

Chem@rt Update — 2007 and beyond!

Chem@rt — a Bristol ChemLabS initiative to bring chemistry into the primary school classroom using a series of dazzling and intriguing images drawn from research undertaken at the University of Bristol— has proved to be a remarkable success. In total, over 50 primary schools participated in the competition.

Chem@rt has certainly had a significant impact on children at Hillcrest Primary School in Totterdown, Bristol. The school used the Chem@rt images as inspiration for their literacy lessons, with superb results. Hillcrest have been working hard to develop imaginative and stimulating strategies to make their children's writing

meaningful. The success of this approach is reflected in the very high quality of the work produced, leading to some excellent recent SATs results. In July, Annabel Glassby, a year-5 teacher and science coordinator at Hillcrest, invited Tim Harrison, the Bristol ChemLabS School Teacher Fellow, to present awards to pupils who had participated in the Chem@rt project. Whilst there, Tim performed one of his now legendary series of demonstrations showing the effects of liquid nitrogen and dry ice on everyday objects. The effect was remarkable, with Tim converting over 240 Key Stage 2 pupils to the joys of science in under half an hour!

Hillcrest are already actively engaged with the Qualifications and Curriculum Authority in developing new strategies for engaging children in learning, and as a result of their participation in the Chem@rt project they are planning to include other such activities in their teaching. Annabel commented: "This is really an innovative approach to encouraging children to relate to the science curriculum. It will have enormous benefits for our children".

Plans for next year's Chem@rt competition are already in hand. Members of staff in the School of Chemistry are even now busy preparing the images that will be distributed to primary schools right across the region. There are no doubts that Chem@rt 2007 will prove just as successful.

Chem@rt 2006 was supported by the Bristol Alumni Foundation, EPSRC Portfolio Partnership Laser and the RSC local section.

[www.chemlabs.bris.ac.uk/
outreach/primary/](http://www.chemlabs.bris.ac.uk/outreach/primary/)
www.hillcrest.bristol.sch.uk/

*"Bad Air Day" by Dudley Shallcross,
one of the Chem@rt images*

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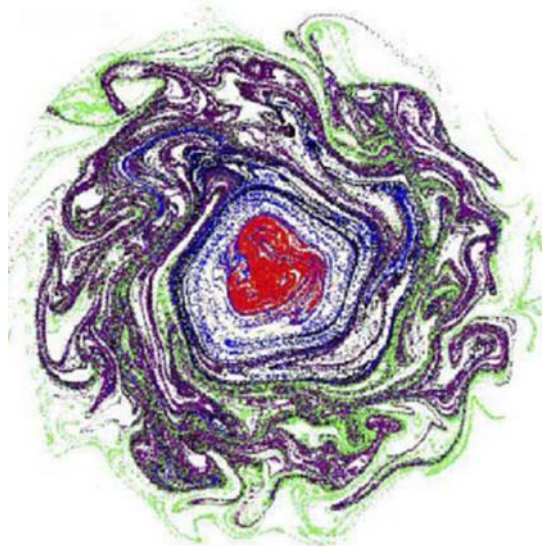
Welcome to the second Bristol ChemLabS newsletter. Outreach activities form an essential part of the ChemLabS project and this newsletter is something of an Outreach Special. Our aim is to stimulate and engage students of all ages and to demonstrate the relevance and importance of chemistry to the wider community.

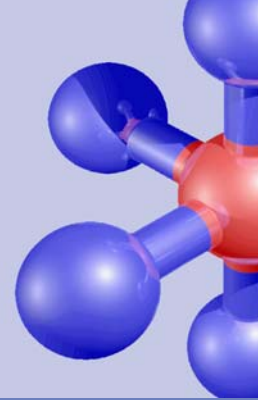
I am therefore particularly pleased that Dr Dudley Shallcross, the Bristol ChemLabS Outreach Director, has just received the first Society of Chemical Industry (SCI) Science Education Award.

Our outreach programme is certainly extensive and is getting bigger all the time. I hope that this newsletter gives you at least some flavour of our many outreach events. Please feel free to contact us if you would like to be involved in any future activities.



Prof N C Norman
Chief Executive of
Bristol ChemLabS





ChemLabS Profile: Steve Croker

Steve Croker, Senior Technician for the undergraduate teaching laboratories in the School of Chemistry, is a vital member of the Bristol ChemLabS team. Steve joined the University of Bristol in 1981 and originally worked at the Long Ashton Research Station of the Department of Agricultural Sciences using mass spectrometry to investigate the chemistry of plant hormones. He joined the School of Chemistry in 2003 and since then he has been a familiar and friendly face to the many students who have passed through our old teaching laboratories.

Steve is involved in every element of the ChemLabS project and, along with Teaching Laboratory Managers Drs Tim Obey and Tom Podesta, will have responsibility for the day-to-day operation of the refurbished laboratories. The laboratories are due to be handed back to the School of Chemistry in January 2007 and Steve is already expecting a hectic few months as new equipment and instrumentation arrives and needs to be installed and commissioned ready for the return of the undergraduate students.

Whilst working at the Long Ashton Research Centre, Steve became the area coordinator for schools liaison activities and he remains actively



engaged in many of the outreach activities organised by Bristol

ChemLabS. He is certainly kept very busy preparing demonstrations and experiments for the numerous visits made by members of the Outreach team to schools and colleges and our many workshops and summer schools also take some organising! Steve regularly takes to the road to assist with outreach activities. Indeed, he has only just returned from a trip to Dublin where the ChemLabS Outreach team were running a summer school for year 12 students in collaboration with Trinity College.

Maintaining this level of activity, even during the period when the School of Chemistry's own teaching laboratories are closed, has been a particular challenge for Steve and the members of his team. Other departments within the University of Bristol have, however, been very willing to help, and Steve and the ChemLabS Outreach team are extremely grateful to the Department of Biochemistry in the School of Medical Sciences and the Department of Physics for hosting so many of their practical activities.

Steve comments that he is looking forward, rather anxiously(!), to the opening of the new laboratories. Bristol ChemLabS promises to revolutionise the way students study practical chemistry and Steve is sure to be in the thick of all of the exciting developments that the project will bring.

www.chm.bris.ac.uk/teaching-labs/

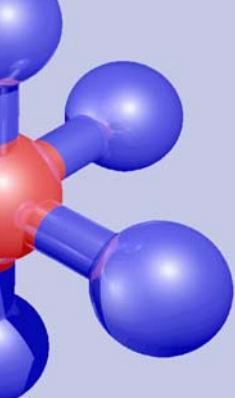
Taking Chemistry to the Classroom

The Bristol ChemLabS Outreach team has just taken delivery of a new compact, robust and portable infrared spectrometer. Infrared spectroscopy forms an important part of the post-16 chemistry curriculum, but in the past students in schools and colleges have had few opportunities to record their own spectra and learn about the technique at first hand. As a result, Spectroscopy Tours of the School of Chemistry have become increasingly popular, with over 500 students visiting us last year. Although such visits always prove to be both a stimulating and valuable experience, many schools and colleges find them hard to timetable and costly to resource.

The purchase of the new instrument, a Thermo Electron Transport Kit, will overcome many of these problems. Its design makes it ideal for taking directly to schools and colleges as part of a programme of spectroscopy roadshows. Allowing classes to use the instrument in their own laboratories will provide opportunities for many more students to learn about infrared spectroscopy. The instrument can be used to demonstrate many aspects of the post-16 syllabus, from illustrating the theory of infrared spectroscopy itself to analysing the products of a chemical synthesis. It will prove invaluable for students engaged in extended experimental projects as part of their coursework.

www.chemlabs.bris.ac.uk/outreach/chemnet/





Women in Science

The Bristol ChemLabS Outreach team have been collaborating with Dr Dimple Patel of the University of Loughborough to help promote science as a career for women. In February 2006, Tim Harrison, the ChemLabS School Teacher Fellow, held a morning workshop for 25 young women, aged between 13 and 14, from Malmesbury School, Wiltshire. The event, which formed part of the WISE — Women into Science, Engineering and Construction Campaign, gave the students the chance to explore some novel chemistry and to meet a practising female scientist.

The students investigated the electrochemistry of Grätzel cells, which make use of dyes coated onto titanium dioxide to convert solar to electrical energy. Such devices offer an environmentally friendly alternative to conventional silicon-based cells, and the students were able to test the devices they made using the naturally occurring dyes that are found in

cranberry juice, blackcurrants and hibiscus tea.

The WISE workshop was just the latest in a series of Bristol ChemLabS outreach activities involving the use of Grätzel cells. In the autumn of 2005, over 30 Grätzel-cell kits were distributed to local schools in a scheme supported by the Universities of Bristol and Loughborough, along with the Engineering & Physical Sciences Research Council and the Royal Society of Chemistry. ChemLabS also hosted a special in-service training and continuing professional development workshop in December, which allowed teachers to discover how the kits could be used in the classroom to illustrate aspects of chemistry, biology, physics and material sciences.

www.chemlabs.bris.ac.uk/outreach/chemnet/Chemnet_06spring.html
www.chemlabs.bristol.ac.uk/whatsnew/Gratzel1205.html
www.wisecampaign.org.uk

Chemistry for our Future

Bristol ChemLabS is set to play an important role in the pilot phase of the Chemistry for Our Future project. This initiative, which is one of a series of projects to support subjects that are strategically important to the UK economy, is funded by the Higher Education Funding Council for England and coordinated by the Royal Society of Chemistry. In total, £3.6m has been awarded to support a diverse range of activities in the initial pilot phase. Bristol ChemLabS will be helping to explore ways of making better use of University facilities for the benefit of students in secondary education. Students from schools and colleges across the region will visit our newly refurbished teaching laboratories to perform some of the experimental work that forms part of their A-level or IB syllabus. The sessions will be timetabled for Wednesday afternoons and vacation periods when the laboratories are not in use by Bristol undergraduate students, so ensuring the best possible use of the ChemLabS facilities. In a comparative project, conducted by the Department of Chemistry at the University of Sheffield, laboratory space will be dedicated for the sole use of incoming school and college parties. The initiative will give students a real and exciting experience of practical chemistry, something that is difficult in many under-resourced school and college laboratories.

www.rsc.org/Education/ChemistryForOurFuture/

The Sweet Smell of Success

In November 2005, Bristol ChemLabS held its first perfume-chemistry workshop at Badminton School, Bristol. A group of post-16 students were shown the chemistry behind the development of perfumes, how the perfume industry works and how best to use, buy and store perfumes. The students were even given the chance to create some of their own perfumes and John Stephen, the perfumer and owner of the Cotswold Perfumery at Bourton in the Water, was on hand to share his expertise with the students. The day proved so incredibly popular that further perfume-chemistry workshops have since been held. Our own undergraduate chemistry students even begged us to run a session for them!



Capital Success

Bristol ChemLabS has been successful in applying for additional funding from the Higher Education Funding Council for England, HEFCE, to support its activities. All 74 Centres for Excellence in Teaching and Learning were invited to bid for extra resources. Bristol ChemLabS joined forces with AIMS, the University's Centre for Excellence in the Teaching and Learning of Applied Medical Sciences, to put together an

integrated plan that would benefit both projects. In total, over £1 million was awarded for additional capital projects, split jointly between the two Centres.

The funding will be used, in part, to convert the School of Chemistry's existing coffee lounge into additional small-group teaching space. The creation of the new rooms will benefit not only chemistry undergraduates but

also the many school parties that visit the School of Chemistry as part of Bristol ChemLabS outreach activities.

Some of the additional resources will also be used to provide equipment and instrumentation for the joint Bristol ChemLabS and AIMS Lab-in-a-Van project that will give students in schools and colleges from across the region access to facilities.



original photo courtesy of Cowlin Construction

Taking Chemistry to a Higher Level

Behind the protective sheeting that currently covers the West Block of the School of Chemistry, building work associated with the first phase of the ChemLabS project is progressing well. As our photo shows, the new plant room, which will house the fume-cupboard extraction systems, is already in place on top of West Block.

www.chm.bris.ac.uk/teaching-labs/photosindex.htm

contact details



If you have any comments about this newsletter, would like to be added to or removed from our mailing list, have general enquiries about the ChemLabS project or need information about our outreach activities for primary schools, please contact the Bristol ChemLabS Secretary Ms Claire-Lise Braun
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chem-cetl@bristol.ac.uk



For further information about the CHemNeT network of schools and colleges, please contact the Secondary Schools Outreach Secretary Mrs Sue Williams
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