TSNews

TSN begins in Norfolk

After a flurry of 'matchmaking' activity at the beginning of the year, and quite a bit of media coverage, the Teacher Scientist Network was launched on 30 June this year. Well over a hundred scientists and teachers came along for a *blind date* at the John Innes Centre to meet their new partners, to hear how this new venture could develop, and to discuss how they might work together. Most scientists saw their partners again quite soon afterwards—but this time in school—to meet the children and other staff and to take a look around. Some teachers visited their partner's laboratory first.

So far, the network has around sixty partnerships, a small steering group of scientists and teachers and a coordinator, so the main elements are in place. And now the Gatsby Foundation has supplied funding to support it, we are all set for the next two years.

Of course, any network needs contact and communication between all its elements and one of the purposes of this newsletter is to help that happen; we all need to know what is going on, both inside and beyond the network.

Welcome to the first edition of the TSN news.

First impressions

Next time we will hear what the teachers have to say, but for now here is a sample of how some scientists felt during their first visits.

- 'I felt a bit like the visiting fireman.'
- 'The questions they ask! One of the children said 'How much do you earn?"
- 'I found my visit very worthwhile.'
- 'I was absolutely terrified at first, speaking to the fifth years, but it was OK.'
- '…very entertaining!'
- 'I was, frankly, horrified to find the science coordinator (at a first school) had no A level in a science.'
- 'The teachers were very welcoming, they made me feel at home right away.'
- 'I was horrified at the poor levels of equipment and resources.'
- 'I left messages with the secretary (of the high school) three times, but my partner never received them.'
- 'I'm looking forward to my next visit.'

John Green (UEA) is partnered with Keith Weston (Ditchingham Primary School)—

'I introduced myself to a group of about 30 children by talking about things falling over easily, or not. We looked at things like dangling objects, sticks fall-

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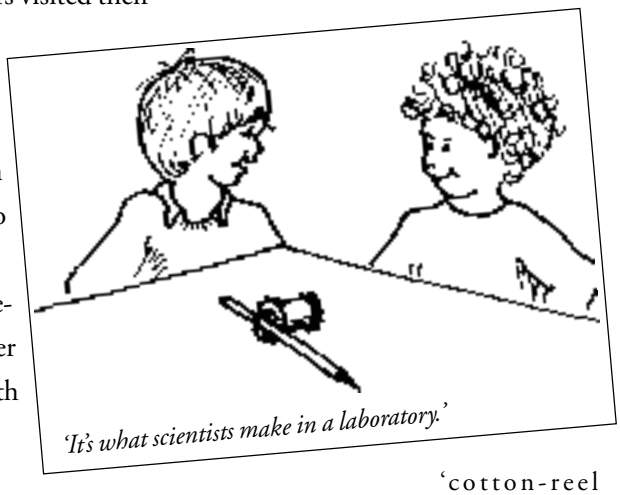
What's happening so far?

Almost all partners have had their first meeting in school, the scientists have met the children and other staff and discussed ideas for the forthcoming year. Already there are some exciting things happening, from 5 year olds (and their teacher) being introduced to the mysteries of the



'It's what scientists make in a laboratory.'

'cotton-reel tank' during a session on toys, to teachers and older pupils visiting professional laboratories and learning about the procedures used in them. As an introductory activity at one primary school children fired questions to the teacher's partner about being a scientist; 'What sort of things do you do?' 'Do

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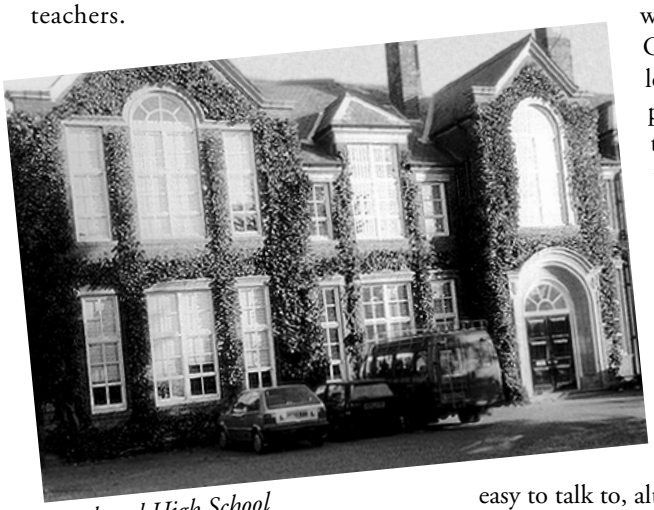
ing over, spinning tops and riding a bicycle. It was a bit open-ended with some interactive bits for the children. The teachers, who were as anxious to learn as the children, helped out by reminding the children (and me) of key words.
One of the teachers asked me to do a morning on 'toys' to 5-6 year-olds. When I arrived one of the group whispered to his companion 'It's the science man again!'.
I found the teachers relaxed and friendly; we talked about hobbies and mutual friends afterwards and discussed ideas for projects and demonstrations for parents, but I also had the impression that they were just glad to have someone to whom they could ask questions.
My experience at Ditchingham Primary is very different from one I had some time ago. I offered science to a local school—I was allowed space in the kitchen with no supervising teacher. I did not repeat my offer.'

Isobelle Côté (UEA) is partnered with Rudi Polednik (Neathered High School)—
'I first visited my school, a High school in Dereham, near the end of the school year. It was their sports day and my science partner, Rudi, was officiating the 400m race. It was a bit of a challenge to find him, but some 'kind' teacher-type fellows helped me by shouting over a loudspeaker that a young lady was here to see him!
Rudi showed me round the school and introduced me to several of the science teachers.



Neathered High School

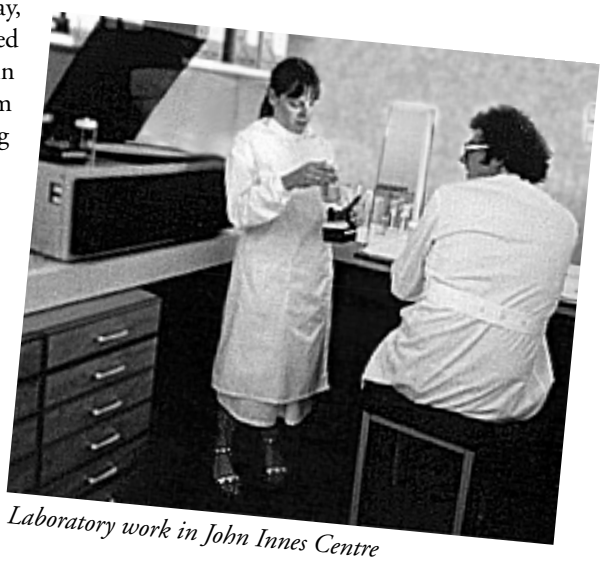
I remember being impressed first by the beauty of the facade of the school, with its cascades of ivy on old brick walls, and then by the obvious commitment of the school to science education. There were a number of large science laboratories, some recently just refurbished. I also saw several computer rooms which would make my own university department envious. Rudi explained that Neathered and a neighbouring Dereham school have joined forces to form a joint sixth-form. This pooling of resources appears to benefit the students tremendously.
We have already discussed the potential nature of our next encounter. We both agreed that it would be a good idea for me to talk to Y11 (fifth formers) about what it's like to be a scientist. They may get a slightly biased view of biology when I show them pictures of tropical places where I've worked (Rudi's idea!). Anyway, I hope to go back to Neathered some time during our autumn semester to do this, and I'm looking forward to developing our link further.'

Phil Mullineaux (John Innes Centre) is partnered with Helen Gammage (Costessey GM High School)—
Our partnership began by Helen visiting the John Innes Centre to see the laboratory and our procedures here. We also talked about how I might be involved at Costessey.
I then visited a Y10 (Fourth form) class at the School; they were engaged in a GCSE project; it looked like a good experiment to me although they did seem to be getting some strange results. I moved around amongst the kids whom I found very enthusiastic. They were a bit reticent to speak at first, but once started, I found them very easy to talk to, although I'm not sure I made much impression on them.
I think maybe I might be more useful in the sixth form, and Helen and I have talked about that. I think we work well together.'

Summer Teacher Research Fellowships

The 1995 TSN Scheme explained

Next summer several research fellowships will be available for teachers who are members of the Network. This may seem a long way ahead, but now is the best time to think about the scheme and to see what it might offer you and your school. Many learned societies in the US now sponsor similar teacher fellowships and enough has been learned to know that they are a valuable national resource, with real benefits to teachers, children, and scientists. We believe it will become a vital activity of the TSN.



Laboratory work in John Innes Centre

What they are

The fellowships provide, in the summer vacation, a one-month experience for a teacher in an active research laboratory. A major goal would be to use the expertise of the research group involved to help devise useful investigations, experiments, or kits that might be of use in the classroom. Many teachers have science training but have not necessarily experienced the hands-on, problem-solving activity that is the essential fun ingredient of the work of professional scientists. By providing a glimpse of the day-to-day practice of science, we hope that teachers will be able to carry this insight and enthusiasm back into the classroom.

What they offer

Each fellowship is funded at a level of £800. The notional allocation of this will

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you wear special clothes?' 'How much do you earn?' 'Is it dangerous?'.

Tell us about it

Clearly it is important that we share our experiences around the network. Some partners have begun with a very clear idea of what might be done, feel comfortable with their partners and the children and are very enthusiastic, their main worry being where to find the time. Other partners, though equally enthusiastic and committed, are unsure about what is expected of them and would welcome some ideas about how to continue. This is one of the functions of the newsletter. When you have something that needs broadcasting around the network—a successful talk, a good idea for an investigation, a lesson in which a scientist played a particular role, or simply enjoyable interactions with children and teachers at school—do let us know.

Learning from mistakes

Things go wrong as well of course. But bad experiences are useful for others to know about in order to avoid them; so we need to hear of these too. Here is an example from America reported by Maxine Singer, President of the Carnegie Institution of Washington, D.C.:

'We (scientists) may know about science, but most of us have precious little idea of how to teach it to young children or even high school students. The major San Francisco earthquake occurred during the first months of a science education program for elementary schools initiated by the Carnegie Institution; it was easy to recruit a very eager young scientist from a Carnegie department to talk to the children about earthquakes. But it didn't work. With no training in how to talk to children the young scientist lost his audience within a minute, despite his obvious enthusiasm. The director of the program came to the rescue; in another minute we knew that some of the children who were immigrants from Central America had themselves memories of earthquakes. From their descriptions and after a few well-chosen questions, the children were considering what goes on under the surface of the planet. By the end of the hour they were comfortable with a rather sophisticated view of the structure of the Earth.'

Why do we need the TSN here?

The idea of teacher-scientist partnerships began in San Francisco some years ago when school science in that area was at a low ebb. The partnerships were initiated by the University of California to effect systemic change in science education, and in this they have been amazingly successful.

Norfolk, however, is a long way from San Francisco in 1987 in every sense. Science in this county is not at a low ebb. For a number of years now the LEA has been encouraging teachers to advance science in their schools. Norfolk has promoted primary school science with a very successful team of advisory teachers, and was the first LEA in the country which had 100% of all its high school pupils engaged in balanced science programs that included all three branches of science—all this before the National Curriculum appeared. So why the Teacher Scientist Network? Well, for schools it is to *aid and enhance* the science already in place. That's all. There's no hidden agenda.

For teachers, the science community is a large untapped pool of information, ideas and help with resources. For scientists there is the chance to be involved with local science education and to use their science skills in new ways.

Purpose

The purpose of the Teacher Scientist Network is to aid schools by:

- bringing in fresh, up-to-date information and other resources;
- providing teachers with a contact for science information and advice;
- creating a network of communication between the science community and the education community;
- producing materials and ideas for new investigations in the classroom;
- providing teachers with opportunities for developing investigations in professional laboratories.

But it is not all one-sided, scientists profit as well. They gain insights into educational processes and purposes, and have the opportunity to become involved. Bruce Alberts, President of the National Academy of Sciences, said of the original scheme: 'When the Science and Health Partnerships began at UCSF in

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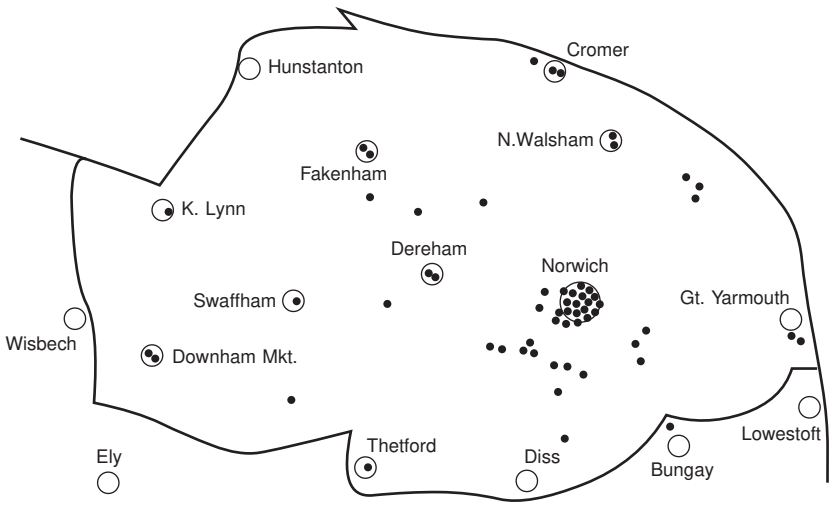
TSN Partnerships



Numbers of Teachers

First Schools	7
Primary Schools	12
Middle Schools	10
Special Schools	1
High Schools	29

Numbers of Scientists

John Innes Centre	24
UEA	26
Institute of Food Research	9

Total partnerships: 59

1987, I viewed it largely as an effort of an institution that is rich in science, equipment, and supplies to help our needy colleagues—the science teachers… I had no idea how much the scientists would learn from these teachers about effective teaching methods.'

Norfolk Partnerships

At the launch of the TSN, in a comfortable and relaxed atmosphere, the range of possible activities were outlined. Teachers were told of the scientist's perceptions and anxieties, and the scientists were told of the teacher's. Partners met one another for the first time to talk over what might be possible for them. Most partners wanted to meet at school and in classrooms, quite often with the scientist becoming engaged in classroom activity, but sometimes the contact might be by telephone, and sometimes the teacher might see the scientist at his or her laboratory. The frequency of these proposed contacts ranged from one or more a week for some partners to a few times a year for others—whatever suited them. Some scientists were not able to commit a lot of time, and some teachers needed only occasional contact for help or information. Others wanted a much heavier involvement, and frequent contact of the scientist with children. Either way, at the end of the session each partner had a good understanding of what was realistic.

The reasons for partnership contact varied: some teachers wanted their children and the scientist to meet one another—children talking to a 'real' scientist and getting to know him or her. Sometimes the scientist might become quite involved with some lessons and help the teacher or the children with their science activities. Occasionally the scientist might make a direct contribution to a lesson, perhaps by showing samples or special equipment, or by talking about his or her work. As well as offering advice and help when appropriate, some scientists said they might be able to offer resources and materials for a particular section of school science work.

A few problems

Most partnerships have got off to a good start, but one or two have had a few problems. This seems to have happened to partners who were unable to attend the induction at the launch in June, and stems mainly from a difference in perception and understanding of the partnership's purpose. We know now just how important this mutual understanding is, and we will make sure all new members receive some form of induction before beginning a partnership.

Other activities

Although partnerships are the core activity of the network, we plan to hold at least one yearly meeting/conference where members can exchange information and ideas.

We also plan to offer the opportunity for teachers to work for a while in a research laboratory during part of their holiday. There will be a stipend paid to the teacher, a grant for classroom materials, and a fee paid to the host laboratory to cover costs. This will be £300 as stipend and expenses for the teacher, another £300 for the teacher to take back to use in the classroom or for kit development, and £200 for the host laboratory. We already have 3 or 4 fellowships funded, but we shall be seeking funds for more.

Who can apply

The fellowships are open to all Network teachers. It might appear that the scheme would most benefit science teachers in secondary schools, but we are sure that other teachers, who may have little formal science training, will derive just as much benefit from the experience. There is no expectation that the teacher would work in the lab of their scientist partner, but equally that's not excluded!

How to apply

If you decide you can find a suitable 4-week period in the summer, and would like to apply, you should write to either Keith Roberts (John Innes Centre, Colney, Norwich NR4 7UH) or to Bill Sutherland (BIO, UEA, Norwich NR4 7TJ) mentioning the dates when you would be able to take up the fellowship, what, if any, science background you have, and any preferences you might have for a science area to work in. We shall make decisions about allocating the fellowships around the beginning of the summer term, when we will also know how many we finally have available, so your application should reach us at the latest by Easter.

A message to the scientists

The success of this scheme will depend on labs that are able and willing to host a teacher for 4 weeks next summer. As an incentive, there is £200 on offer for each host lab! So that we can match teachers as effectively as possible with subject areas, we would be very grateful if all labs who are, in principle, willing to participate could let Keith or Bill know as soon as possible.

Contributions to TSNews

When you have something for the newsletter, don't hesitate—send it to Frank Chennell or Keith Roberts. If you are able to include illustrations or photographs so much the better.

Teacher Scientist Network
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