

SCORE press release

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## **Provision for practical science in schools is seriously lacking**

### **Spending on hands-on science activities varies greatly between schools**

New evidence shows that a worrying number of students are not experiencing a complete and authentic education in the sciences, due to a lack of resources for practical work.

Research commissioned by SCORE (Science Community Representing Education), a collaboration of leading science organisations, shows that on average, state-funded schools and sixth form colleges have just 70 per cent that SCORE has identified as being essential to teach science subjects.

The situation is worse in primary schools, with teachers having access to an average of only 46 per cent of the materials required to teach practical science.

The research is published in two new SCORE reports on resourcing practical science, which are launched today (2 May). The data comes from a survey of teachers at primary and secondary schools and sixth form colleges.

Professor Julia Buckingham, Chair of SCORE, said: "Taking part in practical work is an integral and essential part of learning the sciences, but our findings indicate that teachers do not feel equipped to give their students the full learning experience that they should be able to. Practical work is being limited by missing equipment and a lack of access to appropriate facilities such as laboratories and outside space."

Secondary schools reported not having enough of some of the most commonly used equipment, such as microscopes, eye protection and connecting leads for circuits. The research also shows that many secondary schools lack essential support from qualified technicians to carry out practical work.

The situation in primary schools is similarly lacking, with the majority of schools reporting limited access to facilities such as resource areas, dark space and safety equipment.

Both reports reveal some particularly concerning data on the amounts that schools are spending on practical science, which varies greatly from school to school.

In state secondary schools the reported spend in 2011/12 varied from 75 pence per student up to £31.25, while in independent schools funding varied from £7.18 up to £83.21. In primary schools the amount spent varied from just four pence per student up to £19.08.

The reports show some further worrying statistics about science spend in schools:

- in state-funded secondary schools, **an average of 28 per cent** of the practical science budget is spent on photocopying
- **nearly 70 per cent** of secondary schools reported that staff had paid for items required for core curricular practical activities out of their own pockets, for which they were not always reimbursed
- in primary schools, **37 per cent of teachers** stated that they contribute to normal curricular spending from their own money

Professor Buckingham said: “Given the increasing control schools have over their own budgets, some variation in spend between schools is probably to be expected. But the extent of the variation we have seen suggests a worrying inconsistency in the way funding is allocated both to and by schools, which will have a knock-on effect on the experiences of their students.”

She continues: “The evidence shows that, in many schools, practical science is a low priority when it comes to allocating budgets. In secondary schools, nearly half of teachers feel that they don’t have enough funding for practical work and in primary schools nearly a third of teachers feel the same. What is particularly concerning in primary schools though, is that the feedback from teachers indicates that they regard low levels of practical resources as the norm.

“Low resourcing for practical work is a long-term problem and not one that is a simple matter of lack of government funding. Schools must share part of the responsibility for allocating funding for this important aspect of science learning.

“We need teachers to feel that they can make a strong case for practical science spend when school budgets are being decided. So to support them, SCORE has produced a set of benchmarks that provide common guidance on what levels of resourcing should be expected for practical science. These outline the quantities and specifications for equipment and facilities that we consider reasonable to enable teachers to provide engaging and inspirational lessons across the sciences.

“Practical work demonstrates the wonder of science so much more effectively than words on a page or pictures in a textbook. To inspire the next generation of scientists, we need to ensure that *all* pupils are exposed to the excitement and increased understanding of science that carrying out experiments can bring.”

**Both SCORE reports and benchmarks for resourcing practical science at primary and secondary level are available on the SCORE website: <http://score-education.org/policy/curriculum/practical-work-in-science>**

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#### **Notes for editors**

**Main findings from SCORE’s *Resourcing Practical Science at Secondary Level***

**Many secondary schools and sixth form colleges lack sufficient equipment for basic practical work:**

- Basic equipment for practical work is missing
- State-funded schools do not have enough funding to buy equipment
- The amount spent on science varies greatly between different institutions
- Nearly half of secondary school teachers feel they do not have enough funding for practical science.

**Inadequate facilities are limiting the practical work that can take place in schools and sixth form colleges:**

- Schools and sixth form colleges do not have access to appropriate facilities for practical work
- Over a quarter of respondents across all schools and sixth form colleges are dissatisfied with their laboratory facilities

**Technician support is essential for practical work to take place in schools and sixth form colleges:**

- Just over a quarter of respondents within state-funded schools report that they need at least one additional technician.

**Main findings from SCORE's *Resourcing Practical Science at Primary Level***

- Primary schools lack sufficient appropriate resources to teach practical science effectively
- Facilities in primary schools are not adequate for practical science
- There is a large variation in funding for practical science in primary schools
- Low levels of resourcing are accepted as the norm

**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 Julia Buckingham, Vice-Chancellor, Brunel University, and comprises the Association for Science Education, Institute of Physics, Royal Society, Royal Society of Chemistry, and Society of Biology.

[www.score-education.org](http://www.score-education.org)

**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. [www.ase.org.uk](http://www.ase.org.uk)

**Institute of Physics**

The Institute of Physics is a leading scientific society. We are a charitable organisation with a worldwide membership of more than 50,000, working together to advance physics education, research and application.

We engage with policymakers and the general public to develop awareness and understanding of the value of physics and, through IOP Publishing, we are world leaders in professional scientific communications. Visit us at [www.iop.org](http://www.iop.org)

### **Royal Society**

The Royal Society is a Fellowship of more than 1400 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. [www.royalsociety.org](http://www.royalsociety.org)

### **Royal Society of Chemistry**

The Royal Society of Chemistry is the leading society and professional body for chemical scientists. Supported by a network of over 48,000 members worldwide and an internationally acclaimed publishing business, our activities span education and training, conferences and science policy, and the promotion of the chemical sciences to the public. Our headquarters are in London and Cambridge, with international offices in the USA, China, Japan, India and Brazil. [www.rsc.org](http://www.rsc.org)

### **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 champion a biology curriculum that challenges students and encourages their passion for biology. [www.societyofbiology.org](http://www.societyofbiology.org)