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CONTENTS

- 1 Introduction and overview
- 2 ISE 5-14 consortia latest news
 - fifth consortium
 - NESSC
 - GALLUS
 - SEES
 - TSEC
- 5 Other 5-14 activities
- 6 CPD for technical support staff
- 7 Other Science CPD initiatives
- 8 Contact details etc

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CPD - a key to improving science education?

Why Science CPD News?

This publication is intended to take over where the second edition of the Improving Science Education (ISE) 5-14 CPD Projects Newsletter left off. It not only provides an update on current activities in each of the ISE 5-14 CPD consortia but it also describes the broader picture with respect to other developments in Scottish Science Education 3-18. Note that copies of ISE 5-14 CPD Newsletters 1 and 2 are still available for down-loading from the "Local Links" drop down menu on the ISE 5-14 website. With the advent of a review of Science Education 3-18 this newsletter is intended to update everyone on a number of more recent events and developments.



ISE 5-14 CPD consortia

That component of ISE 5-14, concerned with the development of teaching resources and managed by Learning and Teaching Scotland, effectively ended with a launch event in November 2004 and the subsequent circulation of the resource collection on CD ROM early in 2005.

The CPD component of ISE 5-14, however, is not intended to end until March 2006. Whilst some of the ISE 5-14 CPD consortia are approaching the end of their main *train the trainers* activities and are now effectively in their evaluation and dissemination phases, some of the other groups have just finished, or are still engaged in, the developmental phase of their projects. On pages 2-5, therefore, we provide a more detailed update on the ISE 5-14 CPD programme.

CPD for support staff

In partnership with the Scottish Technicians' Advisory Group, and at the invitation of the Scottish Executive, earlier this session SSERC successfully applied for grant funding to support a programme intended to systematise CPD for support staff. Further detail on this important national initiative is given on page 6.

Support for Science Education 3-18

SSERC was also one of a small number of science education support organisations invited to apply for other grant funding intended to underpin a range of proposed developments in Scottish science education 3-18. As for the CPD for support staff initiative, SSERC has again opted for a collaborative approach.

A joint application thus went forward from SSERC, as lead body and fundholder, on behalf of a number of partners already active in the provision of science CPD for teachers.

Support for Scottish Science Education through CPD grant monies will be used to 'top up' existing funding so as to extend and enhance a range of successful activities of the original core partners and of a number of other agencies and organisations.

It is also intended that these activities articulate closely with other SEED supported science CPD initiatives such as the project on CPD for support staff (see above and on page 6), the national residential events for students engaged in Post-graduate Certificate or Diploma courses and Summer Schools for teachers and lecturers of biology, chemistry and physics.

In addition, we intend to continue supporting and building upon the successful networks already established through the Improving Science Education (ISE) 5-14 CPD project.

ISE 5-14 CPD News

We begin with news of the latest science CPD grouping which has come together under the general banner of ISE 5-14. This is followed up with a set of progress reports on each of the other four CPD consortia.

Fifth consortium

The original specification for the CPD element of ISE 5-14 only required four collaborative groupings to be established across Scotland. A number of the 'rural and remote' local authorities indicated that, in their view, the location and makeup of the four consortia, as then constituted, didn't properly meet the needs of their staff. These observations eventually led to the setting up of a pilot project under the leadership of Highland Council. Bob English, CPD co-ordinator for Highland Council took responsibility for managing this pilot project.

Highland led pilot

Highland Council consulted with a number of the more remote rural authorities including Dumfries and Galloway, Orkney and Comhairle nan Eilean (Western Isles). Two seconded teachers, one from primary and one from the secondary sector, held a number of consultative meetings. They also studied the range of provision already available and carried out a needs analysis with their teacher colleagues. The result of all of that work was published as a report in the later part of 2004. Each Scottish Local Authority was provided with hard copy of that report with a second copy in electronic format on CD ROM. Unfortunately staff shortages and other circumstances beyond the control of Highland Council, meant that the seconded teachers had to return to their schools once the pilot had ended.

Development partners

After a number of meetings and much discussion, several other local authorities expressed an interest in collaborating with Highland in developing some possible solutions to the problems of CPD provision in rural areas. One dimension of the Highland report was a realistic appraisal of the potential, and partial, role for ICT based approaches in providing CPD. Interestingly it was that dimension which attracted the other local authority partners, none of which can be properly termed "remote" although each has rural schools. The key role for ICT also explains the title of their consortium - "The Technology Enhanced Science Teaching (TEST) Consortium".

The TEST Consortium

This group of Local Authorities would at first sight seem somewhat disparate. In fact they share a common philosophy and purpose as to certain aspects of what needs to be done if CPD for teachers and support staff is to contribute effectively to improving Scottish school science education. With the Highland Council as lead body and budget-holder, the other partners are Fife, Renfrewshire and West Lothian. Their focus is largely on the primary-secondary transition years P6 to S2 (this focus they share with GALLUS (see below). They are also well-versed in contemporary thinking about learning and teaching in science.

As for all of the ISE 5-14 consortia, the TEST group's aims are rooted both in *A Science Strategy for Scotland* and based on



Science CPD home page on the Highland Virtual Library

the HMIE Report *Improving Science Education 5-14*. The key intentions of the TEST partners are to exploit effective uses of ICT and to share best practice. They have two major aims - to assist in improving science education generally and to harness the technology to assist with CPD provision in rural areas in particular. In taking their work forward, the TEST partners will build on, rather than duplicate, the successful aspects of the development work already carried out in the other four consortia. There is to be a marked element of inclusion to the overall project since all of the exemplar materials produced by the consortium are also to be made available in Gaelic.

The partners in the TEST grouping have set up their project management structures. They have now drawn up working specifications for the authors and editors who will develop their ICT based materials. By the time this newsletter is published their development phase should be in full swing.

Other consortia

NESSC

The North East of Scotland Science Consortium will be the first to finish its formal central training phase. By June of this year seven cohorts of teachers in groupings of primary and secondary schools had been trained. These clusters of schools are described with different terminologies in the four different authority areas.

Aberdeen City and Aberdeenshire each have a seconded Development Officer for Science 5 to 14, and groups of schools participating in the PILOT have a Science Co-ordinator working with colleagues in their local school groupings (known as ASG/LEARN Clusters). There are also Secondary Principal Teacher networks at this level. In Moray and East Dunbartonshire there are no networks of Science co-ordinators, but each of these Councils has appointed several "Development" or "Science Support" Officers. NESSC aimed to meet specific training needs as identified by each of the partner Councils. These needs included role development for seconded Development Officers in Moray and for Science Support Officers in East Dunbartonshire. Similar needs were met for Science Co-ordinators in Aberdeen City and Aberdeenshire.

The original specification for the NESSC project aimed to “provide training to approximately 3000 classroom teachers and 120 Science Co-ordinators”. The programme was also to “build on existing developments to support the Improvement of Science Education 5 to 14 in all four Council areas”, and to “extend the support available from new and existing structures”

NESSC Evaluation

At the time of writing, project staff based in Aberdeen University were gathering the additional data to test the 3,000 teachers and 120 Science Co-ordinators premise. A summary of the qualitative evaluation results will also be published in due course. The proposed contents of the evaluation report are summarised in Text Box 1.

Special features

The NESSC project has a number of interesting aspects but two key features are worthy of particular note. The first of these was the attempt to build from the outset, elements of sustainability into the training model(s). This was done by providing particularly strong support to school based science co-ordinators or to the development officers. As the project progressed, the initial tutors were able directly to involve teachers, and others, who had initially been trainees in early cohorts in delivering training to participants in the later courses. In this way NESSC deliberately set out to build up a body of expertise, a *cadre* of committed

practitioners, in the partner authorities. This group of practitioners is cross-sectoral and has members in both primary and secondary schools.

NESSC and Satrosphere

A second key feature of the NESSC initiative has been the strong working relationship which has been built up with *SATROSphere*, the local hands-on Science Centre. This aspect has attracted considerable interest in its own right. The NESSC Project Manager, Jackie Heaton, gave a presentation on this aspect of their work at the SETT 2004 conference. Work across the formal and informal science education sectors was looked for as a bonus for ISE 5-14 as a whole. It's therefore pleasing to see such a successful working partnership for science CPD which crosses what formerly were sometimes rather hard professional boundaries. This work with Satrosphere is now being widened out and is supported by the oil company Shell. It has also been extended to include BEd and PGCE students in addition to the established teachers.

The NESSC team has also been good at tapping into specific elements of expertise available through some of the other ISE 5-14 consortia. At various times, tutors for elements of NESSC courses have been drawn from the SEES and GALLUS consortia. Again this kind of informal use of the wider national network has been a bonus - one hoped for rather than one presumed.

The NESSC Evaluation Report will contain:

- o **Quantitative data - Number of teachers trained or supported**
- o **Development of existing support structures**
- o **Case studies**

One in each Council area

To examine the effectiveness of the two models of delivery of training and support

A group of 4 schools (1 Secondary and 3 Primary)

Semi-structured interviews used to obtain perspectives of

- Manager
- Trainer
- Classroom teachers (3)

Also obtain perspectives on

- Development of existing structures to support sustainability
- Creation of a wider pool of training capability
- Changes in classroom practice
 - More emphasis on skills development
 - More use of open-ended activities
 - More use of open questioning and discussion
 - Planning for teaching that is underpinned by greater confidence in developing
 - Science concepts
 - Investigating skills

TEXT BOX 1

GALLUS

By mid/late May of this year, GALLUS - the Glasgow and Lanarkshire Learning for Understanding in Science consortium had finished the development phase and trained its core group of national trainers (Category A Trainers or CATS in GALLUS-speak). This training of the GALLUS first-line trainers was partly done in partnership with the University of Glasgow and with the Glasgow Science Centre. Working with a number of recognised leaders in their particular fields of science education, the national trainers also developed a high quality local trainers' package.

By the third term of the 2004-05 school session the consortium had initiated the local training phase. Local authority trainers have been recruited from each of the partner authorities (Glasgow, North and South Lanarkshire). An intensive 5 day course was provided by the core group to 45 local trainers

drawn from the three authorities. Three of those days were common to all three authorities' trainers and were also delivered on a cross-sectoral (primary/secondary) basis. These days were thematic each being based on a broad learning and teaching theme viz : "The thinking classroom, Formative Assessment and Investigative Approaches". The final two days of this course were dedicated to each local authority's needs and the specifics of its own science programmes. Local trainers will now roll out training across the three LAs, beginning in the Autumn term.

At least one of the partner authorities has made its intentions pretty clear with regard to its body of sixteen or so local trainers. The authority intends to support them and their schools in a number of practical ways to ensure that their training isn't wasted and that they can be called on in future to support future developments in science and not just at 5-14.

SEES consortium

The SEES core partners are the Astronomy Technology Centre at the Royal Observatory of Edinburgh, Moray House Institute in the University of Edinburgh, Our Dynamic Earth and the Scottish Earth Science Education Forum (SESEF) together with the five neighbouring local authorities. As is the case with NESSC, the centrally funded phases of the South-East Earth and Space (SEES) Consortium activities are due to end fairly soon.

SEES was one of the first groups approved for funding under the ISE 5-14 CPD arrangements. Its Management Group has thus often had to break new ground in considering how best to organise the training of trainers and how to support them in the period post-training. In phase one of this initiative SEES was largely involved with training local trainers in its own partner authorities. When other consortia chose not to cross-train as originally envisaged, the SEES core partners applied successfully for some additional funding for a second phase (SEES 2). This allowed SEES to extend its activities into training teachers in other authorities across Scotland as well as supporting the teams of local trainers in its original partner authorities.

The SEES 2 management group recruited one of the original local trainers, Sean Doyle, as a secondee from Drummond Community High School to act as a Development Officer. Although Sean will have only been in post for one school session much will have been achieved by the time he ends his secondment in late June. In addition to assisting SEES local trainers and providing specialist input to other consortia, SEES also organised and ran three additional residential courses for teachers from outwith the original SEES partner authorities.

After the first such course it was clear that there was untapped potential for recruiting additional SEES trainers. Demand from teachers to be trained as trainers led to the next two courses providing optional additional sessions for those wishing to be trained as trainers. In an attempt to cater more for teachers outwith the Central Belt those two courses were staged at Caerlaverock in Dumfries and Galloway and at Badaguis in Strathspey. Those courses have certainly helped to broaden and cultivate the national network of trainers.



Several of the participants on each course came from other existing consortia or had been involved with Learning and Teaching Scotland in the development side of the original ISE 5-14 programme. However, in a significant number of cases the SEES course participants came from local authorities not involved previously with any of the ISE 5-14 consortia.

In all, over its two phases, SEES has provided professional development for over four hundred teachers and trainers. Each trainer has been provided with a CPD pack and a training kit containing a full set of the materials needed to deliver the workshops (including simple items of equipment etc). Although the SEES initiative itself will formally end at the close of the 2004-05 session, we're sure that the materials themselves will continue to be used. We also know that several EAs have SEES originated workshops scheduled for 2005-06. In addition a SEES core partner, the Scottish Earth Science Education Forum (SESEF), will continue to offer its own related Earth and Space workshops to local authorities and teachers.

TSEC

Towards the end of the Summer Term of 2004-05, TSEC (the Tayside Science Education Consortium) effectively entered a dissemination phase. By then, the three partner authorities had seen well over a year of intense development and delivery of training in learning and teaching for 5-14 science. Across the three partner councils (Angus, City of Dundee and Perth and Kinross) techniques intended to improve learning and teaching in science have been introduced, supported and carefully recorded both on video and on paper. Although grounded in only one of three Attainment Outcome for Environmental Studies 5-14 Science (Living Things and the Processes of Life) the TSEC materials have great potential for application across the whole of 5-14 science, and probably well beyond.

The TSEC team have produced a comprehensive collection of materials and video clips of classroom practice covering a wide range of techniques from effective questioning through formative assessment and onto the development and assessment of skills such as those needed for investigative work. They have also taken the trouble to build on and further develop the good practice exemplified by other practitioners - both within and outwith the ISE 5-14 consortia and from other national or local initiatives. The TSEC pack of materials has been produced with the expert help of the Angus Digital Media Centre in Brechin.



RESOURCES CD-ROM

The pack consists of a DVD, CD ROM (title page above) and printed instructions. These materials were launched for local schools on the 14th of June and nationally for other local authorities' nominees at the Crieff Hydro on the 16th of June. Both events were one-day affairs with a choice of illustrative, hands-on, brains-on, workshops. The evaluation results for each of these days were excellent. Each local authority has received a sample of the TSEC pack and we are currently looking at how we help to might finance its wider distribution to each Scottish primary and secondary school.



Other ISE 5-14 activities and resources



Microbiology inheritance and biotechnology

In addition to the full programmes of work provided by the consortia there have been a number of one-off projects to deal with some specific and specialised needs. One such set of needs is tied to the new attainment targets on microbiology, genes and inheritance and on biotechnology all introduced into the revised guidelines for Environmental Studies at levels E and F.

The SAPS Biotechnology Scotland Project and SSERC have been collaborating to produce a set of resources to underpin the teaching of these new topics in S1 and S2. Sets of materials have been developed, trialled, redrafted and retrialled over the last year and a half or so. Final trials of most of these materials were carried out in May 2005, at a residential course in Edinburgh for potential trainers. After some additional materials have been produced for the Attainment Target on modern biotechnology and its implications, the materials should be finalised for publication sometime in the Autumn of this year. The draft materials are already mounted on the ISE 5-14 website.

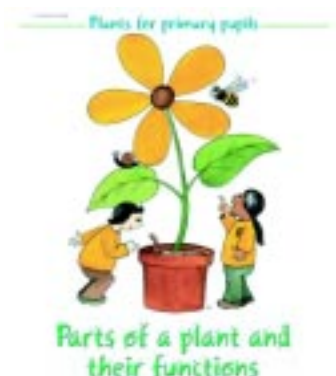
Other SAPS 5-14 resources - plant science

The SAPS team south of the Border have also been working on materials for plant science in primary and early secondary. After some earlier discussion with the ISE 5-14 team here, it was clear that much of the SAPS primary resources could benefit from a makeover to render them more learner-friendly.

Janette Kean, has taken an interest in this work and has travelled south to take part in writing weekends to revamp and update materials. Janette was at one time a Development Officer with the Learning and Teaching Scotland side of the ISE development programme. Latterly, much of the work on these plant science materials has involved a collaborative arrangement with the Field Studies Council (FSC).

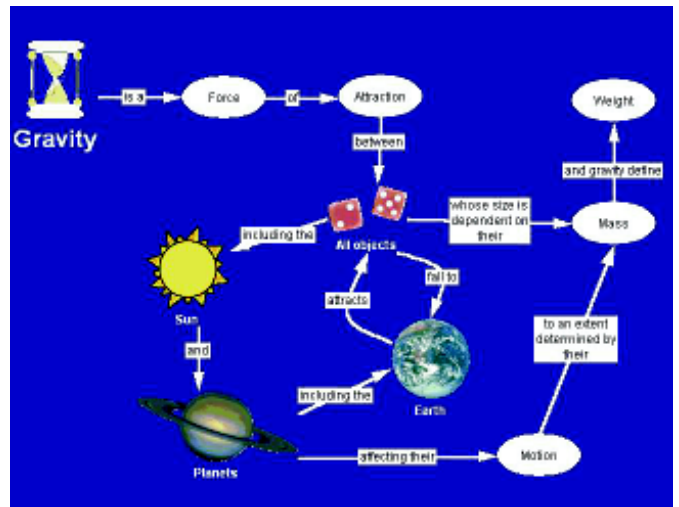
SAPS Scotland intends to support these SAPS/FSC materials with training workshops. Janette has already agreed to deliver one workshop in collaboration with Enterprising Careers and the Scottish Wildlife Trust.

We are hopeful of enlisting the services of a number of potential trainers to deliver more of these workshops to teachers. Meanwhile, the usual suspects (such as the Royal Botanic Garden education folk) continue to offer a range of courses using, or based on, SAPS primary materials.



One serendipitous spin-off from the *NESSC* programmes has been a small-scale project on using mapping (both mind maps and concept maps) in teaching science for understanding. Dr Jim Murdoch was part of the *NESSC* project at the time and he still acts as convenor of the Steering Group. Jim has an established and informed interest in the uses of mapping for learning in science. It happened that Dr Johanna Carrie, a consultant to LTS on ISE 5-14 at the time, was working in this area with a small group of teachers in Edinburgh. Drs Murdoch and Carrie subsequently got together, and a few more teachers in the Aberdeen area joined those in Edinburgh to develop and trial materials. The eventual result is a resource on *Mapping for Understanding* in CD ROM format.

The materials utilise web based techniques and are read with web browser software. Much of the material is also available on the CD ROM in Word format and may be printed out for use if need be. Each Local Authority was supplied with a copyright free copy of this resource. For more information contact Dr Jim Murdoch at Concept Training (see back page) or log on to www.asrt70.dsl.pipex.com.



Example of a Mind Map on gravity from the Concept Training Resource *Mapping for Understanding*.

Science 3 to 18 - CPD for support staff

This initiative is one of a relatively small number of collaborative projects, each with some grant funding from the Scottish Executive, intended to take forward some aspect or other of the educational components of the Scottish Science Strategy. The detailed aims of the project are set out in Text Box 2 opposite. SSERC has agreed to be the fundholder for the project but the work is being carried out under the auspices of a partnership arrangement. Currently this involves SSERC and the local authority based Scottish Technicians' Advisory Group but other interested parties are also to be fully consulted in due course. The current state of play (June 2005) can be summarised as follows:

The posts of Project Manager and Project Officer have been advertised and filled. Brian Richmond, was in post as manager by the third week of May and Phil Muggins (Project Officer) was negotiating a release date from her current employment by July 2005. A Project Steering Group has been established with Fred Young (CEO) and Ian Buchanan both of SSERC, Sam McFarlane (Chair of the Scottish Technicians' Advisory Group) and the Project Manager as members. External consultants who have particular expertise may also be co-opted or invited to attend as the need arises. The project is currently running to the timetable set for it. A first consultative conference is scheduled as a residential event for the 31st Oct. to 2nd November '05 (see SSERC Bulletin 215 for further detail). A round of Interviews with heads of technician services has begun, so as to audit current position as to structures and training provision for support staff. Individual Directors of Education, ADES and Scottish Technicians' Advisory Group members have been informed about the project and contact has been made at the appropriate level with the UK National Science Learning Centre in York.

CPD Support Staff Project Aims

- Draw on existing sources, and gather any additional data which may be needed, so as to determine the current position nationally with regard to the provision of technical and other support for school science (both primary and secondary).
- Evaluate, against such a baseline determination, the practicability of the Scottish Science Advisory Committee recommendations particularly those on the provision of support for science and technology education in the primary sector.
- Investigate and recommend possible strategies for the medium to longer term to better equip both primary and secondary support staff to cope with the likely future needs of teachers of science in the primary sector.
- Identify and build on existing good practice in Scottish Authorities with regard to career structures and CPD opportunities for support staff.
- Investigate and recommend possible recruitment and retention strategies in the technical support profession (*other than matters pertaining to salaries and conditions*) for the medium term to prepare for the impending retirement of a significant proportion of existing technical support staff.
- Carry out a national needs analysis as to training requirements for technical support staff.
- Design a suitable system of relevant, progressive, nationally recognised, accredited and suitably specific set of Scottish qualifications for science and technology education support staff.
- Ensure the availability of a range of CPD opportunities for those already formally qualified and working as technical support staff at various levels.

TEXT BOX 2



Other Science CPD initiatives

In addition to the CPD for Support Staff initiative, some other funding has been obtained for use by a number of partner organisations to add value to their existing joint operations. Here, we provide a brief account of such other activities which it's hoped will also go forward to underpin developments in science education. Such developments may arise both from the "Improving Achievement in Science" report and the 3 to 18 curriculum review.

Partnership

The core partners in the "Supporting Science Education through CPD" initiative include the DUSC (Development to Update School Chemistry) Project, SAPS Biotechnology Education Scotland Project, SIBE (Scottish Initiative for Biotechnology Education) and SSERC - including the ISE 5-14 CPD project. SSERC is the budget holder and lead body.

Unusually for a grant funded initiative, the major aims and required outcomes were more or less specified at the time of submitting an application. The partners had only to say how they would manage and carry out the desired activities or arrange for others to do so. The core partners remain keen, however, to engage with other Scottish and UK organisations, professional institutes, associations or agencies that are also interested in establishing more systematic and sustainable arrangements for the continuing professional development of Scottish science educators.

Conference

One major requirement of this national programme is an annual conference (see Text Box 3 opposite). Anxious not to add unnecessarily to an already overcrowded calendar of conferences and like events, the core partners were looking to work with the organisers of an existing event of a suitable type and scale. Discussions with ASE Scotland have recently led to the initial science CPD conference being articulated directly with the ASE Scotland Annual Meeting in March 2006.

Other CPD opportunities

Each of the core partners provides its own range of courses, workshops, and other CPD opportunities for teachers and, or, technicians. The partners also come together on occasion to run more ambitious events such as Summer Schools for science subject specialists and residential events for teachers in training such as science PGCE and PGDE students. Part of the purpose of this latest, relatively modest additional funding is to allow the core partners and others to explore possibilities for joint working arrangements. Some of the grant monies are to be set aside for shared additional staff costs for joint activities.

Such joint arrangements will be adopted only where they:

1. *Improve the quantity, quality and flexibility of provision for science teachers and science support staff*
2. *Provide sensible economies of scale in marketing and provision of information on courses and other opportunities.*
3. *Lead to more professionally generated, better maintained and more readily accessed records of CPD undertaken by practitioners.*

With such shared aims in mind, a science CPD 'core' planning group will be established. This will look at issues such as joint, or at least synchronous, production and circulation of information on provision and the sharing of good practice on matters such as quality assurance. We shall also be looking at the possibility of common data recording arrangements for course attendances etc. Clearly some discussion with the GTC Scotland will be needed on that last item.

Support for Science Education 3 -18 CPD Project Aims

- Provide a continually evolving central resource covering and collating the range of advice and materials available across the science education community.
- Organise an annual national conference that will:
 - highlight current good practice in science education (including the use of ICT)
 - disseminate (information) and act as a forum for engaging practitioners in discussions on curriculum developments
 - consider the success of existing CPD in meeting teachers' professional needs, improving classroom practice and pupils' achievements
- Provide CPD opportunities that will... (catalogued in an itemised list and including Practical Workshops, update courses and Summer Schools etc.)
- Develop a productive working relationship with the UK National Science Learning Centre (NSLC) at York as a means of supporting NSLC's UK-wide mandate to provide CPD for Scottish science teachers and support staff.

Major outcomes required as activities of the "Support for Scottish Science Education through CPD" project. Grant monies will be used to 'top up' existing funding and so extend and enhance a range of successful activities of 'core' partners and other agencies.

TEXT BOX 3

UK National Science Learning Centre

We are required to develop a productive working relationship with the NSCL at York. Since we also tend to adopt task oriented approaches we've begun the process by setting up a collaborative arrangement jointly to organise, and run, an NSLC supported, residential, course on "Improving Achievement in Science" for Heads of Faculty or Principal Teachers Curriculum. The programme will be 5 days in all with an intensive 3 day initial session in November '05 followed by action research and then a 2 day recall in May 2006. An information leaflet has already been circulated - also see overleaf for contact details.



Science CPD - Contacts and other key information



ISE 5-14 consortia contacts

GALLUS - Glasgow and Lanarkshire Learning for Understanding in Science

Lead officer - David Lawson, Adviser in Science, Education Services, Glasgow City Council, Wheatley House, 25 Cochrane Street, GLASGOW G1 1HL T: 0141 287 4126 E: david.lawson@education.glasgow.gov.uk

NESSC - North East Scotland Science Consortium

Project Manager - Jackie Heaton, School of Education, College of Arts and Social Sciences, University of Aberdeen, Hilton Place Aberdeen AB24 4FA T: 01224 274776 E: j.a.heaton@abdn.ac.uk

SEES - South East Earth and Space Consortium

Project Manager - Dan Hillier, Visitor Centre Manager, Royal Observatory Edinburgh, Blackford Hill Edinburgh EH9 3HJ T: 01316688406 E: djh@roe.ac.uk

TEST - Technology Enhanced Science Teaching

Lead officer - Robert English, CPD co-ordinator, Highland Council Education Centre, Castle Street, Dingwall IV15 9HU T: 01349-863441 E: Bob.English@highland.gov.uk

TSEC - Tayside Science Education Consortium

Lead officer - Peter Duguid, Senior Adviser, Educational Development Service, Angus Council, Bruce House, Arbrogath, DD11 3TE T: 01241 435058 E: DuguidP@angus.gov.uk

Supporting Science through CPD - current core partners

DUSC - Development to update school chemistry

DUSC is supported by the Scottish Executive and the Royal Society of Chemistry and hosted at the University of Edinburgh and SSERC. The DUSC project has developed and delivered a range of workshops and courses intended to assist teachers update their approaches to learning teaching in science generally (with courses on formative assessment in science, for example) and in chemistry more specifically.

DUSC and its constituent partners have provided much of the impetus and drive for the national Chemistry Summer Schools for serving chemistry teachers. They have also been prominent as active supporters of initial attempts to set up national networks for all Scottish science teachers in training.

For further details on the DUSC project and its CPD activities please contact the DUSC Development Officer: Don Sutherland, c/o SSERC, St Mary's Land, 23 Holyrood Road, Edinburgh EH8 8AE T: 0131 558 8180 E: dusc@sserc.org.uk

Or contact: Dr Douglas Buchanan, Science and Technology, Moray House Institute, University of Edinburgh, St Mary's Land, Holyrood Road, Edinburgh EH8 8AQ

* * *

SAPS Scotland

The SAPS Biotechnology Scotland Project (more commonly referred to as SAPS Scotland) is located on two sites – SSERC and Dollar Academy. The SAPS Scotland team continues to work closely with HMIE, Local Authorities, the Scottish Executive, research institutes, the Royal Botanic Garden Edinburgh and SSERC to (i) develop curriculum-related materials and (ii) deliver associated training to teachers, trainee teachers and technicians. The ISE 5 – 14 CPD programme was partly based on SAPS methodologies. For further information on the activities of the SAPS Scotland team feel free to telephone on 0131 558 8212 at SSERC or 01259 743 753 at Dollar. E-mail enquiries can be sent to saps@sserc.org.uk. See also:

http://www-saps.plantsci.cam.ac.uk/about_whatish.htm

* * *

SIBE - Scottish Initiative on Biotechnology Education

Directed by Professor Mary Bownes, a Vice-Principal of the University of Edinburgh, SIBE has access to a huge bank of materials and expertise in higher education. In particular it aims to develop materials and run programmes that encourage public engagement with current issues in biotechnology and the biosciences. It also works with teachers, however, and does so frequently in partnership with other agencies having specialist expertise in school based work - such as DUSC, SAPS and SSERC. For more detail contact:

Dr Jan Barfoot, Depute Director, Scottish Initiative on Biotechnology Education, School of Biological Sciences, The University of Edinburgh Darwin Building, King's Buildings, Mayfield Rd, Edinburgh, EH9 3JR T: 0131 650 7042 E: j.barfoot@ed.ac.uk

* * *

CPD for Support Staff - contacts

The contacts for enquiries about the work of this project team (see page 6) should contact either:

Project Manager - Brian Richmond c/o SSERC, St Mary's Land, Holyrood Road, Edinburgh EH8 8AE T: 0131 558 8180 E: tpm@sserc.org.uk

Project Officer - Mrs Phil Muggins c/o SSERC as above E: tpo@sserc.org.uk

* * *

SSERC and NSLC joint courses

Initially this arrangement will be piloted as a course for Heads of Faculty and Principal Teachers (Curriculum).

Lead officer - John Richardson, Director of External Projects c/o SSERC (see above for address etc) E: John@sserc.org.uk

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