

Science education from 14 to 19

Supplementary evidence to the House of Commons Science and Technology Committee Inquiry
March 2002

Introduction

- 1 On 4 March 2002, the Education Officers of the scientific learned societies were invited to give oral evidence to inform the Committee's inquiry into 14-19 education. During the evidence session the Committee requested further information on the cost of modernising and refurbishing school science laboratories. This memorandum provides such information and complements the supplementary evidence submitted by the Royal Society of Chemistry on 20 March 2002.
- 2 As the Committee is aware, in April 2000, the Department for Education & Employment announced a £60 million allocation from the Capital Modernisation Fund to provide new school science laboratories and refurbish existing ones. This money, split over the 00/01 and 01/02 financial years, was intended to benefit around 400 secondary schools.¹
- 3 Over the past week, the Royal Society has conducted an informal survey of the science advisers in 10 LEAs (covering around 450 schools) in the north of England. The survey, albeit crude, sought to establish what sort of difference the £60 million has made to school science accommodation and to get a feeling for how much more needs to be done. What is clear from the survey is that the £60 million has made a significant difference to those schools who were allocated funding. The funds are felt to have improved not just the actual facilities, but also teacher and pupil outlook and motivation. Several respondents to the survey related stories of teachers and pupils being overjoyed and genuinely enthused by the modern and bright appearance of their new labs.

The cost of modernising laboratories

- 4 In 1999, the DFEE published a useful guide to building and refurbishing science laboratories. Building Bulletin 80: '*Science Accommodation in Secondary Schools*' includes a detailed discussion of the issues and we commend it to the Committee. The memorandum submitted by the Royal Society of Chemistry quotes from this publication and explains the costs involved in building and fitting out a new science building as well as the issues involved in refurbishing existing accommodation.
- 5 In Building Bulletin 80, two detailed case studies of refurbishing a school's existing science accommodation are examined. For the first, the average cost per laboratory is calculated as £34k. For the second the cost is higher, at £50k per lab, this reflecting the fact that more expensive worktops are used and more building work is required to adapt the existing structure and services. This range of £34k to £50k per lab provides a useful estimate for costs. Allowing for inflation since 1999², the range would be £37k to £55k per lab in 2002.

¹ As quoted in DFEE press release of 18 April 2000.

² Based on an estimate of 3% per year.

- 6 These case studies refer to reasonably extensive re-fits of the laboratories including building works. Some school labs could be vastly improved by more modest redecoration and the supply of new furniture. CLEAPSS³ estimates that this sort of modernisation costs at least £20k per laboratory.

What still needs to be done ?

- 7 In April 2000, at the time of the £60 million allocation from the Capital Modernisation Fund, the Government considered approximately 750 schools to have poor science accommodation. This represents 21% of all schools in England. Since the Government considered that £60 million could cover the needs of 400 schools, one may assume that a further 350 schools are still in need of new or modernised laboratories. This would indicate a figure for the investment still required of £52.5 million⁴. In reality, it is likely that more than 400 schools have benefited from the original £60 million, but this will have been at the expense of the number of labs each school has been able to refurbish. Therefore the figure of £52.5 million can still be regarded as a fair estimate for the investment required. This does, however, ignore those laboratories which have since deteriorated to a position where they would now be classified as 'poor'. It also makes no allowance for inflation in the cost of equipment and building services. We therefore suggest that £60 million be considered as the **minimum** investment still required to ensure schools have adequate laboratory accommodation.
- 8 The real need may be much greater than this but we do not have access to substantial data which would allow us to calculate a precise figure. However, from our recent survey and informal discussions with LEA advisers, OFSTED inspectors, teachers and technicians, we believe that the original £60 million has met somewhere between one third and one half of the need. In our survey, for example, the science advisers suggest that 60% of schools in their areas still have laboratories requiring refurbishment. Thus we estimate that additional funds of between £60 million and £120 million are required to bring all school laboratories in England up to an adequate standard.

Science equipment in schools

- 9 The discussion above relates to costs involved in refurbishing laboratories. It does not include the cost of stocking a school laboratory with the equipment required to teach science. A modern school requires a huge range of equipment to allow pupils to undertake the full range of practical work. In 1997, the Royal Society produced a list of over 1000 pieces of equipment required to teach science 11-16.⁵ By allocating a cost and an expected 'life-span' to each piece of equipment it was calculated that, even for the essential items, a figure of £11.38 per pupil per year was required to teach the Secondary National Curriculum. A subsequent survey of schools estimated that an average of £9.40 was actually being spent on such equipment in LEA schools. If this shortfall of around £2 per pupil per year is still apparent – and we strongly suspect that it is – then an additional £6 million per year or so needs to be found if we are to ensure that school laboratories are not only refurbished but also adequately stocked with the equipment required to teach National Curriculum science.

For further information regarding the Royal Society's work on school science laboratories, please contact Nigel Thomas, Senior Manager (Science Communication), at the Royal Society.

³ Consortium of Local Education Authorities for the Provision of School Science Services

⁴ Calculated as $(350/400) \times £60\text{million}$

⁵ The Royal Society (1997), 'Science teaching resources: 11-16 year olds'. London: The Royal Society.