

## TSN has a Ball

The Teacher Scientist Network held its eighth Annual Meeting in October at the JIC Conference Centre when around 200 teachers and scientists came to our October 'Kick Off Conference'. After a short business meeting TV personality Johnny Ball, the popular communicator of science and mathematics, entertained us by

talking of his long experience as a science communicator with adults and children.

Later, teachers and scientists – many of whom are already partners in TSN – met, chatted, and shared ideas over refreshments. Teachers staggered to the car park carrying bags and boxes of surplus laboratory equipment donated by JIC and IFR.



Frank Chennell

Johnny Ball

Keith Roberts

## TSN – How are we Doing?

The National Centre for Social Research has been commissioned to evaluate TSN. The first stage – a postal questionnaire looking at the way partnerships operate – is completed. The main findings indicate teachers and scientists are generally satisfied with their partnerships and find a major strength of TSN to be its flexibility, but say shortage of time a

difficulty. Teachers find the requirements of the National Curriculum can restrict their partnership work, and some scientists say their line managers do not acknowledge TSN activity as a valid part of their work.

There is to be investigation into other TSN activity and a further in-depth study of partnerships using interviews at a later time.

## New Members - Welcome

### Teachers

**Ms. Marion Watts**, Hethersett Middle School  
**Mrs. Helen Green**, Brisley Primary School  
**Ms. Kate Gragg**, Gresham's Pre-Preparatory School  
**Mrs. Anne Lowe**, Winfarthing Primary School  
**Mrs. Jane Marchant**, Winfarthing Primary School  
**Mrs. Jill Holt**, Avenue Middle School  
**Dr. Kate McCann**, Old Hall School  
**Mrs. T Burrows**, Colman First School  
**Miss Zoë Ladbroke**, Breydon Middle School  
**Mrs. Jayne Dingley**, Sparhawk First School  
**Dr. Chris Wiskin**, Bungay High School  
**Mrs. Angela Wang**, Hellesdon High School  
**Mrs. Rachel Mapes**, Wicklewood Primary School  
**Dr. Anrew Hinsley**, St. Felix School  
**Mrs. Claire Findlay**, Mattishall Primary School

**Mr Richard Perry**, Gt Ryburgh Primary School  
**Mrs. Jo Buckenham**, Shelton Primary School  
**Mrs. Claire Lawrence**, Gt Ryburgh Primary School  
**Mr Peter Muchlinski**, Hoveton Primary School  
**Mr Neil Henery**, Alington Primary School  
**Mrs. Janice Turner**, Aslacton Primary School  
**Mrs. Jan Browning**, Horsford Middle School  
**Mr. Richard Gregory**, Beeston Hall School  
**Mr. Richard Cranmer**, Notre Dam High School  
**Mrs. Sandra Watts**, St Thomas Moore Middle School  
**Mr. Alf Carrington**, Foulsham Primary School  
**Mrs. Judith Lesley**, St. William's Primary School

### Scientists

**Dr. Fiona Corke**, John Innes Centre  
**Dr. Nicola Patron**, John Innes Centre  
**Dr. Charlotte Parker**, Institute of Food Research  
**Miss Elizabeth Greenacre**, Institute of Food Research

## Kit Club

Now working part-time as Resources Officer for TSN, Sheila McCarter is developing and expanding the Kit Club. To borrow a kit, contact Sheila on 01603 450619 Thursdays or Fridays, or email her at sheila.mccarter@bbsrc.ac.uk. It would be very helpful if you are able to collect and return the kit on a Thursday or Friday (the days Sheila is at JIC).

You can get up-to-date news on the kits by going to the TSN website (tsn.org.uk) and looking under 'Support'.



Sheila McCarter

## TSN Coordinator/Administrator

The TSN coordinator retires next summer.

Applications are invited for a successor, who will have line management responsibility for part-time staff, to be appointed from Easter 2003 allowing an overlap period with the present coordinator. Applicants should have extensive experience in practical science education and might have either a school teaching background or a research background in science.

Further particulars can be obtained by post from Frank Chennell or may be downloaded from our website. The salary is established on the Teacher Main Pay Scale + Management 4 allowance (£25,206 to £33,324), and will depend upon age and experience.

Applications, including a full c.v. and the names of two professional referees, should be sent to Prof Keith Roberts at the address below, by December 31, 2002.

**Miss Flore Depeint**, Institute of Food Research  
**Dr Stephen Rawthorne**, John Innes Centre  
**Miss Stephanie Langford**, John Innes Centre  
**Mr Gary Brett**, Institute of Food Research  
**Mrs. Samantha Johnson**, John Innes Centre  
**Dr. Chris Hamilton**, CHEM, UEA  
**Miss Sarah Wastell**, John Innes Centre  
**Ms. Luise Potter**, Institute of Food Research  
**Dr. Ana Santos**, John Innes Centre  
**Mr. Miguel de Franca Doria**, ENV, UEA  
**Dr Barbara Bruno**, UEA  
**Mrs. Margaret Shailer**, John Innes Centre  
**Dr. Penny Brading**, Sygenta  
**Ms. Luise Potter**, Institute of Food Research  
**Mr. Simon Fox**, John Innes Centre  
**Dr Mike Linley**, Hairy Frog Productions

## Teacher Scientist Network

Coordinator: Frank Chennell,

Chairman: Prof. Keith Roberts

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www.tsn.org.uk



## TSN Ltd

It has always been a principle that TSN should be a 'bottom-up' organisation flexible enough to respond to its members changing needs. From the beginning we have had a Steering Group of six teachers and three scientists responsible for TSN policy and all its major decisions. In this way we have been able to try out new ideas suggested by teachers and scientists; our Master Classes, Primary Science Workshops and the Kit Club – all now well established and funded – began in this way.

Over the eight years we have been operating TSN has developed and adapted to changing needs, and we have grown very much larger. We now employ a part-time resources officer to run the Kit Club as well as the full-time coordinator to manage the network. A part-time volunteer worker has also joined us to help out.

We have now reached a stage where the governance of TSN needs to be formalised so that employees are on a regular footing and funding is properly structured. After taking professional advice the Steering Group has now made all necessary arrangements for TSN to become a limited company with charitable status. It will work like this: Steering Group members will become the Company Members, and four of these, the Chair, Keith Roberts; the Coordinator, Frank Chennell; a teacher, Jo Cheall from N. Elmham Primary School and one scientist, Dave Hart, from IFR, will become the charity trustees. The function of the Steering Group will remain unchanged, and TSN will operate in the same way that it always has.

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## Science Week 2003

*Secrets and Science of Survival 2003*  
For children at KS 2 and KS 3

TSN, the John Innes Centre and Mike Linley from the award-winning 'Survival' TV series are once more working together to put on another *Secrets and Science of Survival* event. This time – our fourth – the theme is *Getting the Message* and is to show children how living things communicate with one another.

There will be places for around 3,500 children and their teachers during the twelve sessions over the science week period. A multimedia talk by Mike Linley along with interactive displays and demonstrations, including live animals and plants, will make up the event. From aphids to chimpanzees, from slime moulds to whales, children will learn how organisms communicate, and how humans have developed technology to extend the



ways in which we communicate.

*Getting the Message* will run on 4, 5, 6, 11, 12 and 13 March 2003. Free tickets for school parties of key stage 2 and key stage 3 children will be available in the new year. All schools in the Norfolk area will be sent application forms at the end of January 2003.

## Spring Master Class

For high school teachers

The next TSN Master Class for high school teachers will take place on May 2 2003. Its theme is *The Digital Revolution: Artificial Intelligence (AI)*.

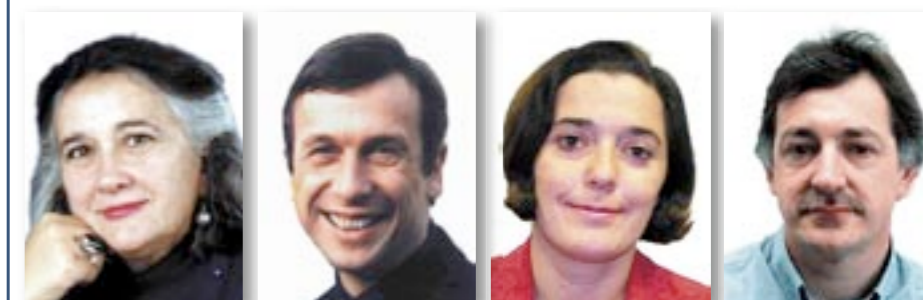
TSN Master Classes are for teachers who would like to bring themselves up to date in particular scientific fields. Although this Master Class is designed primarily for high-school teachers of science, teachers of other subjects, or teachers in primary and middle schools who have a keen interest, may also apply.

There is no charge to schools other than a modest registration fee which also

covers the cost of refreshments and lunch. Furthermore, the TSN will reimburse each school with up to £120 per teacher towards their supply cover costs for this event.

As usual, we have a line-up of speakers who lead the field: from left to right (below): Prof. Maggie Boden from Sussex University (philosophy and psychology of AI); Prof. Kevin Warwick from Reading University (cybernetics); Dr. Beatriz De la Inglisia from UEA (data mining) and Dr. Stephen Cox, also from UEA (image and signal processing).

Details and application forms will be sent to schools in the Spring.



## Essex Tales

Phil Smith  
John Innes Centre

Maxine Woods (my teacher partner) and I are fortunate that we are able to work with the same set of pupils for the whole day



now that we are based at a primary school in Essex. We can focus on science days with the children which inevitably become much more than 'just science'.

We began with a *Cells and DNA Discovery day* on my first visit to the primary school. We both thought this might have been a bit ambitious for Year 5 but by using interactive drama and a slide show (based upon the JIC/TSN *Cell City* production) they grasped the basic ideas. We then built on these with a range of practical activities throughout the day.

Our "Environmental Science" day was good fun with the children rummaging through bags of rubbish realising just how much waste we generate and how much of it can be recycled. We have also found some very simple activities work well – we organised a day of Investigative Science with pupils planning simple investigations into the properties of materials for designing 'Santa's Sack' and learning to use binocular microscopes by reading shrunken text from *Harry Potter*. How many times have we all shown kids things under microscopes and not been sure what they are looking at? This



is a great way to know they are using the microscope correctly.

Our biggest project was for National Science Week for which we were awarded a BBSRC grant: we transformed the school into a 'home' for the day. The children then worked their way around the home looking at a different aspect of science associated with each of the six different rooms: the kitchen, bathroom, dining room, study, workshop and the garden. For example in the 'scientific washing-up' activity they investigated the action of detergents in the kitchen.

The pupils worked in groups to come up with ideas for investigations that would answer their queries on plant growth. Nicola discussed the validity of their proposals and left pupils to make adjustments where necessary. Before her next visit, I taught the class how to write a plan for their investigation based on the criteria for achieving a Level 6 in an 'Sc1' at GCSE. We then used these plans to workout equipment requirements, and spent further time in class encouraging pupils to think about how they were going to record results,



for watering plants and recording results. another 'Sc1' skill!

By the time the pupils set up their experiments, I had been asked to take over an absent colleague's GCSE group and a student teacher inherited the year 9 class. Nicola kindly stayed with the project and assisted with the practical work,

and I can't wait to see the positive impact on another set of kids!

## Enhancing the Secondary Science Curriculum

Liz Drake  
Long Stratton High School

I was very pleased when Dr Nicola Patron from the John Innes Centre offered to work with my secondary pupils, as many TSN partnerships are formed within primary schools. I felt that here was a real opportunity to enhance the secondary science curriculum with visits from a working scientist.

**The impact of that first visit alone was enormous. Several girls in the class said that they now wanted to be scientists.**

During our initial meeting, I realised that the project could be designed to solve two concerns at the same time. Whilst teaching Year 10 pupils, I found that they had very little experience with full scale investigations, and were therefore really struggling with their first piece of coursework as required for the 'Sc 1' component of the GCSE curriculum. I had also been teaching a top set Year 9 group who needed extending due to boredom with the spiral curriculum, so it was decided to work with these high flyers and create time for some serious investigative work in preparation for their GCSE coursework next year.

Nicola's first visit was spent explaining her career path, and allowing pupils to handle her thesis, as well as discussing how the scientific community works. The impact of that first visit alone was enormous. Several girls in the class said that they now wanted to be scientists and it had given them the impetus to aim for high grades at GCSE next year. Nicola had spoken openly and honestly about both positive and negative aspects of a career in science, but had convinced them without referring to it specifically that girls can be scientists too!

whilst Elaine was happy to allow class time

## TSN & National Science Week

Wendy Harwood  
John Innes Centre

Dr. Wendy Harwood and her TSN partner Dr. Charles Hill together initiated a *Biotechnology Awareness Day* as part of this year's National Science Week.

Sixth-form students from Wymondham College, Wymondham High School and Attleborough High School converged on Wymondham College for this day-long event in which the students learned how to handle micropipettes, set up restriction digests and load agarose gels as part of 'hands-on' investigations into Genetic Fingerprinting and Bacterial Transformation.

Eighty-five pupils arrived, many of them getting their first practical experience of molecular biology. In between the incubations and gel-staining the students got the chance to meet with JIC scientists Lorelei

Bilham, Judith Harden and Phil Smith who joined Wendy and Charles to help out. The day also included a DNA polymerase chain reaction demonstration and a couple of background talks which helped put the

activities in context.

The event was made possible due to backing from the Norfolk Education Business Exchange and a grant for National Science Week from the BBSRC.

