

The National Science Learning Centre

■ John Holman

During the lifetime of the pupils in today's schools, it will become routine to have a child's individual genome decoded at birth. Computers will work by quantum mechanics, making silicon chips seem big and slow, and chemists will produce tiny molecular devices which use intermolecular forces to assemble themselves. Extraordinary things are happening in science, which is increasingly seen as the bedrock of the UK economy. Science, and the science education which supports it, are more important than ever before.

More than any other subject, science teachers need subject-specific professional development, to keep them in touch with developments in their subject and ways of teaching it. This is what the Science Learning Centres, established by the Department for Education and Skills (DfES) and the Wellcome Trust, are here to provide.

What teachers told us they need

There is now a good deal of research evidence about what makes continuing professional development (CPD) effective. It is summarised in a paper that the White Rose team published in *School Science Review* in September 2005. There is more useful evidence in Sandra Leaton Gray's *Enquiry into Continuing Professional Development for Teachers* (2005) and in the recent research by the Wellcome Trust described by Peter Finigold on page 7 of this journal.

The past year has seen the construction of the magnificent National Science Learning Centre on the campus of the University of York, and while building has been taking place the Centre team have been busy getting ready. One of our key tasks has been to find out what teachers and technicians need from us. We ran focus groups and went to science teacher meetings – many organised by ASE – and talked to professional associations and stakeholders such as OfSTED. We carried

out an online survey of over 300 teachers and technicians to find out which areas we should focus on in our professional development programme for 2005/6. From these researches, we found the things that teachers and technicians value most in CPD – much of which confirmed what the research was already telling us. Teachers and technicians value:

- A focus on the subject – science – rather than generic issues;
- A focus on the needs of individual schools;
- Plenty of opportunities to reflect and learn from other teachers who are in a similar situation and trying to solve similar problems; and
- Comfortable accommodation and good food!

How the National Science Learning Centre will respond to teachers' and technicians' professional needs

Our programme of courses and events for 2005/6 is on our web portal at www.sciencelearningcentres.org/national. Some examples are shown in the Box 1.

All the courses are residential, using the National Science Learning Centre's

Box 1

Examples of National Science Learning Centre courses in 2005/6

- How science works: controversial and contemporary science
- Inspiring post-16 physics
- New and aspiring heads of science
- Teaching science to gifted and talented students
- Teaching vocational science
- Let's investigate science: Living things (primary)
- Technicians: co-leaders in science education
- Summer school for newly qualified teachers

own business class residential accommodation, *Franklin House*, with food at our dedicated restaurant, *Quarks*. We realise that for many schools, releasing a teacher for several days poses a significant challenge, but it is clear from research that to make a lasting difference, professional development needs to be sustained. We want teachers' visits to the National Science Learning Centre to be something that will make a difference to the rest of their career, and headteachers need to realise that investing in teachers' professional futures means a significant investment in time.

We are also aware that in many schools, there is increasing emphasis on school-based CPD. This has a great deal of value, because it enables schools to focus closely on issues specific to the school, but it misses the opportunity for teachers to meet and learn from others facing the same challenges in different schools. Getting away from school to a Science Learning Centre also gives teachers the opportunity for refreshment and reflection away from the daily pressure of school life and the school bell.

Our courses include a balance between science (updating subject knowledge), pedagogy (extending teaching skills) and subject leadership (how to make an impact back in school). They are delivered by experienced teachers, science education experts and research scientists. Box 2 shows an example.

Making an impact

We appreciate the frustration that teachers and headteachers feel when CPD is of poor quality and has no relevance to their own schools. To make sure we have an impact, we are contacting every delegate on a National Science Learning Centre course beforehand to find out what they want, so we can fine-tune each course to teachers' needs. We have devised an Impact Reward scheme, in which we use

Box 2

An example of a course: Enriching the teaching of science

This course includes:

- Inspiring open evenings
- Running an engaging museum trip
- Successful science clubs
- Science after dark
- Chemistry (and other) trails
- Science debates

Developers and deliverers include: teachers; National Science Learning Centre staff; staff from the National Railway Museum; Dr Peter Borrows; Dr David Slingsby; Professor Tony Ryan

some of the funds from the Wellcome Trust to make awards to cover the costs of attending courses. Teachers are asked to complete a simple application in which they show why they want to attend the course, what needs it will meet and how they plan to use their attendance to make an impact when they get back into school. In 2005/6, the funding for these awards is very generous and we have allowed for 20 awards for each course. However, the awards are being allocated now, so teachers and technicians must apply quickly in order to secure one.

The National Science Learning Centre: an asset for the science education community to share

The National Science Learning Centre has been provided by the Wellcome Trust for the science education community to share. Box 3 summarises the assets. As well as running our own events, we are keen to provide a venue for others to use. For example, in 2005/6, we will be hosting the Science Specialist Colleges annual conference; co-hosting the first-ever ASE Primary Science Co-ordinators' conference; accommodating the winners of the Institute of Physics Einstein Year bursaries; and providing bespoke training for individual schools. If you are interested in making use of the National Science Learning Centre assets, contact our Centre Administrator Maureen Legge.

Meeting the needs of schools and teachers

Professional development always has to be about both the individual and the school. Teachers and technicians need



Working with a scientist on a course at the Science Learning Centre East Midlands.

CPD to help them develop their careers as well as to meet the needs of their schools, and the Science Learning Centres are aiming to do both. We hope to welcome many ASE members to the National Science Learning Centre in 2005/6: the well-funded Impact Reward

scheme makes it especially easy to attend this year. For those who are not able to attend residential courses, we are holding three Discovery Days in January and February, in conjunction with the Royal Society. These will give a taster of what the National Science Learning Centre has to offer and will feature leading science education specialists and scientists, including Steve Jones, Colin Pillinger and Jocelyn Bell Burnell. Details will be sent to all schools this month.

References

- The White Rose University Team (2005). The continuing professional development of science teachers: a discussion paper. *School Science Review*, 87(318), 105–111.
- Leaton Gray, S. (2005). *An Enquiry into Continuing Professional Development for Teachers*. London: Esmee Fairbairn Foundation.

Contact details

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Box 3

The National Science Learning Centre assets

The building

- Two laboratories, preparation rooms and fabrication workshop
- Extensive collection of equipment and audiovisual technology
- Teaching rooms, seminar rooms and ICT suite
- 300-seat auditorium
- Exhibition area
- Resource Centre with a collection of resources to support science teaching
- 150-seat Quarks restaurant and Charm bar
- Dedicated 65-bed accommodation in Franklin House

The people

A permanent staff with skills in science, education, administration, marketing, ICT and information management, plus consultants