

Department for Education: Key Stage 2 Testing and Accountability Review – Call for Evidence**Response by the Wellcome Trust**

February 2011

Introduction

1. The Wellcome Trust is a global charitable foundation 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. The Wellcome Trust is committed to science education and works to support ways to develop the science skills and knowledge necessary for young people to live and work in an ever more scientific age. We recently launched our Education Strategy¹ for 2010-2020 which places “science 5-14” as a key priority area in our remit. We are, therefore, pleased to respond to Lord Bew’s review into Key Stage 2 testing and accountability.
3. Given the remit of the Wellcome Trust, our response is directed primarily at science education, however some comments are relevant to all areas of education. The key messages of this submission are:
 - i. Assessment should be intrinsically linked with the curriculum and we urge Government to consider carefully the influence of assessment on the curriculum in its review of the National Curriculum.
 - ii. The Wellcome Trust supports a system of assessment for science that is an appropriate balance of both formative and summative assessment. Assessment methods designed to measure and guide pupil performance should not be used to compare schools nationally due to the distorting influence on learning outcomes.
 - iii. Excellent teachers are the most important factor in the quality of education and to increase attainment of pupils, which requires investment in high quality recruitment, initial training and continuing professional development.
 - iv. Robust governance of schools is vital to ensure that schools are accountable to parents. Appropriate national measures of school performance need to be developed to enable effective comparability of schools and broader accountability.
4. Our response addresses the broad themes of the review, rather than answering the specific questions.

The principles of external assessment

5. Assessment must be fit for purpose – and we believe that the key purpose of good assessment is to measure, guide and motivate the learning of young people. The connection between what is assessed and what is taught in schools is central to the quality of students’ educational

¹ Wellcome Trust Education Strategy 2010–2020 (2010) “Inspiring Science Education: Extraordinary Opportunities”
http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_publishing_group/documents/web_document/wtx064002.pdf

experience and their learning outcomes. Therefore, the method and nature of assessment should be intrinsically linked with the curriculum and we urge Government to consider carefully the influence of assessment on the curriculum as part of its review of the National Curriculum.

6. Based on evidence, we support assessment that enables a good balance between formative and summative outcomes. It will need to inform students, parents and teachers of young people's attainment and progress, as well as assist children to chart their own learning, build their confidence and offer a constructive critique on their progress (Collins, Reiss and Stobart, 2008; Wellcome Trust, 2008; Harlen and Qualter, 2009²).
7. Given the importance of assessment in effective teaching, it is vital that teachers are engaged at an early stage in the design of the assessment system.

National Curriculum Tests at the end of Key Stage 2

8. As stated above, assessment must be 'fit for purpose' and we welcome the move to remove national statutory testing in science at KS2 given the indications that it was distorting both the teaching of science and the learning outcomes. In this regard, we are encouraged by the recent report by Ofsted '*Successful science*'³ which stated, "the removal of the requirement to carry out statutory tests in science at the end of Key Stages 2 and 3 has encouraged teachers to plan engaging schemes of work in science that avoid an undue focus on revision in years 6 and 9".
9. Research that we commissioned to seek the views of parents and children on assessment at Key Stage 2 tests supports this view⁴. This report found that children themselves support assessment, understand the value of KS2 science assessment in helping them to learn, and place importance on genuine feedback about how they are doing. They favour approaches that include investigations, presentations of their own projects and end-of-topic, not end-of-year testing. A copy of the executive summary of this report is included for information since it is the first report which has sought the views of parents and children on KS2 assessment.
10. In addition, our research into the '*The effects of national testing in science at KS2 in England and Wales*' showed that summative assessment developed by teachers provided a more accurate assessment of pupils' level of attainment in science than the national test results. In Wales, where KS2 testing in science was abolished in 2004, parents indicated that children learned more about science and enjoyed the subject more without national tests. Nearly six times as many parents (45 per cent) considered the 2004 change to remove national tests in Wales had been for the better than considered it had been for the worse (8 per cent).
11. Internationally, clear links have been shown between high pupil achievement and postponement of national assessments. It is worth noting that Finland, often amongst the highest ranked education systems in the OECD's Programme for International Student Achievement (PISA) survey, provides a good example of a country where national assessments do not occur until the end of compulsory education at age 16⁵.
12. While acknowledging the argument for national testing in literacy and numeracy at KS2, the weight of evidence leads us to support school-led assessment for science, without the need for national tests at age 11.

² Harlen and Qualter (2009) "The Teaching of Science in Primary Schools" (Paperback)

³ Ofsted (2010) "Successful science: An evaluation of science education in England 2007–2010"

<http://www.ofsted.gov.uk/content/download/11931/138792/file/Successful%20science.pdf>

⁴ The Wellcome Trust (2010) "Attitudes of Children and Parents to Key Stage 2 Science Testing and Assessment"

http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_peda/documents/web_document/wtx062721.pdf

⁵ Association of Teachers and Lecturers (ATL) (2008) submitted a memorandum to the House of Commons Children, Schools and Families Select Committee: "Testing and Assessment"

<http://www.publications.parliament.uk/pa/cm200708/cmselect/cmchilsch/169/169ii.pdf>

Impact on teaching and learning

13. Numerous studies show that high quality teaching is the single most effective way to drive up standards⁶. This requires recruitment and retention of high-quality teachers, appropriate teacher training and continuing professional development (CPD).
14. At the primary school level, a key issue for science is the lack of teachers who possess specialist science expertise. The report '*Successful science*' found that 70% of the primary schools visited lacked specialist science expertise limiting the challenge for some more able pupils. Within *Primary Horizons*, half of the primary teachers questioned highlighted a lack of knowledge, expertise, confidence and training in science as the main issue facing them in their science teaching. These factors highlight the need to attract more science specialists to teach in primary schools, as well as to provide continuing professional development in science to primary teachers.
15. Currently, the evidence suggests that the take-up of science-specific CPD by primary teachers is low⁷. This is despite evidence showing that primary teachers who had carried out CPD in science were more confident in nearly all aspects of their science teaching⁸. Moving forwards, it is important that primary teachers are provided with more opportunities for high quality, career-long CPD in science to help them develop their science teaching skills and increase their confidence.

Accountability to parents and the public, and use of data

16. We agree that it is important that schools are properly accountable to pupils and parents for the achievement and progress of schools and that parents have good quality information on the progress of their own children. However, we are also clear that it is important not to confuse the role and purpose of national accountability with assessment information for parents, teachers and pupils to guide and measure a pupil's personal progress.
17. Appropriate forms of assessment – including both formative and summative - should inform students, parents and teachers of young peoples' attainment and progress through KS2. It should not be used as an overall measure of system performance due to the distorting influence on learning outcomes.
18. Further work is needed to create a framework to measure system performance separately from pupil assessment. We believe that one element of performance improvement and accountability of schools should include robust local governance of schools⁹. As part of this, careful thought must go into the training and recruitment to governing bodies to ensure appropriate experience and full understanding of the role of governing body members.
19. Overall, we believe that effective assessment and accountability can only be realised if there is additional work to:
 - (a) strengthen formative assessment within schools to guide and develop pupils;
 - (b) identify a suitable range of indicators of school performance;
 - (c) strengthen accountability through effective school governance and appropriate patterns and criteria for school inspection.

⁶ The Royal Society (2010) "Primary Science and Mathematics Education, 5-14: A 'State of the Nation' Report"
<http://royalsociety.org/WorkArea/DownloadAsset.aspx?id=4294971776>

⁷ Ofsted (2010) "Successful science: An evaluation of science education in England 2007–2010"
<http://www.ofsted.gov.uk/content/download/11931/138792/file/Successful%20science.pdf>

⁸ The Wellcome Trust (2005) "Primary Horizons: Starting Out in Science"
http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_peda/documents/web_document/wtx026628.pdf

⁹ Report of the Science and Learning Expert Group (2010) "Science and Mathematics Secondary Education for the 21st Century"
<http://interactive.bis.gov.uk/scienceandsociety/site/learning/files/2010/02/Science-and-Learning-Expert-Group-Report-Annexes-31.pdf>