

Rt. Hon Ed Balls MP
Secretary of State for Children, Schools and Families
Department for Children, Schools and Families
Sanctuary Buildings
Great Smith Street
London
SW1P 3BT

30 April 2010

Dear Secretary of State,

Re: Advanced Extension Award (AEA) in Mathematics

I write as Chair of SCORE on the ongoing need for an Advanced Extension Award (AEA)-type qualification in mathematics.

SCORE is a partnership between the Association for Science Education, the Institute of Physics, the Royal Society, the Royal Society of Chemistry, the Science Council and the Society of Biology.

SCORE has recently undertaken research examining the information available to applicants choosing STEM degree courses, and has a particular interest in student progression to and success in mathematical sciences in Higher Education in the UK. SCORE's research has identified the importance of a mathematics qualification for entry to HE courses. SCORE feels that the introduction of the A* grade at A-level (and the corresponding 'stretch and challenge' material to be introduced in some A-level mathematics units) will not be effective either in discriminating between the highest achieving candidates or inspiring and challenging the very best students in mathematics; the retention of an AEA in mathematics is therefore a necessary measure which complements the way mathematics is increasingly seen as an important part of the study of the sciences.

Unlike many other A-level subjects, achieving a score of over 90% in an A-level mathematics examination is not necessarily an indication of being better prepared for a highly demanding degree course in the subject than having achieved a standard grade A. Moreover, the new grade promotes an approach to learning mathematics which does not reflect what is valued at degree level. Ultimately, it is the ability to 'think mathematically' – rather than merely master the content of a syllabus and complete standard questions to a very high level of accuracy – that is the best determinant of future success in mathematical sciences in Higher Education; the Advanced Extension Award is an effective way of measuring this skill amongst those that have access to the qualification, and the nature of the AEA examination encourages a healthier approach to mathematics which stimulates and inspires students working at the highest level.

One might presume that this issue can be tackled simply by introducing AEA-type questions to A-level examinations. The intention of improving the 'stretch and challenge' content at A-level is welcome, but the breadth of the ability of the A-level mathematics cohort renders it wholly impractical to include a sufficient number of questions that truly test the very best students to the extent that the AEA does. As ACME states, this is not a failing of the A-level as a qualification but is a natural consequence of the variety of destinations and purposes for which the subject is studied. An attempt to provide for the whole cohort through A-level mathematics alone would either be ineffective at the top end or would render parts of the examinations inaccessible to the majority of students and damage participation rates; neither of these is in the national interest.

The SCORE partners strongly support ACME's position that the AEA in mathematics should be retained until such time as an improved replacement has been developed. Moreover, we hope that DCSF will commit the necessary resources – working with key stakeholders across the community – to develop such a replacement for the AEA.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Graham Hutchings', with a stylized flourish at the end.

Graham Hutchings

SCORE Chair

cc David Bell, Permanent Secretary (DCSF), Andrew Hall, Chief Executive (QCDA) and Stephen Axford, Head of Science and Society (BIS)