

## ● Practical experiments in school science lessons and science field trips: Response from the RGS-IBG

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1. The Royal Geographical Society (with IBG) is the learned society and professional body for geography. Formed in 1830, for 'the advancement of geographical science' we are a world centre for geography supporting research, education, expeditions & fieldwork, and promoting public engagement and informed enjoyment of our world. We have 15,000 members and Fellows and a network of 1,000 School Members and Chartered Geographer (Teachers).
  2. The Society has an established reputation in supporting schools to undertake fieldwork in the local area, further afield and overseas. Each year we provide continuous professional development training for more than 1,000 teachers and presentations to 25,000 pupils, fieldwork summer schools for pupils and fieldwork master-classes for teachers. Our Geography Outdoors centre trains teachers as Educational Visit Coordinators; provides the Off-Site Safety Management course; and was central to the development of the British Standard 8848 for the "provision of visits, fieldwork, expeditions and adventurous activities outside the UK". The Society led the Fieldwork section of the Department for Education funded Action Plan for Geography<sup>1</sup> (2006-11), creating extensive online fieldwork resources.
  3. The Society welcomes this opportunity to comment on the inquiry into practical experiments in school science lessons and science field trips, focusing on our expertise and experience in geographical fieldwork. The Society wishes to make the following points in this submission:
    - 3.1 Geography is the *only* National Curriculum subject with a statutory requirement for fieldwork. This enables pupils to apply their learning to the real world and better understand the physical and human geography of their local area and places further afield. Ofsted has strongly supported geographical fieldwork<sup>2</sup> and identified "*how good and regular fieldwork motivated pupils and enhanced their learning in geography (and) encouraged a higher than average take up of examination courses.*"<sup>3</sup> The Society's response to the National Curriculum Review-Call for Evidence argues that fieldwork should remain a compulsory part of a statutory geography curriculum.<sup>4</sup>
    - 3.2 Geographical fieldwork is an *existing* opportunity for 'scientific' enquiry; particularly through fieldwork focused on physical and environmental geography involving sampling, recording and presenting data and the use of digital Geographical Information Systems. We

<sup>1</sup> See [www.geographyteachingtoday.org.uk/fieldwork](http://www.geographyteachingtoday.org.uk/fieldwork)

<sup>2</sup> Geography: Learning to make a world of difference. Ofsted (Feb 2011)

<sup>3</sup> Geography: Learning to make a world of difference pg 4 Ofsted (Feb 2011)

<sup>4</sup> Society's response to the National Curriculum Review consultation (2011)

<http://www.rgs.org/NR/rdonlyres/OBD2C4C4-4DDB-4C48-831B-708F58F03C15/0/NCRReviewresponseformRGSIBGresponsefinal1.pdf>

note that, at university level, geographical research has been recognised as 'part-STEM' by the Higher Education Funding Council for England. This is based on the fact that HE level scientific geographical research, including fieldwork, requires and attracts significant funding to ensure the necessary science-based infrastructure is in place.

3.3 However, there are 'overlaps' between the National Curriculum in geography and science; which include earth sciences, the water cycle & rivers, and weather and climate. These areas lend themselves well to fieldwork, although the Society understands that many science teachers view them as of less relevance. For example, a National Science Learning Centre consultation of 600 science teachers showed that they identified 'earth sciences' as one of the *least* popular subjects to be included in the science curriculum. To address this, the Society has recommended, in its National Curriculum Review – Call for Evidence response, that earth sciences, the water cycle and rivers and weather and climate be identified solely within the geography, rather than the science, curriculum.

3.4 The removal of course work from examinations and introduction of controlled assessment has reduced some schools commitment to geographical, and possibly scientific, fieldwork. The requirement for fieldwork in GCSE & A Level geography examinations should continue and new opportunities should be provided for pupils' fieldwork to be better reflected in these examinations. The Society welcomes the ASE's call for "*greater flexibility provided to awarding bodies to significantly increase open-ended summative assessment and assessments that recognise skills developed through fieldwork*"<sup>5</sup>. However, there has been no systematic research to understand whether the introduction of controlled assessment has impacted on school decision-makers support for fieldwork or on the range, type and duration of fieldwork offered. We suggest that such research be undertaken as a matter of urgency<sup>6</sup>.

3.5 The Society believes there are opportunities for positive fieldwork collaborations between geography and science school departments, based on the distinct subject disciplinary contribution provided by these subjects. We note that the ASE highlighted the potential for integrated fieldwork planning especially in science, mathematics and geography<sup>7</sup>.

3.6 The Society notes how the current challenging financial environment (in schools, LEAs and on parental contributions towards fieldwork) could place additional pressures on the abilities of schools to undertake fieldwork. For example, we understand 12 field centres are currently being closed, whilst a further 48 are 'at risk'<sup>8</sup>. These centres receive 300,000+ visitors pa. Such closures have the potential to place greater demands on the need for teachers to have skills and confidence to undertake 'self-led' fieldwork. The range of CPD support provided by the Society is well placed to help support teachers develop the abilities to lead their own fieldwork activities.

3.7 The Society believes that periodic monitoring of the type, location and duration of fieldwork provided in geography and science should be undertaken by the Department for Education and within relevant subject specific reports by Ofsted.

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<sup>5</sup> Outdoor Science, Association for Science Education pg 5 (Jan 2011)

<sup>6</sup> The Society would be pleased to carry out such research if modest funds to do so were available.

<sup>7</sup> Outdoor Science, Association for Science Education pg 13 (Jan 2011)

<sup>8</sup> NAFSO survey of 89 field centres Feb 2010: 12 centres earmarked for closure (63,780 visitors pa) and a further 60 centres 'at risk' (259,400 visitors pa)