

Assessment of School Workforce Statistics produced by the Department for Education

A SCORE response to the UK Statistics Authority's call for evidence on the publication *School workforce in England*

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SCORE

SCORE is a collaboration of organisations, which aims to improve science education in UK schools and colleges by supporting the development and implementation of effective education policy.

SCORE is currently chaired by Professor Graham Hutchings FRS and comprises the Association for Science Education, Institute of Physics, Royal Society, Royal Society of Chemistry, and Society of Biology.

Association for Science Education

The Association for Science Education (ASE) is the largest subject association for education in the UK. Members include teachers, technicians and others involved in science education. The Association plays a significant role in promoting excellence in teaching and learning of science in schools and colleges. Working closely with the science professional bodies, industry and business, ASE provides a UK-wide network bringing together individuals and organisations to share ideas and tackle challenges in science teaching, develop resources and foster high quality continuing professional development.

Institute of Physics

The Institute of Physics is a scientific charity devoted to increasing the practice, understanding and application of physics. It has a worldwide membership of around 40,000 and is a leading communicator of physics-related science to all audiences, from specialists through to Government and the general public. The Institute's Education Department works in policy, teacher recruitment and retention, teacher support and student support.

Royal Society

The Royal Society is a Fellowship of more than 1,400 outstanding individuals from all areas of science, mathematics, engineering and medicine, who form a global scientific network of the highest calibre. The Society is committed to an evidence-based approach to supporting responsible policy-making within science and education, drawing upon high quality information and advice from its Fellows and Foreign Members, the wider scientific and education communities and others to achieve this.

Royal Society of Chemistry

The Royal Society of Chemistry is the UK professional body for chemical scientists and the largest organisation in Europe for advancing the chemical sciences. Supported by a worldwide network of over 47,500 members and an international publishing business, the Society's activities span education, conferences, science policy and the promotion of chemistry to the public.

Society of Biology

The Society of Biology is a single unified voice for biology: advising Government and influencing policy; advancing education and professional development; supporting its members, and engaging and encouraging public interest in the life sciences. The Society represents a diverse membership of over 80,000 – including, students, practising scientists and interested non-professionals – as individuals, or through learned societies and other organisations. The Society supports and recognises excellence in biology teaching and champions a biology curriculum that challenges students and encourages their passion for biology.

1. Executive summary

1.1. This response

1. The SCORE member organisations have worked together to provide the UK Statistics Authority with evidence on the Department for Education's publication *School workforce in England (SWE)*. This response is therefore supported by each of the organisations forming SCORE.
2. SCORE acknowledges that *SWE* has been remodelled to take account of the new annual School Workforce Census, which replaces the Secondary School Curriculum and Staffing Survey and Form 618g. SCORE agrees that a single annual compendium of workforce statistics is preferable.
3. This response is based on the issue of *SWE* published as SFR 6/2011, on 20 April 2011. It is understood that additional data will be published on 20 July 2011.
4. SCORE is content for its opinions to be shared with the Department for Education and for the Department to contact it in respect of these.

1.2. The importance of statistics on the workforce

5. SCORE welcomes this opportunity to provide feedback on the workforce statistics published by the Department for Education. SCORE believes that robust, reliable and accurate information on the teaching workforce should be published annually by each of the UK's national educational authorities, and that it should be possible to access this information continually (i.e. previous iterations should not be withdrawn when a new Government administration takes office) in order to enable historical comparisons.
6. SCORE has recently issued a statement on the importance of specialist teaching in the sciences, in which it proposes the establishment of a clear, agreed and meaningful definition of a sciences subject specialist teacher.¹ SCORE proposes that this definition should be used to improve the quality, consistency and reliability of records on specialist subject teachers within the workforce and as the basis for determining initial teacher training allocations in the sciences.

1.3. Headline messages

7. SCORE is concerned about the 'provisional' status of *SWE*, and the notice in the Introduction that this will be updated later – notably, at an unspecified date – in the year.² SCORE believes it would be preferable if the release date were put back in order to ensure publication of fully validated (i.e. 'final') data, thereby removing the need to publish updated or 'revised' data.
8. SCORE is concerned that schools in 18 local authorities were unable to submit a return. Regardless of whatever estimates have been made to fill in the gaps, this undermines confidence that the publication represents a true national picture. SCORE urges the

¹ SCORE 2011 *Subject specialist teaching in the sciences: definitions, targets and data* (see www.score-education.org/Publications).

² It is important to note that the date for the further release of data is not provided in the *SWE* documentation, though the home page of the Department's Research and Statistics Gateway indicates that these additional data will be available from 20 July 2011 (<http://www.education.gov.uk/rsgateway/index.shtml>, accessed 27 June 2011).

Department to undertake to ensure that all schools have access to the software required to provide a return, and that it should do this as a matter of urgency.

9. SCORE is concerned about the quality of teacher vacancy information in *SWE*. Notwithstanding the problems acknowledged in paragraph 30 of *SWE*, the vacancy data collected (i) provide an unreliable snapshot of the staff shortages in schools; and (ii) are now being collected ahead of the peak periods in which schools advertise posts (which occur in January and around Easter). Given that the Department relies on vacancy data collected through the Census to model teacher supply and inform its teacher recruitment allocations, SCORE recommends that the Department should find a means to collect vacancy data throughout the year without increasing the burden of reporting placed on schools.

Why *SWE* statistics matter to SCORE

10. The scope of SCORE's work is aimed at bringing about a reversal in the long-term low levels of participation and progression in 5–19 science (particularly evident in England and Wales). These trends have led to a chronic shortage of 'specialist' science (and mathematics) teachers, leading to the establishment of a self-perpetuating negative feedback cycle.³ This cycle must be resolved if we are to produce the scientists and technologists the UK economy desperately needs – and maintain a viable community of subject specialist teachers in the sciences and mathematics.
11. SCORE member organisations believe that quality of science education in schools, in particular the nature and extent to which practical work may be carried out inside and outside the classroom or laboratory, depends on the support of qualified technicians, of which there is an established shortage.^{4,5}
12. SCORE is particularly concerned that the member organisations, DfE and others should be able to monitor closely and access reliable and accurate up-to-date information on the numbers of specialist science and mathematics teachers and technicians in the workforce.
13. SCORE believes that such a source of reliable and consistent data would also facilitate the assessment of the impacts of policy decisions relating to the recruitment, deployment and retention of teachers. And, like the Coalition Government, SCORE would like to see all policy interventions being based on evidence.

1.4. *SWE* – specific comments

Data on nursery and primary teachers (*SWE* table 2)

14. SCORE believes that data on the nursery and primary teaching workforces should be disaggregated, reflecting (i) the distinction between preschool learning and the start of

³ Royal Society 2011 *Preparing for the transfer from school and college science and mathematics education to UK STEM higher education. A 'state of the nation' report*. London: Royal Society.

⁴ Royal Society and Association for Science Education 2002 *Supporting success: science technicians in schools and colleges*. London: Royal Society.

⁵ CLEAPSS 2002 (updated August 2009) *Technicians and their jobs*. G228. (See <http://www.ase.org.uk/documents/technician-cleapss-guide/>)

children's formal education and (ii) recognition of the importance of subject specialist teaching at primary level in affecting pupils interest, attainment and progression in science and mathematics.⁶

15. SCORE would like to see subject-specific data on the qualifications (A-level or equivalent, first degree and initial teacher training) of teachers in the primary sector included in *SWE* in order to establish a record of the number of subject specialists across all subjects within the primary teaching workforce. Evidence suggests that there is a positive correlation between subject knowledge and teaching efficacy and it has been clearly established that there is a severe shortage of teachers with in-depth subject specialist backgrounds in science and mathematics.⁷
16. SCORE would also like to see subject-specific qualifications data linked to subject leadership (cf. paragraph 19).
17. SCORE proposes that subject-specific information on primary teacher vacancies should be introduced to the *SWE* (cf. paragraph 9).

Data on secondary teachers (*SWE* table 13)

18. SCORE would like to see the information in table 13 of *SWE* modified and extended in accordance with its definition of a specialist subject teacher.⁸ In particular, it would like *SWE* to record the actual numbers as opposed to the percentages of subject specialist teachers and to do so not only by qualification types, but also by gender and age, in order to present a more complete profile.
19. SCORE believes that table 13 of *SWE* should be extended to provide a much more detailed record on the make-up and deployment of the secondary subject specialist teaching workforce. While information at the national and regional levels would be helpful, there is a need, too, for access to much finer-grained schools- and colleges-based data. As a result, the Department may wish to consider developing a dynamic interface that allows public and restricted access to workforce data and that replaces the current static spreadsheets. This could include:

Numbers of specialists

- A national breakdown of the numbers of specialists, as defined by SCORE, by gender, taking due account of the need to provide disaggregated data on the numbers of biology, 'general science', chemistry, physics and mathematics specialist teachers.
- National and regional breakdowns of the numbers of specialist science and mathematics teachers by specialism, position (e.g. Head of Department, TLR, full and part-time, etc), age, total teaching experience in years and institution type.

⁶ Royal Society 2010 *Science and mathematics education, 5–14. A 'state of the nation' report*. London: Royal Society.

⁷ Royal Society 2010 *Science and mathematics education, 5–14. A 'state of the nation' report*. London: Royal Society.

⁸ *Op. cit.*, note 1.

- Institution-level breakdowns of the numbers of specialist science and mathematics teachers by specialism, position (e.g. Head of Department, TLR, full and part-time, etc), age, total teaching experience in years and institution type.

Deployment of specialists

- Breakdown of the numbers of specialist science and mathematics teachers by position, institution type, year group(s) taught (low or high ability) and time spent teaching year group(s).
- Deployment of specialist science teachers by subject specialism and time spent teaching type of GCSE (or equivalent) course (e.g. 'core' science, 'core and additional' science, double-award applied science, biology, chemistry, physics).
- Deployment of specialist science teachers by subject specialism and time spent teaching type of GCE AS/A2 (or equivalent) course.

20. Numbers and deployment of subject specialists who are in non-teaching roles.

Data on technicians (SWE table 2)

21. SCORE welcomes the new move to separate data on technicians from data on other support staff. However, SCORE would like to see the technicians data disaggregated further in order that the numbers of laboratory technicians and D&T technicians be differentiated.
22. SCORE would like to see the data on technicians expanded to include a breakdown of the distribution of technicians by institution type and institution. This would enable gaps in the technicians' workforce to be that much more evident.