

Bristol ChemLabS donor update Autumn 2011



This autumn, thanks in good measure to your support, Bristol ChemLabS enters its seventh year. Our outreach work continues to be highly popular and successful, with many repeat bookings already received for 2011/12 from schools and other organisations we have previously worked with.

In January 2011, an Ofsted report highlighted the importance of more practical science lessons in promoting engagement in science in schools. Through its outreach activities in primary and secondary schools, and within our own, world-class teaching laboratories, Bristol ChemLabS is helping to address this need.

We remain immensely grateful to our donors for supporting ChemLabS, and we hope this report will give you a flavour of the exciting work we have been doing in 2010/11. We also hope you will see just how wide the impact of your giving is: from sparking interest in science amongst schoolchildren, to motivating teachers to engage more in science themselves – and helping to develop the next generation of science teachers.

Bristol ChemLabS news

Chemistry LabSkills goes online: Bristol ChemLabS has just agreed a deal to develop a new online version of their award-winning Chemistry LabSkills software. Initially launched in 2008 to support UK A-Level Chemistry teaching, versions of Chemistry LabSkills are now used by thousands of schools and universities in over thirty countries worldwide. Until now, the software has only been available on USB memory sticks, but the new online version will make it available to a much wider audience.

Bristol ChemLabS publications reach all corners of Europe: Bristol ChemLabS articles on outreach-related activities and science topics have now been translated into 13 European languages, including Bulgarian, Catalan and Slovenian, and have had widespread impact across Europe. Eight articles published in the pan-European journal *Science in School* have been accessed online or in hard copy over 300,000 times in the past 5 years.

ChemLabS wins Big Tick Award 2011: We are proud to report that Bristol ChemLabS' schools outreach programme has received the Big Tick award for the third year in a row, in the Business in the Community Awards for Excellence 2011. Business in the Community is a business-led charity that advocates responsible business. Their Awards for Excellence are independent, peer-assessed corporate responsibility awards that celebrate those organisations that demonstrate a positive impact on the community, environment, marketplace and workplace. Professor Avril Waterman-Pearson, then Pro Vice-Chancellor, said: *"We are delighted that Bristol ChemLabS has been reaccredited in the 2011 Awards for Excellence. Its schools outreach programme continues to have a significant impact on the aspirations and achievements of young people, and the award reflects a huge amount of inspired work on the part of the ChemLabS team."*

CheMneT for primary schools: Following the success of our CheMneT network for secondary school chemistry teachers, earlier this year we launched CheMneT for primary schools, too. On similar lines to

the CheMneT network for secondary schools, members of the primary school network receive an e-newsletter 2-3 times per year containing information about Bristol ChemLabS activities for primary pupils, teacher training and other information of use to those teaching primary science.

Bristol ChemLabS at the 'Science on Stage' festival: Dr Alison Rivett, our ChemLabS primary school specialist, attended the the pan-European 'Science on Stage' festival in Denmark in April 2011, as a representative of UK schools' chemistry teaching. Science on Stage is a European initiative designed to encourage teachers from across Europe to share best practice in science teaching. Participants for the festival, held every two years, are chosen at competitive events held in each of the participating nations. Dr Rivett delivered one of only two live chemistry demonstrations at the festival.

Outreach highlights

In the 2010/11 academic year, Bristol ChemLabS reached over 1,500 primary and secondary pupils from around the globe. The majority of our outreach activities are based in the UK, either in schools or in the University of Bristol's own teaching laboratories, but we have also had engagements as far afield as Singapore, Jordan and New Zealand. Activities range from lecture demonstrations in primary and secondary schools, to week-long summer schools for post-GCSE students hosted in the Bristol ChemLabS Teaching Laboratories. Our demonstrations are full of sounds, smells and visual effects that we hope will excite and inspire the audience; our engaging workshops and science visits give schoolchildren the opportunity to carry out real experiments of their own, using materials and equipment not normally available in schools.

"I never knew science was such fun. I used to think science was boring but since ChemLabS came to our school I've wanted to learn more science."

Year 6 pupil



ChemLabS in the local community

In February 2011, children at a local Bristol primary school helped create giant bubbles as part of a special event on the science of bubbles. During the event, pupils learned what a bubble is, how bubbles are created, and how their colours and shapes are formed. The children then had a go at making their own bubbles, some of which were big enough to climb into!

The 2010/11 year also saw the launch of a year-long joint project with the AstraZeneca Science Teaching Trust, in which Bristol ChemLabS worked closely with nine local primary schools to give Key Stage 2 pupils (aged 7-11) a chance to experience the excitement of conducting their own practical experiments. Each school was allocated an 'experiment box' containing key teaching aids such as lesson plans and experiment

instructions, and all schools were given access to a specially-created library of apparatus and chemicals. In addition, teachers were given training on conducting practical science work, and were encouraged to devise their own lessons to give them greater confidence.

"A team of chemists from Bristol University came to show us a spectacular display of chemical reactions during our assembly. They also gave really exciting and interesting workshops to Years 5 & 6 in which they made slime, used Bunsen burners and did lots of investigative science. White lab coats and safety goggles were a fashion must at all times!"

Article appearing on the website of Hotwells Primary School, Bristol, 10 December 2010

The project is expected to complete early in 2012, when participants will be invited to comment on how their attitude to science has changed over the course of the project. The outcome we are hoping for is that both pupils and teachers are more enthusiastic about science, and that teachers feel they have the skills and confidence to run practical science lessons on their own. All the schools will continue to have access to the library of resources beyond the end of the project, which we hope will encourage the schools to continue a hands-on approach to science teaching. Following the success of the project in Bristol, schools in Cardiff have obtained funding for the project to be repeated there with Bristol ChemLabS' support in 2012. Bradford University has also expressed interest in working in partnership with Bristol ChemLabS to help tackle underachievement in science in Bradford using a similar approach.

ChemLabS in South Africa

Bristol ChemLabS continues to share best practice in fun, practical science teaching on an international as well as national stage. In August 2011, the ChemLabS Director of Outreach and School Teacher Fellow, Tim Harrison, was invited to deliver a series of lecture demonstrations at the Sci-Bono Discovery Centre in Johannesburg. Some 2100 pupils, from state and independent schools in Johannesburg and Soweto, enjoyed performances of two of ChemLabS' most popular lectures. 'A Chemical Delight' considers what is and isn't a chemical reaction, while 'A Pollutant's Tale' explores chemistry in the Earth's atmosphere – with the aid of liquid nitrogen, oxygen foam and a few explosions. This was Tim's second working visit to the Centre in two years; on the first occasion he trained Sci-Bono demonstrators to deliver chemistry outreach programmes similar to the one delivered by Bristol ChemLabS.



"On behalf of the Chemistry Department at UCT [University of Cape Town] I should like to thank all of you for the excellent presentation of 'A Pollutant's Tale'. Not only was it very entertaining, it gave us many ideas of lecture demonstrations to use in our own classrooms. I hope that we can do similar presentations in the Western Cape in due course."

Professor Bette Davidowitz, University of Cape Town

Welcoming Spanish students to Bristol ChemLabS

For the ChemLabS team, one of the highlights of the year was a summer school visit for students from Seville. The students were accompanied by a British teacher, Dr Jane Fletcher, who was, until recently, a ChemLabS postgraduate teaching assistant. Working with school students during her PhD helped her decide that she wanted to be a teacher – and now she was back in Bristol to give her students an opportunity to experience ChemLabS for themselves.

Training for Namibian teachers

While much of ChemLabS' outreach work focuses on children, the team also work with teachers to help build their skills and confidence in teaching science. In September 2011, the ChemLabS team ran a series of training sessions for teachers from townships in and around Windhoek, Namibia. When the team discovered that the teachers were unfamiliar with some basic chemical mathematics skills, they substituted some of their planned work on climate change chemistry for a more fundamental workshop focusing on these skills. In the UK, pupils learn these skills as part of the GCSE curriculum – so it is unsurprising that without these basic skills, teachers lacked confidence in teaching chemistry.



The team's experience in Namibia underlines just how significant an impact outreach work like this can have in developing countries: by giving teachers greater confidence, filling in the gaps in their knowledge or teaching key skills, we can help raise educational standards in these countries. If these teachers share good practice with colleagues, thousands of schoolchildren could potentially benefit from ChemLabS' outreach work. Armed with a better education in basic science, these children will have a firmer basis from which to enter key industries such as pharmaceuticals, manufacturing or energy production – all of which are critical to economic development.

“The pre-A-level day was enjoyed immensely by every participant, and all indicated they were more likely to study A-level Chemistry as a result.”

Saskia O'Sullivan
Teacher, Ribston Hall High School

Looking ahead

We already have many engagements booked for 2012 and even as far ahead as November 2013, both in the UK and abroad. Ribston Hall High School in Gloucestershire have asked us to come back for a caffeine extraction workshop and a pre-A-level Science Day, following the success of our visits to the school this year. We have visits planned to schools in Dorset, Birmingham and Bath, along with a Spring Science School in Italy and a demonstration of 'A Pollutant's Tale' in Australia.

Bristol ChemLabS postgraduate teaching assistants

The Bristol ChemLabS outreach programme relies heavily on the commitment and enthusiasm of our postgraduate teaching assistants. They run demonstrations, provide support to students during laboratory sessions, and help prepare outreach activities.

Four years ago, Bristol ChemLabS introduced the ChemLabS Postgraduate Teaching Prizes to formally acknowledge the contribution of some of our best postgraduate teaching assistants, and to recognise the high quality of their teaching and demonstrating. We asked **Shirin Alexander**, one of this year's prize winners, about her involvement with ChemLabS and what she has learned from the experience:

The postgraduate perspective

"I have been involved with Bristol ChemLabS outreach activities and undergraduate demonstrations since I started my PhD about 3 years ago. I enjoy working with both primary and secondary school children, but for different reasons – you need different skills to interact with each age group.

Being involved in outreach work has taught me how to explain the science in a way that people from different backgrounds can understand. I've also learned how to deal with the students in different situations, and I have improved my organisation and communication skills.

The places that I have visited and the people I have met through outreach activities have helped make my work with ChemLabS a very valuable experience. It has given me some great opportunities to do things that would not have been possible without the ChemLabS outreach programme.

I was completely surprised by the announcement that I'd won a Postgraduate Teaching Prize, but I am proud of what I have achieved. I've already signed up for more demonstration work this year!"



The impact of giving to ChemLabS

Your support enables us to run a packed schedule of outreach activities, which in turn gives postgraduate students like Shirin hands-on teaching experience. These postgraduate students could be the science teachers of the future – so this is a fantastic way to whet their appetite and help them develop key skills.

As the UK economy becomes increasingly reliant on pharmaceuticals and a host of high-tech industries, the development of top-flight scientists is more important than ever. This means inspiring children to engage in science at an early age. Our work promotes greater engagement in science amongst schoolchildren and teachers by demonstrating that science is exciting and is relevant to our daily lives. We also aim to enthuse teachers and give them the tools to teach science with greater confidence – and we nurture teaching talent amongst our own postgraduate students.

But none of this would be possible without you. Philanthropic support continues to provide a vital income stream for Bristol ChemLabS. Indeed, without your donations we would not be able to fund the post of School Teacher Fellow – and without this dedicated post most of our outreach activities would not be possible.

Thank you

We would be pleased to assist you with any queries relating to your donations to Bristol ChemLabS or about the ChemLabS programme. You can contact us by telephone on 0117 928 7938 or by email at alumni@bristol.ac.uk.