

Glenys Stacey  
Chief Regulator



5 February 2014

Sir Mark Walport  
Co-Chair  
Council for Science and Technology  
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Dear Sir Mark

### **Ofqual's consultation on practical science in A level qualifications**

I am responding to the letter of 17 January 2014, signed by both yourself and Professor Rothwell, which sets out the Council for Science and Technology's response to Ofqual's proposed arrangements for the assessment and reporting of A level practical science skills in England.

Like you, we recognise the importance of practical skills in science and we want qualifications and assessments that support their development. However, at the moment we do not have that.

Not only are the current assessment arrangements generally poor, they also have the potential to undermine the development of scientific skills and understanding. The evidence is that the current arrangements for assessing science practicals result in a limited range of predictable assessments which can cause schools and colleges to focus only on the skills they know will be assessed – leading to a narrowing of the curriculum. In addition, the assessments do not work well to identify different levels of student performance, as the marks tend to “bunch” at the top end. For example, we stated in our consultation that we have seen examples of practical units where the most frequently occurring mark is 40 out of 40.

There is clear evidence of dissatisfaction with the current approach to practical A level science<sup>1</sup>. The Council for Science and Technology has itself expressed the view that the current approach is not preparing young people for undergraduate science courses or scientific jobs.

In short, things do not work anywhere near as well as they should. We believe this is in substantial part because these assessments are trying to do a near-impossible job. Because the assessments contribute to the A level grade, when exam boards design the assessments they have to prioritise the security and reliability of the assessments and their accessibility to all schools, even if that means they are narrow and predictable. And these assessments have a strong influence on the skills being taught in the classroom.

We recognise that we have a culture in which teaching can too often be driven by assessments, in part under the influence of the accountability system. Relying on

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<sup>1</sup>See, for example, The House of Commons Science and Technology Committee's 2011 report *Practical experiments in school science lessons and science field trips*, and The University of York's report: *Improving the assessment of practical work in school science*.

assessments to drive teaching risks damaging both. We want qualifications and assessments a) to promote good learning and teaching, and b) that are likely to produce sufficiently valid results in the real world of schools and accountability. The issue for us, then, is how we could design alternative arrangements that would result in better assessments and would avoid narrowing the curriculum. This is what the proposals we developed for consultation seek to do.

Under our proposals, the expectation is that students would be taught a broader range of practical skills than currently and their conceptual and theoretical understanding of experimental methods would be assessed in written exams. Alongside this, we propose that the outcome of the direct assessment of a student's practical skills should be reported separately, alongside their performance in an exam. We took the view that these proposals would relieve some of the pressure on the practical assessments and would allow for more wide ranging and innovative assessments that would be at less risk of narrowing the curriculum.

Any school that concluded – as you suggest - that theory was all that mattered would be wrong. Their students would not receive a rounded scientific education. They would not have the practical experience to help them in demonstrating their understanding of experimentation in the exams and they would more likely flounder in the practical assessments.

If our proposals go ahead, we must ensure that in written examinations, exam boards test well students' understanding and abilities in experimentation and that the separate practical assessments are of good quality as well – that they test a sufficient range of valuable practical skills and are not unduly predictable, a problem with the current arrangements.

Let me assure you that we are considering carefully the concerns that you and others have raised and how we can take a principled and consistent approach to non-exam assessment across science and other subjects. I would welcome an opportunity to meet you in the near future to discuss your concerns and our thinking. Please could you ask your office to contact my PA [diane.francis@ofqual.gov.uk](mailto:diane.francis@ofqual.gov.uk) so that we can set up a mutually convenient time.

I am copying this letter to recipients of yours, to Graham Stuart MP, Chair of the Education Select Committee and Sir Michael Wilshaw. We will also be publishing a copy on our website.

Yours sincerely

A handwritten signature in black ink, appearing to be 'Glenys Stacey', written in a cursive style.

**Glenys Stacey**  
Chief Regulator