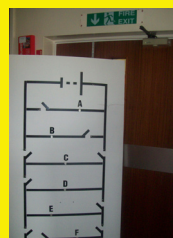


KIT CLUB NEWS!

Volunteer wanted
Electricity Games - FREE
Biofuels Resources

Many of you will have spoken with or met Gerty Ward over the last 6 months. She has helped run the Kit Club, modified the database and even produced videos for us, quite a sabbatical! At the end of May, Gerty will return to Durham, Massachusetts and we will miss her. TSN is seeking another lively volunteer to assist with the Kit Club. It would require a commitment of about 6 or 8 hours over 2 days and involve rigorous checking of returned kits, some Excel database entry and responding to emails and answerphone messages. A teaching background would be preferred, as would some availability during school holidays. TSN will cover your travel costs to/from our base at the John Innes Centre. Do you know anyone who might be interested in helping us out? If so, please get in touch with Phil directly on 01603 450304 or at phil.smith@nbi.ac.uk



We are offering to schools these large circuit boards for teaching about series and parallel circuits. Too big to reasonably become part of the Kit Club, they were developed for last year's Norfolk Science Olympiad and are now surplus to requirements but in full working order. Please get in touch if you'd like one in your school and we will arrange delivery.

A new set of resources to support teaching about Biofuels has been developed by the BBSRC. We have available to loan a collection of materials used for Biofuels (a mini-suitcase) and are directing people to the BBSRC website to download activity sheets and background information about the topic. Visit <http://www.bbsrc.ac.uk/society/schools/practical-biofuel-activities.aspx>

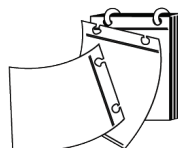


Please Note: we are now accepting kit bookings for the next academic year.

Information about ALL TSN kits at www.tsn.org.uk/KitClub.htm
or contact tsn.kits@nbi.ac.uk
Alternatively telephone The Kit Club on 01603 450619
(answerphone available)

Dates for your diary

- 9th Nov. 2012 - closing date for GIFT applications (p.3)
- Nov. 2012 - TSN Master Class (date tbc)
- 4th Feb. 2013 - Health and Life Sciences Careers Convention (Yr10's)



Teacher Scientist Network (TSN)

Telephone +44(0)1603 450304, Fax +44(0)1603 450045,
Coordinator: Dr. Phil Smith, MBE

Email ts.network@bbsrc.ac.uk, www.tsn.org.uk
Chairman: Prof. Keith Roberts, OBE

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Registered office: John Innes Centre, Norwich Research Park, Colney, Norwich, NR4 7UH

Norfolk CHEMnet

The Royal Society of Chemistry are seeking to develop a network of Chemistry teachers from across Norfolk to self-support each other. They plan to hold twilight meeting once a term and, supported by TSN, held their first meeting at the John Innes Centre last week.

The plan is to continue with these gatherings in the future, sharing ideas, networking and identifying how the RSC can best support you. The first meeting was an introduction to *Learn Chemistry* (the new web resource from the RSC) and a chance to see what is offered by 'Spectroscopy in a Suitcase'

If you are interested in attending these meetings in the future please contact Sue Thompson, RSC Regional Coordinator (East of England). thompson@srs.org or telephone: 01223 432159

Change of email at TSN

Please update your contact lists that use the @bbsrc.ac.uk endings to our email address. This should be replaced with @nbi.ac.uk

New Members - Welcome

Teachers

Ms. Abbey Spurgeon, Drayton Junior School
Mrs. Catherine Whittle, Thurton Primary School
Ms. Anneliese Lenzen, Gt. Yarmouth High School
Miss Sarah Holmes, Reepham High School
Mrs. Natalie Brown, Cringleford Primary School
Miss Katie Ellis, Thetford Grammar School
Ms. Sarah Dennis, Neatherd High School, Dereham
Miss Kathleen May, Royal Hospital School, Ipswich
Mrs. Lucy Conway, Neatishead Primary School
Mr. Jonathan Gent, Norwich School
Miss Kimberly Morton, Brockdish Primary School
Mrs. Mandy Reeve, Brockdish Primary School

Scientists

Miss Danielle Monk, John Innes Centre
Miss Joanna Harrison, John Innes Centre
Miss Kirsty Jackson, John Innes Centre
Miss Cristina Pignocchi, John Innes Centre
Mr. Alex Poulidis, John Innes Centre
Mrs. Carol Robinson, University of East Anglia
Mr. David Sutton, North Norfolk District Council
Miss Loretta Wickens, University of East Anglia
Mr. Christopher Judge, John Innes Centre



Cutting Edge Science in your lab



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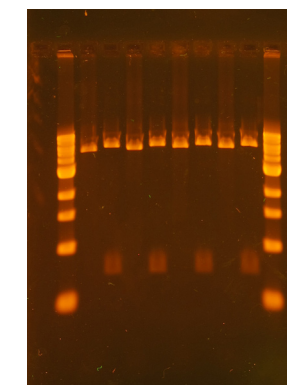
TSN has been working closely with the Science Learning Centre East of England on a successful bid to bring the Amgen Bruce Wallace Biotechnology programme to our region. TSN will operate a Norwich-hub with other hubs in Cambridge and Uxbridge.

The programme involves CPD for biology teachers and school technicians and the free loan of materials and resources to the schools involved. The programme has already made a significant impact on schools in the US, with over \$4 million invested. Cambridge, Norwich and Uxbridge are the first places where the

Amgen Foundation will be working with teachers and schools in Europe.

The Norwich training for teachers and technicians took place at the John Innes Centre on the 18th and 19th June and was delivered Dr. Phil Smith.

As soon as an email was sent to members



alerting them of the opportunity demand for places was high and we quickly filled the 10 school places available in this first year. We are hoping to extend the programme in 2013.

The practical programme introduced the use of laboratory grade equipment, restriction digestion, ligation and gel electrophoresis - techniques commonplace in life science labs around the world. All the consumables for the project - enzymes and DNA samples - will be provided from an Amgen Freezer based at the TSN Kit Club in Norwich.

Exciting times!

Future Master Class

Thanks to generous support from OPITO, TSN is delighted to announce its next Master Class for high school teachers. The event will look at the future of the Petrochemical Industry addressing the science behind the search for oil and gas, the geology underpinning this search and the safe transfer to the shore. With the constant talk of cutting green house gas emissions and the need for

more renewable sources of energy it is easy to forget that oil and gas will remain our major source of power for at least the next 25-50 years, while challenging scientists and engineers to search deeper and further from shore.

This event, which will offer IMPACT awards from the Science Learning Centre, will take place in November 2012. Further details will follow in the new academic year. The afternoon practical session will introduce 'Petro-challenge', a dynamic online educational event where students are grouped in teams. Each team acts as a virtual petroleum company in the business simulation OilSim. The team's challenge is to explore and discover oil and gas.

Keep up-to-date at our website as the programme develops and the date confirmed (<http://www.tsn.org.uk/news.htm>).



TSN is recruiting now for schools who wish to pursue the Primary Science Quality Mark in the next academic year. TSN is new hub-leader for the scheme in Norfolk, more details at <http://www.psqm.org.uk>

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Grow the Tallest Wheat Competition



our celebration of Fascination of Plants Day. Interest was high - 70 schools requested visits when we launched the project. We managed to visit eleven schools across the county, in a hope to inspire some plant scientists for the future. More about the project on our webpage <http://www.tsn.org.uk/FoPD2012.htm>

For National Science and Engineering Week 2012, TSN joined forces with the John Innes Centre and launched a simple challenge to schools - grow the tallest wheat plant. We supplied 100 seed to every school in the county and challenged them to design their own experiment to produce the Tallest Wheat plant, by 11th May - one week before

We were delighted so many schools are planning to continue growing their plants to produce seed and we heard about some great investigations. We heard of a school who took the time to borrow a hydroponics tent and water farm from a local supplier

Partnership Activity: Sarah Calne (Lynn Grove High School) and Paul Nicholson (JIC)

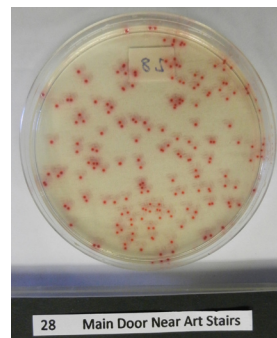
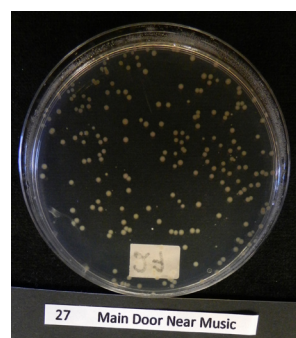
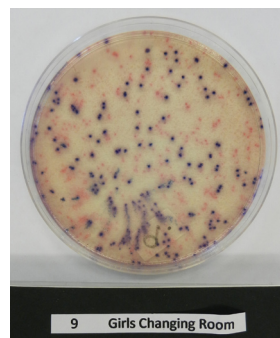
A long-term TSN partnership between biologist Sarah Calne and JIC-scientist Paul Nicholson has been awarded a **Royal Society partnership grant** to support their work together with pupils to investigate the distribution of *E.coli* and other coliform bacteria within the school. The project entitled '*E. coli* on the move ' will be used as an evidence base to educate pupils about the transmission of microbes and about methods of control.

The motivation for applying for the grant came following an idea from two year 10 pupils. They were interested in using environmental sampling to investigate the distribution of bacteria from the toilet blocks outwards around the school. Sarah describes the project and highlights Paul' input "Working together with Paul we have been able to fine tune this study to enable us to specifically identify the presence of *E.coli* and coliform bacteria. Using selective agar, colonies of *E.coli* show up as dark purple, colonies of coliforms as pink and other bacterial colonies are white. Through this work the pupils will gain an appreciation of the diversity of microbial biochemistry and the chemistry behind chromogenic detection methodologies for specific bacterial enzymes"

Inferences from the use of diagnostic selective media will be confirmed by carrying out DNA isolation and PCR to identify the genes responsible for the biochemical reactions. PCR will also be used to identify species of coliforms by reference to genomic sequence databases.

So what was Paul's role in the project? "My role was to act as a scientific sounding board to help develop the pupils ideas into a practical study combining techniques that they could apply in school with those that are only available within a research laboratory."

The techniques allowed the pupils to look into an unseen world in a way which has direct relevance to their everyday lives. This partnership study demonstrated to pupils that solving scientific questions requires the integration of a variety of scientific disciplines.



(unfortunately they didn't win, but came close!). Our winners were the Clare School in Norwich whose tallest plants had reached 660 mm

Turings Sunflowers



We were amazed by how popular our wheat growing competition appeared to be and have since heard of an even larger scale Citizen Science event associated with the Manchester Science Festival. Are you growing sunflowers in school at the moment? See <http://www.turingsunflowers.com/> for more details - they may want pictures of your sunflowers? A great opportunity to link maths and the History of Science. Here's a a video link to learn more about Turing: http://www.favscientist.com/video_turing.html

Partnership Grants

The Partnership Grants scheme from the Royal Society provides grants of up to £3,000 for science projects run at a primary or secondary school or college in partnership with a professional scientist or engineer. Since 2000, the scheme has awarded over £1.1 million to 660 schools.

The next round will open on 3rd September and close on 2nd November 2012. Further details at <http://royalsociety.org/education/partnership> and on the enclosed packet of seeds. Both the Education team at the Royal Society and TSN can help support the development of your application.



TSN is now Tweeting! Keep in touch with TSN events, help spread the word about our activities and start following @TSNphil now! The vast majority of the tweets I hope will be interesting, and not too much chit chat - I have no intention of describing my breakfast habits to the world. Already discovered The Vacuole Song on YouTube and heard about the passes of the International Space Station thanks to the Twitterarti and shared these with TSN's followers who now number almost 60. You can follow at first, and never tweet yourself, I did, but I defy you to stay silent for long! I hope this will provide another way for TSN to keep in touch with you. For those new to the world of Twitter, you will need to create an account (very quick & easy), and find TSN at <http://twitter.com/TSNphil>

Natural Hazards for GIFT 2013

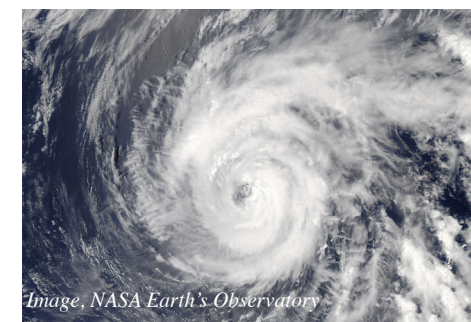
The 2013 GIFT workshop will fall earlier next year so we have brought forward the closing date for applications to the 9th November 2012.

The theme for the next GIFT workshop is Natural Hazards. Examples include earthquakes, volcanoes, tsunamis, famines, floods, climate (severe storms, strong winds, droughts) and wildfires. Natural hazards do not just originate on Earth, but can also be extra-terrestrial, such as asteroids potentially hitting the Earth, and solar storms.

Over 2.5 days your knowledge of the



Image, British Geological Survey, P063699



Image, NASA Earth's Observatory

causes of these hazards and their interactions with society will be explored. You will have time to visit the European Geosciences Union's general assembly and interact with teachers from around Europe and beyond.

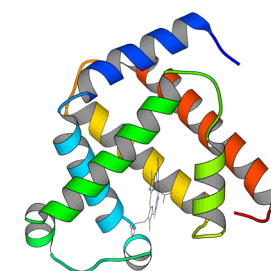
Places are limited for this exciting cpd opportunity in Vienna next year. Your travel and accommodation is covered by a stipend from the EGU: speak now to senior management about support for attending. One lucky TSN teacher was part of UK team in 2012. Further details about the event and the application procedure can be found at <http://www.tsn.org.uk/GIFT.htm>

BIG Chemistry

Dr. Jim Massy, a retired senior researcher from the University of East Anglia, whose career has spanned both academic research and industrial R&D is offering a FREE talk for schools entitled "*Big Chemistry: the story of Macromolecules*"

His talk covers the development of macromolecule chemistry from the 19th century to the present day. The talk is geared towards A-level students familiar with organic chemical structures. Jim talks for about 40 minutes and is happy to take questions.

If you would like Jim to visit your school, he can be contacted directly by email djr.massy@ntlworld.com



Science Learning Centre

The Science Learning Centre (SLC) East of England is offering a primary science course 'Making links between Maths and Science' at the John Innes Centre, hosted by TSN, on **Tuesday 3rd July 2012** (EEC11250).

Do you realise what else is on offer?

The SLC East of England offers support for Science teachers and technicians for those involved **from Early Years all the way to Post 16 education**. There are courses scheduled in Norfolk each term to develop skills in many areas of science education, including subject leadership, enhancing the science curriculum or areas like enquiry or practical work. To view the full schedule of CPD for the summer, please see the website: <http://www.slcs.ac.uk/least>

Many of the courses on offer have an 'Impact Award' attached, this is a bursary of £150 funded by the DfE to pay for the course fee, so CPD is effectively free of charge.

In addition to scheduled courses we offer an 'Outreach Programme'. This means that we can bring any of our courses to your school for a set fee. Most secondary courses and some primary courses are eligible for funding from Impact Awards to cover some or all of the cost of this training, so you can bring dynamic and innovative science CPD to your school or cluster for a minimal charge, or maybe for free.

Popular courses include Assessment for Learning in Science, Practical Chemistry/Physics, Literacy in Science and Primary Enquiry. See the website or contact the SLC on 01992 503498 for more information.

Glass Pipettes - FTAGH



These boxes are all full of 5, 10, and 25 ml glass pipettes that are now surplus to requirements. Please get in touch to reserve some for your school and arrange a time to collect them. Our FTAGH webpage has details of other items seeking a good home. Take a look at www.tsn.org.uk/free.htm