instead we ask interested universities to submit a short proposal setting out the key features of the school. These proposals need not be long: King's and Exeter both submitted initial proposals that were around 12 pages covering:

- the proposed ethos of the school, the aspirations for the achievement of pupils and the role that the university expected to plan in the running of the school;
- the curriculum the school will follow (including the proportion of time spent teaching each subject), qualifications which might be offered, the approach to teaching and learning and how these will help to develop mathematical thinking and prepare students to study maths at top universities;
- the planned yearly intake, number of pupils when at full capacity and details of how pupils will be organised;
- details of the school timetable and calendar (so for example, the length of the school, day, term and year, and any plans for extended hours);
- the proposed staffing structure (including involvement of university staff or students) and how this will deliver the curriculum;
- outline financial plans; and
- details of how the school will share learning and resources with nearby schools and colleges, and more widely.

Both King's College London and the University of Exeter had a number of detailed discussions with colleagues in the Department to develop and refine their proposals and we are always happy to work with universities to help them focus their plans before submitting a formal proposal. If we approve a proposal, we do then offer financial support to cover the costs of project management, and recruiting some staff before the school opens, in the same way we would for any Free School.

Core maths

The availability of appropriate qualifications is crucial to increasing participation in maths study post 16. We have identified that appropriate qualifications are not available to fully meet the needs of all students who achieve a grade C or better at GCSE, but do not currently progress to AS or A level mathematics. While AS and A level mathematics are appropriate for those studying STEM programmes, they may not meet the needs of those following other subjects such as social science or art subjects.

We propose to introduce a new 'core mathematics' qualifications which will be designed to meet the needs of such students. We expect core mathematics to be taken over two years and similar in size to an AS qualification. The Department is currently funding the work of Mathematics in Education and Industry (MEI) to develop a mathematical and statistical problem solving curriculum that will be appealing to students across all disciplines, based on Professor Tim Gowers' well-known blog. We are also working with Ofqual and Awarding Organisations with the aim that new core maths qualifications should be available for first teaching from September 2015.

We would encourage all universities to look at these qualifications as they become available and to begin to ask for them from students. This is the best way to drive uptake in schools and in the longer term secure a more mathematically literate country. I see a key role for mathematics departments here, as you are best placed to help admissions tutors and colleagues in other departments to see the benefits of maths study for their courses and I would like to ask for your support with this.

Further Maths

There has been a 33 per cent increase in the last five years in pupils entering A level Mathematics (from 64,593 to 85,714 pupils) and a 45 per cent increase for A level Further Mathematics (from 9,091 to 13,223 pupils). Entries have more than doubled since 2002. But, despite this rapid growth, Further Maths A level uptake is still relatively low. The Further Maths Support Programme (FMSP) helps promote Further Maths, helping ensure that every institution that offers Maths A level also offers Further Maths. We have tendered for an enhanced FMSP which will extend this work and also provide extra support for teachers in preparing their students for STEP, AEA and MAT.

Admissions statements and entry requirements from universities which emphasise the importance of Further Mathematics have helped to create the demand from students for Further Mathematics. It would be a great help to us if mathematics departments included encouraging statements about the benefits of studying A or AS level Further Mathematics in their prospectus and website, differentiated the grades in their offer for students with Further Mathematics or made A or AS level Further Mathematics an entry requirement for the course.

Please get in touch if you or any of your colleagues would like to discuss this further. Victoria Dare (020 734 07871 or victoria.dare@education.gsi.gov.uk) is happy to answer any questions that your members might have in the first

instance about Maths Free Schools and Stephen Rogers (07825 105186 or stephen.rogers@education.gsi.gov.uk) about maths more generally. My Ministerial colleagues and I would also be delighted to meet with universities considering setting up a Maths Free School.

With best wishes,

A handwritten signature in blue ink, appearing to read 'Elizabeth Truss', written in a cursive style.

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