

Excellence Through Innovation

One of the aims of Bristol ChemLabS is to revolutionise the way undergraduate students study practical chemistry. Recent advances in information technology offer new ways of producing laboratory manuals that can greatly enhance the students' experience of practical work and promote better understanding.

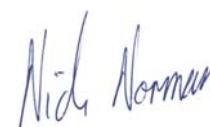
Students gain most from practical courses if they already understand some of the background to the experiments before they enter the laboratory. The DLM will allow them to prepare for experiments in advance, testing themselves with pre-laboratory exercises and guiding them through their own on-line safety

away from the laboratory. This will have important benefits for safety, minimising the number of students working within the laboratory at any one time. More efficient use of spectrometers and other equipment within the laboratory will also be possible, allowing more students to gain experience of state-of-the-art instrumentation.

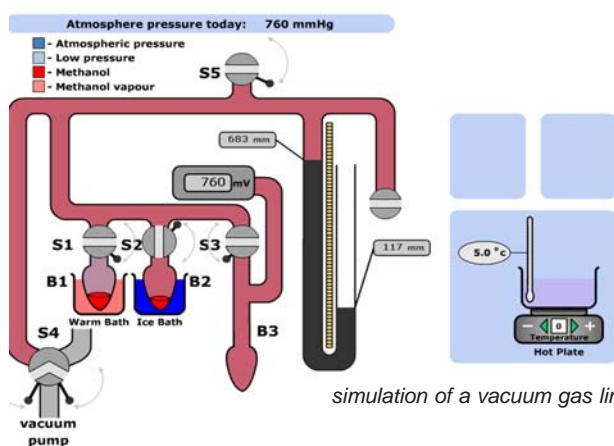


Welcome to the first Bristol ChemLabS newsletter. We hope that it will give you a flavour of some of our activities since funding from the Higher Education Funding Council for England (HEFCE) was announced in January 2005 for our Centre for Excellence in Teaching and Learning (CETL).

Bristol ChemLabS is the only CETL devoted to chemistry. For further information, please visit our website, where you will find more about all aspects of the project including details about the refurbishment of our teaching laboratories and our outreach programme, as well as news, staff profiles and contact details.



Dr N C Norman
Chief Executive of
Bristol ChemLabS



simulation of a vacuum gas line

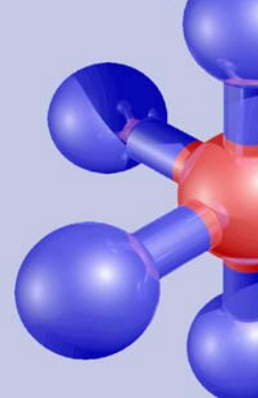
The ChemLabS team have therefore been working with Dr John Eastman of IMPACT Faraday on the development of a Dynamic Laboratory Manual, DLM, that will make the most of the opportunities that this new technology offers. The DLM will provide an interactive resource that students will use before, during and after their sessions in the laboratory.

assessments. It will even be possible to practise experimental techniques, using virtual instruments and equipment. Students will also be able to annotate and personalise the manual to allow them to keep their own individual record of their practical work.

Software incorporated into the DLM will also allow students to analyse data

Although the DLM will be accessible through the work stations at each bench within the new teaching laboratories, it will also be available remotely via the web; we are even exploring the possibilities of using PDAs and mobile phones to access the manual!

The DLM is set to become an integral part of our undergraduate laboratory course that will evolve as a lasting resource. Work on designing a completely new, integrated, laboratory course is well underway, and the first few experiments have already been incorporated into a pilot version of the DLM.



University Teacher Fellow Appointed

Dr Russell Cox has recently been appointed as the first Bristol ChemLabS University Teaching Fellow. Russell is already heavily involved in the development and implementation of Bristol ChemLabS, and the award of the fellowship will free him from other departmental responsibilities and allow him to focus on educational innovation. Russell has always had a keen interest in the teaching of practical chemistry. He remembers that his early experiences of chemistry teaching were always good — from watching Open University television programmes as a child to experiencing dedicated teachers at A-level. Indeed, Russell comments that although he originally intended to study Natural Sciences as an undergraduate student at the University of Durham, he decided to change to Chemistry because these courses were so well taught. Since he joined the School of Chemistry in 1996 he has been committed to ensuring that students at Bristol enjoy their practical chemistry courses as much as he did.

Russell also believes in the importance of the lecture in the teaching of chemistry and has just adapted one of his courses to make it available as a

series of interactive videos for Bristol students who are studying through distance learning whilst they are away on industrial placements. He is known for his innovation in teaching, with all his lecture courses supported using web-based materials.

Russell's research interests show the true breadth of chemistry and why undergraduates find it such an enjoyable subject. His research focuses on enzymology and biosynthesis in fungi and bacteria, work that has taken him from the University of Durham to research positions at the University of Alberta and the John Innes Centre in Norwich. He combines his interest in teaching with his research, recently inviting two students from Rednock School in Gloucestershire to spend time in his laboratory to find out what chemistry research is all about.

Even though the ChemLabS project keeps him busy, Russell remains passionate about the project's aims, believing that establishing a Centre for Excellence in Teaching and Learning in the School of Chemistry at Bristol will prove invaluable in allowing students and staff to realise their full potential.

Key Moments in the History of Bristol ChemLabS



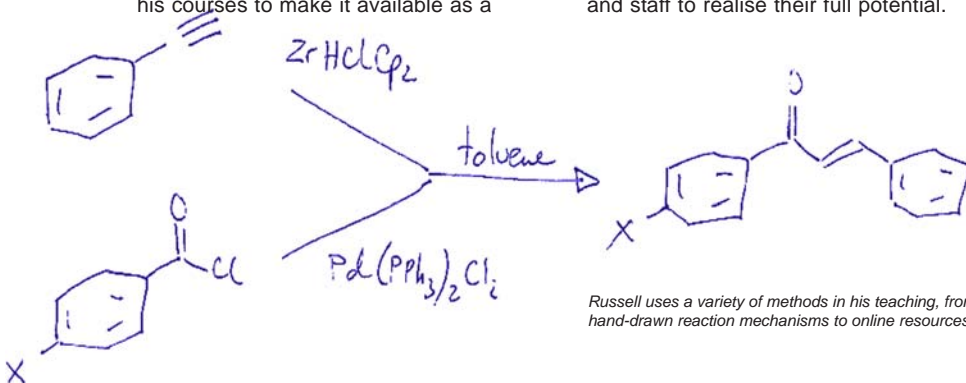
Top: Dr Kim Howells, Minister for Higher Education, and Liz Beatty from HEFCE visiting the School of Chemistry on 27 January 05, the day HEFCE funding was announced. Above: Head of Department Prof A G Orpen and Vice-Chancellor Prof E J Thomas celebrating the announcement.



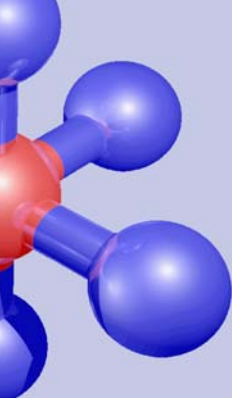
The inaugural Bristol ChemLabS Stakeholders Conference held at the School of Chemistry on 16 May 05.



December 05: Students perform the last experiments in the old teaching laboratories before the builders move in



Russell uses a variety of methods in his teaching, from hand-drawn reaction mechanisms to online resources.



Chem@rt



Photo: Simon Hall

Images from the Chem@rt competition: 'Frog Chorus' (above) and 'Boy in the Bubble' (below)

Bristol ChemLabS has launched the Chem@rt project, during the Royal Society of Chemistry's Chemistry week. Chem@rt is a competition for primary schools, intended to introduce younger children to some of the marvels of Chemistry. Sets of 16 images were distributed to 45 primary schools in Bristol and surrounding counties. The images themselves were derived from research work being performed at the School of Chemistry and included examples drawn from research into materials, colloids, enzymes, bacteria, the atmosphere and laser spectroscopy. Some schools have been mounting exhibitions of the images, with others using them in class as teaching aids. The Chem@rt collection has stimulated pupils' activities right across the primary curriculum, acting as an inspiration for their creative writing, poetry and art work, as well as showing them a

completely new and beautiful aspect of science. All pupils will receive certificates, with prizes being awarded for the best poems and stories. The project is supported by The Bristol Alumni Foundation, the Engineering & Physical Sciences Research Council Portfolio Partnership LASER and the Royal Society of Chemistry Bristol and local section. The Chem@rt project has proved to be an astounding success. Next year, we hope to make the competition even bigger!



Photo: Julian Eastoe

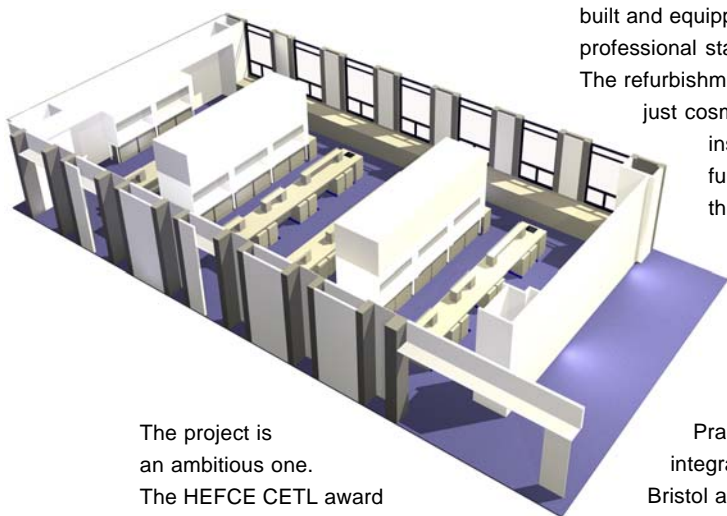
Awards 2005

Dr Dudley Shallcross, Outreach Director for Bristol ChemLabS, was recently awarded the 2005 Higher Education Teaching Award by the Royal Society of Chemistry. Dudley already holds National Teaching Fellowship awarded by the Higher Education Academy and in 2005 was given the Faculty of Science Teaching Prize by the University of Bristol. Dudley has considerable experience in organising events to promote Chemistry to a wide audience, having established the University of Bristol CHEMneT network of secondary schools and colleges and working closely with teachers in local primary schools on a range of activities.

Tim Harrison, the first Bristol ChemLabs School Teacher Fellow, has also recently received the Royal Society of Chemistry Schools Education Award for 2005. Seconded from Rednock School in Gloucestershire, Tim has a reputation for being an inspirational teacher and his unique combination of experience, enthusiasm and innovation will allow us to expand considerably our range of outreach activities.

Building for the Future

Work has just started on the biggest single building project yet undertaken at the University of Bristol in a development that will transform the School of Chemistry.



The project is an ambitious one. The HEFCE CETL award has triggered additional funding from the University that will eventually see over £18M spent on ensuring the School of Chemistry continues to offer state-of-the-art facilities for both teaching and research.

Much of the money will be spent on renewing our teaching laboratories, giving undergraduates, as well as students from outside the University, the chance to study chemistry in facilities built and equipped to the highest professional standards.

The refurbishment will involve more than just cosmetic improvements; the installation of 64 two-person fume cupboards will require the construction of a completely new air handling system, increasing the height of the West Block by an additional storey.

Practical chemistry forms an integral part of teaching at Bristol and members of staff have risen to the challenge of ensuring that students don't miss out whilst the laboratories are out of action. In the summer of 2005, first- and second-year undergraduates undertook an intensive programme of practical chemistry

following their end-of-year exams. Students found this a valuable experience, and similar courses will be integrated into the new laboratory classes. As the building project progresses, students will continue to perform dry practical assignments, working in small groups to analyse and interpret data from real experiments.

At the same time, the opportunity will be taken to bring the entire building up to the standard of the newly refurbished South and East Blocks. The work will refresh the outside appearance of the building. The School of Chemistry is already an impressive landmark on the Bristol skyline and this latest burst of building activity will transform its appearance. Students have just performed their final experiments in the old laboratories. Preparation of the site has already started with internal work scheduled to run from March through to December 2006.

contact details



If you have any comments about this newsletter, would like to be added 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
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For further information about the CHemNeT network of schools and colleges, please contact the Secondary Schools Outreach Secretary
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