Westminster Education Forum Keynote Seminar

Reforms to Science at GCSE and A-level: content, delivery and practical skills

Timing: Morning, Thursday, 17th July 2014

Venue: Glaziers Hall, 9 Montague Close, London SE1 9DD

Agenda subject to change

8.30 - 9.00 Registration and coffee

9.00 - 9.05 Chairman's opening remarks

Baroness Jones of Whitchurch, Shadow Spokesperson (Education), House of Lords

9.05 - 9.30 Reforming science at GCSE and A-level

Tom Goldman, Deputy Director, Curriculum and Standards Division, Department for Education

Questions and comments from the floor

9.30 - 10.20 New Science GCSEs: content and implementation

What are the teaching and learning implications posed by the move to new linear GCSEs, with coursework and modules removed? Does the content of the new Science GCSEs link with the content of the Maths GCSE in a way that will adequately facilitate cross-curricular teaching? How can Government address concerns that making the content of the GCSEs more challenging has the potential to put pupils off taking up Science at GCSE and A-level? How well will the new GCSEs prepare students for the transition to A-level? Given that 'triple Science' - the three individual Science GCSEs - consist of more advanced content than the Science Double Award qualification, what steps can schools take to ensure that those studying the Double Award are not at an unfair disadvantage in preparation for A-levels? Should Government take steps to encourage all schools to offer the option of studying 'triple Sciences' at GCSE?

Professor Jim Ryder, Principal Investigator, Enactment and Impact of Science Education Reform (EISER) and Professor of Science Education, Centre for Studies in Science and Mathematics Education, University of Leeds

Stella Paes, Head of Science, AQA

Siôn Humphreys, Policy Adviser, Curriculum, NAHT

Katy Bloom, Senior Professional Development Leader, National Science Learning Centre

Questions and comments from the floor

10.20 - 10.25 Chairman's closing remarks

Baroness Jones of Whitchurch, Shadow Spokesperson (Education), House of Lords

10.25 - 10.55 Coffee

10.55 - 11.00 Chairman's opening remarks

Dr Sarah Main, Director, Campaign for Science and Engineering (CaSE)

11.00 - 11.50 Reformed A and AS-level sciences: content, delivery and preparation for Higher Education

Does the content of the new A-level science qualifications fulfil the Government's aim of equipping young people with the skills required by relevant employers and related university courses? How can Government and Ofqual address concerns expressed by learned societies that there needs to be 'more clarity' on the different 'purpose and the content' of A-levels and AS-levels, in light of the decision to de-couple AS-levels? Given that all A-level Sciences will test mathematical skills, what steps can be taken to ensure that there is appropriate weighting of the mathematical skills tested between different subjects? What steps can be taken to address the significant gender imbalance in the uptake of Science at A-level and beyond into Higher Education?

Professor Peter Main, Director, Education and Science, Institute of Physics

Dr David Read, Principal Teaching Fellow and Head of Education Group (Chemistry), University of Southampton

Dr Rhys Morgan, Director, Engineering and Education, Royal Academy of Engineering

Stephen Diston, Subject Team Manager, OCR

Richard Needham, former Chair, The Association for Science Education and Director, Vicia Learning Solutions Ouestions and comments from the floor

11.50 - 12.05 The role of practical experiments in science education

Professor Ian Haines, Executive Secretary, UK Deans of Science and Emeritus Professor,

London Metropolitan University

12.05 - 12.55 <u>Delivering Science across Key Stages 4 and 5 - practical experiments, industry involvement and utilising technology</u>

Do Ofqual's proposals to set a minimum of 12 'practical activities' to be completed during a Science A-level course, but not included in the final grade, suitably address concerns raised by learned societies and businesses about the role of practical assessments? How should practical experiments be included and assessed in the reformed GCSEs? In what ways can Ofqual ensure that there is consistency between the way in which practical and theoretical skills are assessed across all science qualifications? What more can Government do to encourage universities, learned societies and science-intensive industries to develop support for schools to deliver the new GCSE and A-level Science courses? What steps can schools and colleges take so that they make effective use of new technologies, such as 3D printing, to develop and enhance practical skills? How can schools use learning technologies to help develop pupils' analytical and problem-solving skills to better prepare them for Higher Education?

Dr Marianne Cutler, Director, Curriculum innovation, The Association for Science Education

Dr Mark Downs, Chief Executive, Society of Biology

Dr Lisa Jardine-Wright, Co-Director, Rutherford Schools Physics Project and Educational Outreach Officer,

Cavendish Laboratory, University of Cambridge

Sarah Jones, Head of Education and Exams, Association of the British Pharmaceutical Industry

Questions and comments from the floor with **Professor Ian Haines**, Executive Secretary, UK Deans of Science and Emeritus Professor, London Metropolitan University

12.55 - 13.00 Chairman's and Westminster Education Forum closing remarks

Dr Sarah Main, Director, Campaign for Science and Engineering (CaSE)

Jonny Roberts, Associate Editor, Westminster Education Forum



