

The Qualifications and Curriculum Development Agency (QCDA): Advanced Diploma in Science (principal learning)**Response by the Wellcome Trust**

May 2010

1. The Wellcome Trust is a global charity dedicated to achieving extraordinary improvements in human and animal health. We support the brightest minds in biomedical research and the medical humanities. Our breadth of support includes public engagement, education and the application of research to improve health. We are independent of both political and commercial interests.
2. As stated in our strategic plan we aim to enhance science education by stimulating a culture of professional development among teachers, raising the standard of science education research and ensuring that contemporary science is integrated into teaching.
3. The Trust recognises the importance of providing clear progression paths for students into further study or employment, and therefore welcomes the opportunity to respond to this consultation. This response provides some comments about the principles and nature of the approach underpinning the Advanced Diploma in Science (referred to as the 'Diploma' throughout the response).
4. The Trust is broadly supportive of the aims of the Diploma in providing a qualification that allows students to acquire a rounded knowledge of science through a more practical style of learning, and providing opportunities to engage in work-related examples of innovation and technology. The Diploma should be a practically oriented course that is attractive to students, employers and higher education institutions (HEIs). The Trust also supports the need to address key scientific challenges in today's society which will be important in providing necessary skills to industry in the future.
5. We recognise that there is a distinct role for the Diploma alongside A level qualifications however suggest that this needs to be more clearly stated. In this context, the Trust supports the recommendation from the recent Science and Learning Expert Group report¹ that the niche for the Diploma needs to be clearly defined as an educational route for those planning to enter applied science careers.
6. Further clarification is needed regarding the purpose of the Diploma and proposed progression routes following it. This qualification has the potential to provide direct entry to technical jobs from school or college, or to provide necessary entry requirements to pursue a degree in applied sciences at an HEI. The Diploma should provide a rigorous and challenging pathway, facilitating progression for applied science and be sufficiently differentiated from, for example, a route for a student committed to undertaking further studies in medicine or natural sciences.
7. Furthermore, it is unlikely that all UK HEIs will see the Diploma as a suitable entry requirement onto STEM degree courses. HEIs need to be more explicit about which qualifications are

¹ Department for Business, Innovation and Skills (2010) *Science and Mathematics Secondary Education for the 21st Century*.

appropriate for entry to STEM courses. The QCDA should communicate with HEIs regarding this, and be realistic about progression following the Diploma.

8. A key part of the success or failure of the Diploma will be the quality of the assessment process. It will be important to ensure that assessment tests the breadth and depth of the course, and that it is robust enough to ensure proper recognition.
9. We are encouraged by the intended investigative nature of the Diploma. However, in developing the principal learning statement the role of investigation must be embedded throughout all topics. In addition, mathematics content should be fully integrated throughout the course and must be consistent with levels required in equivalent A level science subjects.
10. High quality and inspiring teaching from well-trained teachers will be crucial for the effective delivery of the Diploma. Teacher training is particularly key in science education and a comprehensive programme of tailored continued professional development (CPD) will be necessary to maintain teachers' professionalism and enthusiasm by equipping them with the skills required to deal effectively with the changes that will arise with the Diploma. This is particularly important if the Diploma is going to be an integrated multidisciplinary qualification. The Science Learning Centres, funded through a partnership between DCSF, the Wellcome Trust and industry², offer the potential to deliver appropriately tailored CPD for teachers delivering the Diploma.
11. The 'principal learning component' is only one part of the Diploma and therefore cannot contain all the science expected at advanced level. It will be important to address how the 'principal learning component' relates to the generic learning and additional and specialist learning components in terms of science content.
12. There is an urgent need to improve careers advice in schools, to ensure students are aware of the different career opportunities in science and to provide information about the benefits of studying science and technology. It will be crucial to manage students' expectations about the type of careers to which the Diploma could lead, and to provide appropriate advice and guidance to enable students to decide what type of course is right for them. Potential implications and barriers to progression in the early years of the Diploma need to be clearly communicated.
13. We hope that you find these comments useful in the development of the Diploma and would be happy to discuss any of these issues in further detail if it would be helpful.

² <https://www.sciencelearningcentres.org.uk/>