

Assessment & Qualifications Team  
Department of Education  
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19<sup>th</sup> December 2013

**Re: Fundamental Review of GCSE and GCE Qualifications - Consultation on proposed recommendations**

To Whom It May Concern:

The Institute of Physics in Ireland welcomes the opportunity to submit a response to the Department of Education consultation on the proposed recommendations from the fundamental review of GCSE and GCE Qualifications.

The Institute of Physics in Ireland is a scientific membership organisation devoted to increasing the understanding and application of physics in Northern Ireland and the Republic of Ireland. It has over 2000 members, and is part of the Institute of Physics.

The Institute of Physics has a world-wide membership of over 50,000 and is a leading communicator of physics-related science to all audiences, from specialists through to government and the general public. Its publishing company, IOP Publishing, is a world leader in scientific publishing and the electronic dissemination of physics.

This submission was prepared in consultation with the IOP in Ireland's governing committee, its Education Group and with input from members of the Institute working in education at all levels. The attached document highlights key issues of concern to the Institute.

If you require any further information or clarification, please do not hesitate to contact the Institute at the above address.

Yours sincerely



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Chairperson  
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## **Fundamental Review of GCSE and GCE Qualifications – Consultation on proposed recommendations**

### **Response from the Institute of Physics in Ireland**

**19<sup>th</sup> December 2013**

This response is confined to issues related to the teaching and learning of physics. Hence the Institute is not making any recommendations re retaining or replacing the current GCSE and GCE examination systems, since this is essentially a political decision. However, we point out that physics is only available at one university in Northern Ireland. Therefore, it is essential that any system should allow students to have access to the English universities, including the most prestigious. Consequently, there would appear to be two plausible routes for the examination system in Northern Ireland. One would be to follow closely the route that England is taking, which would ensure, for example, that the standard of the A-levels had common currency between the two jurisdictions. The other would be to move to a completely different system, as in Ireland, in which case the English universities would develop a corresponding set of admissions criteria. The position to avoid would be to continue with a set of qualifications with the same names as the English versions but with different standards. In relation to GCSE, the issues are different and it would certainly be possible to follow England at A-level and not at GCSE.

This response also draws upon submissions that the Institute has made to recent consultations in Wales and England on similar reviews of qualifications. These submissions were made in conjunction with the Association for Science Education, the Institute of Physics, the Royal Society, the Royal Society of Chemistry and the Society of Biology (known together as SCORE <http://score-education.org/home> ).

### **GCSE Qualifications**

Whichever qualification option is chosen for Northern Ireland, we have some views on the structure of the teaching and learning of sciences at 14 to 16 (current GCSEs).

The Institute does not believe that single-tiered assessment can accurately and fairly measure performance across the whole ability range, and therefore we would support the retention of some form of tiered assessment.

The IOP would like to see the quality of assessment placed at the centre of any reform. It is the content and quality of assessment that drives teaching in schools, rather than the specifications. It is imperative that assessment is well designed to ensure full curriculum coverage and progression in the development of skills.

If new qualifications are to be put in place for the end of Key Stage 4, they must have a clearly defined purpose. This must be considered alongside and separately from any changes to the accountability structure for schools. SCORE has developed guidelines for science qualifications at key stage 4 to help inform specification development and selection. This guidance document is not specific to England and it will apply to any qualification at 16. (Ref 1).

A major concern of the IOP in any change to the system is that the sciences should be core subjects in the school curriculum to age 16. They should have separate identities (whether as part of a double or triple award) and be taught by subject

specialists and they should be balanced up to the age of 16.

Practical work is an essential part of science and must be safeguarded in any reform. Practical work must therefore be assessed as part of any Key Stage 4 qualification in science subjects; without assessment, either internal or external, there would be a severe risk that practical work will no longer be taught in science lessons.

### **GCE Qualifications**

A-levels are in need of reform. They are not encouraging high quality teaching and learning and they are not preparing students for the next stage in their lives – most notably higher education. Note that the vast majority (95+%) of students achieving Physics A-level progress to university, almost all of them to pursue a STEM subject.

We believe that the best way to secure the appropriate expert input for A-level design would be with the formation of national subject committees. At A-level, there is discussion in England about national subject committees and we advocate the use of such committees to act as guardians of the subject. These committees might also have oversight of GCSEs and there is an argument to be made for them operating in Northern Ireland as well as England (whether or not the N. Ireland government retains A-levels and GCSEs). As noted earlier the Institute suggests that if Northern Ireland wants to have A-levels, they should be on a par or better than the English versions. However, we are opposed to the current suggestion in England to separate practical and theoretical assessments, with only the latter contributing to the A-level grade. Even if England pursues this route, there is no need for Northern Ireland to do so and we strongly recommend that it does not.

The national subject committees should have responsibility for overseeing the full range of activities associated with specification and assessment development; they should set the criteria that determine specification content, specify the nature and frequency of assessment, and approve the resulting specifications and (a sample of) assessment materials. Although the focus will be on A-levels, it is important to ensure that there is coherence between A-levels and preceding years, to avoid an unbridgeable gap as students move from one stage of education to the next. Membership of the national subject committees should be such that all those who use A-levels, whether for selection, quality assurance or certification purposes, can have confidence in them as a qualification. This would mean a balance of representatives from higher education, industry, as well as the schools charged with delivering the content to students. Appointments should be made transparently, with regular turnover of membership. You may wish to note that the Institute of Physics and, we understand, the Royal Society of Chemistry and the Society of Biology, have all set up their own Curriculum Committees along these lines.

Any reform of A-level will necessitate a reform at GCSE level. Qualifications at all stages are generally used as entry to further study and therefore any reform within one qualification will impact on qualifications either side. For example, reform of A-level will necessitate a reform at GCSE level, while impacting what is taught at degree level.

### **AS Levels**

We strongly support retaining the AS qualification for a number of reasons; it provides an indication to higher education institutions on student performance which helps facilitate the admissions process; it allow students to study a wide breadth of subjects which both encourages students to study subjects they might not wish to

take to full A-level (a particular issue for science subjects which are often regarded as harder than others) and facilitates informed decision-making on progression options; and allows students studying science A-levels to take some form of mathematics or non-STEM subjects for breadth post-16.

As well as being available as a discrete qualification in its own right, the AS level should also remain as a component of the A-level. However, it should have a lower weighting than the A2 components. This is to recognise the fact that the AS represents the level of performance expected by the end of the first year of study, while the A2 reflects the fact that students have acquired a deeper learning and understanding in the subject after a further year of study. We would advise 40:60 weighting for AS and A2 qualifications. Furthermore the A2 component should assess the full two years of study and embrace a synoptic character so that students are encouraged to learn the subject holistically rather than in terms of independent modules.

We would therefore not be in favour of returning to a two-year linear course and removing the assessment at the end of the first year of the A-level course. It is important for students to have an indication of their progress, and for that achievement to be recognised in the final qualification.

#### References:

##### 1. Guidelines for the content of Key Stage 4 qualifications

<http://score-education.org/media/12525/ks4%20guidelines%20final%20version.pdf>