

## Case Study 3      Chemistry: RSC Teacher Fellowship

### Background

This activity is led by Dr Peter Hoare, an RSC (Royal Society of Chemistry) Teacher Fellow working in the School of Chemistry at Newcastle University, funded through the RSC project "Chemistry for Our Future" (CFOF) for the academic year 2008-2009. Dr Hoare is an experienced Chemistry teacher (20 years in teaching) on secondment from a local secondary school and is one of three current RSC Fellows nationally. He was appointed following both a "letter of intent to host a Teacher Fellowship" written and sent to the RSC by Dr Lee Higham, the current Outreach Director, and a competitive national interview and appointment process - the School of Chemistry had a vision to both widen and embed their already wide-ranging Outreach programme and also to demonstrate to the University that with suitable staffing such a post would be very beneficial to the both School and the University in the longer term.

### Aims and Objectives

There are four main aims of the RSC Teacher Fellowship project:

1. To develop strategies for bridging the gap between school and university chemistry courses, both in terms of content and practical experience.
2. To improve academics' knowledge of the content of A Level chemistry and GCSE science courses, current teaching practices in schools, the types and range of pedagogy used and the capabilities of incoming undergraduates.
3. To raise awareness amongst teachers – and students, their parents and guardians – of what it is like to study chemistry at university, the benefits of higher education and the career options available to chemical science graduates.
4. To develop sustainable links between schools and universities.

### Linking schools, colleges and Universities

A major focus of this transition activity is the 'outreach' work and by the end of the research, the project formally linked the University with a total of almost 1000 students from Years 12 and 13 from many schools and colleges across the region, covering institutions as far South as Middlesbrough, Ashington to the North and Hexham to the West. In addition, the project has links with Northumbria University (and their RSC Teacher Fellow) with the jointly developed and delivered "Chemistry in Your Shopping Basket" presentation which targets Years 5-8 students, an initiative

designed to show students that Chemistry impacts on every aspect of our daily lives and which has been seen by over 1000 students this summer, ranging from reception year up to year 9.

Dr. Hoare's work this year built upon and added to an already wide ranging and very successful Outreach programme in the School of Chemistry, described as "outstanding" by the School's ISR report in October 2008. Many other features of the programme focus on specific year groups and sometimes younger students, including:

- Spectroscopy tours for A level students
- Laboratory sessions
- RSC annual schools quiz and Salter's Festival (Years 9-11)
- Links with the Newcastle University PARTNERS (undergraduates) and Bitesize Uni. schemes
- Chemistry summer schools for Year 12's
- Chemistry Masterclasses within the 'Aim Higher' scheme.

### Exploring impact

During the time of the RSC Fellowship, school contacts and links with the University for 6<sup>th</sup> formers alone have quadrupled, (from 250 students up to 1000 students) as a result of successful efforts made by the Fellow through his contribution towards the Outreach work:

*We do Outreach just for the sake of doing Outreach, and not overtly as a recruitment tool, because it promotes Chemistry and our thinking is if every University was doing it, if every Chemistry department was doing that, then perhaps kids'll come here for a visit and then say "I'd like to do Chemistry" but maybe they'll apply to Bristol or Imperial or Durham or Manchester or wherever, but if all those Universities are doing the same hopefully some students might go to an Outreach activity in Manchester or York and think "this was good, I'd like to do Chemistry, I'll apply to Newcastle"..... (RSC Fellow)*

However, rather than being seen as 'just' Outreach, there are clear links to transition and benefits to students and Universities:

*I think there's a transition element in that [Outreach] because it's pre-transition if you like. If you get them [the students] enthused and you can up-skill them in terms of the practical skills and so on while they're still at school that'll obviously benefit whichever University, hopefully it's our University, they end up in. (RSC Fellow)*

The RSC Fellowship case study is an example of a transition activity which focuses on the pedagogical aspect of studying chemistry. Lab sessions on offer at the University to A level students offer practicals which are Stage 1 level (first year undergraduate level), but linked to the content of the major A-level specifications, so students actually experience University level teaching, learning and sometimes assessment. Indeed, Dr. Hoare has introduced what has proved to be a very successful and popular event for year 12 students entitled "What's it Like to Study Chemistry at Newcastle?",

experienced by over 300 local students in June/July 2009 which provided a whole day experience, including two lectures, a problem-solving workshop and a laboratory session.

In our questionnaire survey, one student told us:

*We had some introductory lectures for my subject, which went through what was to be expected of us during the year. We were also given some laboratory equipment and a book voucher to purchase course textbooks. [Student 1]*

Another student described how multiple transition activities (both school-based and university-based) helped her understanding of university life:

*With school: UCAS visit day to the University of Kent which was more of an options/finance day so did not really tell what uni life was about. Privately: medlink and medsim, at the University of Nottingham, which were really good as I got to do sample lectures, practical work (both medicine related) and also stayed in halls which all in all gave a good idea of uni life. [Student 2]*

## **Conclusions**

Having an individual solely responsible for the operational aspect of outreach and transition activities such as the RSC Fellowship appears to be key to the success of the programme. The Fellow had no teaching responsibilities within the School of Chemistry, and so has a clear remit. However, continuation of the post, and therefore building on the work undertaken during the Fellowship, is dependent on securing funding once the RSC Fellowship funding ends on 31<sup>st</sup> August 2009.

## **What makes a difference?**

- The RSC Fellowship and the outreach and transition work achieved within this remit is a good example of a programme of activities which is particularly subject-specific, but at the same time is generic in that it aims to raise aspirations and the profile of science generally.
- It also has the view that such activities must start early, and involves work with an increasing number of schools and a wide age-range.
- Some of the transition work is generic (visits to the University) whereas others have a clear pedagogical focus and explore teaching and learning within the University setting.