

STEM



eNewsletter

Autumn 2010



Celebrating STEM Success



Carol Moorehead – Nuffield Student

Seventy students from across the country came together at Queen's University Belfast on 14th September to celebrate STEM success after contributing to Northern Ireland's industrial research and development sector as part of the Sentinus / Nuffield Bursary Scheme.

The scheme provides science and technology students with the opportunity to take part in research and development projects in industry or research institutions for four to six weeks during the summer holidays.

Sentinus' Chief Executive, Brian Campbell, said: "The Nuffield Bursary Scheme gives students the chance to witness first-hand the STEM working environment and the types of real-world problems these businesses and research institutes are tasked with solving – it's a great experience to help students make informed decisions about their future career path. The deficit of basic STEM skills is a serious problem for employers in Northern Ireland meaning that business performance and the economy as a whole suffers. At Sentinus, we understand the importance of inspiring the younger generation to pursue careers in the STEM industries, and the economic impact that each can have in helping to boost Northern Ireland's innovation and productivity and its ability to compete on a global scale."

For further information on the Nuffield Bursary Scheme, please contact Sentinus on:

T: 028 9262 7755 • E: evelyn.heaslip@sentinus.co.uk

W: www.sentinus.co.uk

CONTENTS

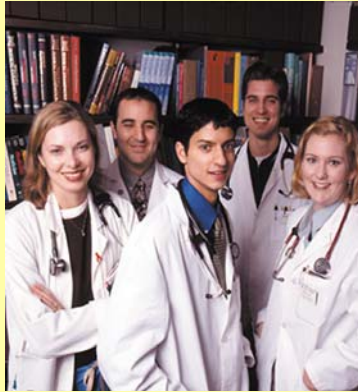
Celebrating STEM Success.....	1	SSP Fall / Winter 2010 Newsletter.....	5
Medics in Primary Schools.....	2	Sentinus Team R+D.....	6
Project Re Design.....	2	STEM Directories.....	6
Tomorrow's Engineers.....	2	Useful Websites.....	6
Illuminating Innovation.....	3	Red Kites, Frights and Things That	
Training for STEM Ambassadors.....	3	Go Bump in The Night.....	7
STEM Challenges.....	4	ASE Conference.....	7
Bridging The Gap.....	5	Tasty Careers.....	8

Medics in Primary Schools

Medics in Primary Schools (MIPS) is a joint Queen's University and Sentinus programme which provides an opportunity for primary school pupils and medical students to develop their communication skills.

MIPS is offered to medical students as a special study module. They spend one afternoon a week, for up to ten weeks during the spring semester, in a primary school

where they deliver a science and health education programme covering *Healthy Body, Healthy Brain, Healthy Heart and Lungs, and Healthy Skin*. This experience helps them develop their own communication skills and ability to work with young people. Pupils get effective health



education from an informed source and gain some understanding of what it is like to be a doctor in training.

Each year, the programme involves 60 second-year students working with over 1,500 pupils in 45 primary schools in the greater Belfast area.

For further information contact Sentinus

T: 028 9262 7755,

E: info@sentinus.co.uk

W: www.sentinus.co.uk



Ulster Hall, Belfast

Tuesday 22nd March 2011 • 10am-4pm

You are invited to a team competition day, hosted by Dame Ellen MacArthur. The theme is sustainable futures. There are places for just 30 schools in each of 5 regions in the UK. Each school enters a team of six from **years 12 or 13**.

- Work as a team on a planning exercise, to re-think and redesign how we might live and work at the end of an era of cheap energy and materials.
- Meet and question industry professionals already working in sustainability
- Build on, and practise skills, including problem solving and critical thinking
- Learn about 'closed-loop' design – a comprehensive approach to sustainability
- Win an all-expenses paid quality work experience placement with a FTSE 100 company - each region will select a winning school
- Winners will take part in a prestigious gala dinner with leading players in sustainability and industry, in London, in Autumn 2011

Responses will be dealt with on a first-come/first-served basis, and we will let you know if you have secured a place at the workshops by the end of October 2010.

For further information and to register go to <http://www.ellenmacarthurfoundation.org/education/project-re-design-workshops>.

Would You Like To Help Tomorrow's Engineers?

Sentinus is recruiting engineers or undergraduate engineers associated with the Built Environment to support two main strands of the Tomorrow's Engineers Programme:

- Go4SET will involve working with lower secondary pupils' in designing a sports stadium of the future.
- Primary Engineers Challenge will involve working with upper primary pupils' in designing and building a bridge.

Engineers will work with a participating school, the impact on your normal working will be minimal. If you think you would be interested in supporting either of these initiatives please let us know as soon as possible and we will forward full details to you.

Contact Sentinus:

T: 028 9262 7755

E: info@sentinus.co.uk

for more information.

**Tomorrow's
Engineers**



Illuminating Innovation

In June 2010 Timothy Quigg from Grosvenor Grammar School attended Sentinus Young Innovators where he won a number of prestigious awards. He was selected to represent Northern Ireland at I-SWEEEP, and will travel with his teacher to Houston, Texas in May 2011.

I-SWEEEP, the International Sustainable World Energy, Engineering, and Environment Project Olympiad, is the largest science & technology fair of its kind worldwide. Timothy also won the JCP Consulting Award for the Built Environment, and was awarded a Gold CREST Award.

Timothy designed, developed and manufactured an innovative, self power-generating, lighting system that enables fire-fighters to illuminate the water jets from their hoses. This significantly improves their visibility within smoke-filled rooms. Timothy worked closely alongside the Northern Ireland Fire and Rescue Service and SERC (to use their rapid prototyping/3d printing equipment) to produce his prototype device.

Since June, Timothy has been tirelessly working alongside InvestNI and their Business Innovation Link Programme to bring his prototype to where it is commercially viable. Initial support was in the form of sponsorship for the patent writing an application process. This has been of great benefit for the young engineer and entrepreneur.

Timothy has also been awarded with The Institute of Engineering and Technology Fuse Scholarship (five awards per year throughout the UK) as part of their "Ambition Awards Programme".



Timothy with Catriona Ruane, Education Minister

This scholarship includes £1,000 per annum for the duration of the degree course and free IET student membership. We wish him well as he commences his course in Innovation and Engineering Design at the University of Bath.

Training for STEM Ambassadors

A STEM Ambassador Training Day will take place on **Wednesday 15th December 2010 at 10:00am-12:00pm**. This is designed to provide ambassadors with basic skills and knowledge to allow them to work with young people, whether in school or company / organisation premises.

Any Ambassador wishing to attend the training should register **no later than Monday 13th December** by contacting Sentinus at:

T: 028 9262 7755 F: 028 9262 7744
E: darren.houston@sentinus.co.uk

 **Sentinus**
where industry matters





stem challenges

Nationally coordinated by STEMNET

Drive your students to develop sustainable transport routes to London 2012 and you could:

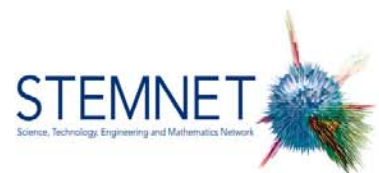
Win a set of exclusive **Science Museum Club Boxes** and a Teacher CPD course

Plus, win up to **£1,000 worth of equipment** for your club



- Do you teach Science, Technology, Engineering or Maths (STEM) subjects to pupils aged 11-14 years?
- Are you looking for an extended project or challenge for an after school club?
- Would you like to win prizes for your school?

www.stemchallenges.net



Bridging The Gap

The gap between young and old was bridged recently when 70 pupils and parents came together to participate in a Family STEM Day at St Mary's College, Derry. This was one of a series of activity days run by Sentinus and supported by EngineeringUK, designed to encourage children and their families to engage in practical science and technology activities.

The day was all about parents and children having fun while at the same time hearing the message about the importance of the STEM subjects and their potential to offer rewarding career opportunities.



One of the tasks undertaken was to build a paper bridge, the strongest of which supported an amazing load of twelve house bricks! Gerard Hughes, Sentinus Project Manager said, "I am always amazed at the enthusiasm of the families involved in these days, they really do get stuck into the tasks and are very eager to hear about the impact of science and engineering on our lives."

Brian Campbell, Sentinus Chief Executive said, "The Family STEM Days are part of a much wider programme of activity being supported by EngineeringUK to promote careers in engineering to young people. We believe that by giving parents an insight into the opportunities and challenges offered in engineering we help the young people make more informed career decisions."



the **ssp newsletter**
NEWSLETTER OF SOCIETY FOR SCIENCE & THE PUBLIC

Fall / Winter 2010 SSP Newsletter

This issue contains articles on our many programs and publications - some of which are decades old - including Intel ISEF, Intel STS, the SSP Fellows, *Science News*, and *Science News for Kids*.

The cover of this issue is dedicated to a brand new program! **Broadcom Foundation™** has partnered with SSP to create a middle school competition, **Broadcom Math, Applied Science, Technology and Engineering for Rising Stars** (Broadcom MASTERS™). This competition will offer thousands of middle school students competing at SSP affiliated science fairs the opportunity to be one of 30 Broadcom MASTERS Finalists who will travel to Washington, D.C. next fall to compete for a \$25,000 top prize. Learn more about this exciting new competition at <http://www.societyforscience.org/MASTERS>.

Sentinus Team R+D

Many schools are interested in developing STEM links with industry, and you may know a local school that might like to work with you on real industrial problems. Last year alone, over 150 lower sixth form (Year 13) students from 33 schools participated in Sentinus Team R+D tackling real science and engineering issues. Their solutions led to significant benefits for the companies involved. School teams work with company scientists or engineers on research and development, design, management and marketing for six months from October.

Each participating school selects a team of four students who have an interest in a STEM area. This group is allocated a coordinating scientist / engineer by the school's partner company. Students, teacher and the scientist / engineer meet at a company information session on the company premises, to see the company operation on site, and then attend a local Launch Meeting early in October. By the end of the month, they will have defined a problem in the company's operation that the team could be capable of solving satisfactorily over a period of six months, and whose solution would be of benefit to the company. Students will visit the company's site and the scientist / engineer visits the school as appropriate. The programme provides opportunities for companies to get to know potential recruits over an extended period of time. Companies gain valuable management experience by enabling young staff to coordinate projects as part of their continuing professional development.

Students and school coordinator also work together at Queen's University Belfast or the University of Ulster with university and company staff during a three day session in December, when they provide an interim presentation on their project. Their solution to the problem is reported on paper in March and at a Celebration Day of assessment and presentation in April. Recent projects have included separating plastic bottles from waste paper and plastic film, replacing a pipe bridge over the River Lagan, designing new meat products, and developing scaffolds for bone tissue engineering.

Sentinus Team R+D is supported by the Department of Education. For further information, please contact Martin Brown at martin.brown@sentinus.co.uk or 028 9262 7755.



STEM Directories

STEM online directories have been created in direct response to teacher's needs. They comprise a collection of schemes and activities provided by organisations from across the UK that aim to enhance and enrich the curriculum. These schemes are usually based around events or experiences that cannot be delivered with standard school contacts and resources. Each activity is linked to the curriculum so that the impact of the experiences and outcomes can be sustained.

Created by the key players in the Science, Technology, Engineering and Maths (STEM) community, each directory aims to guide you through STEM schemes and resources available to teachers across the UK to help you enrich your lessons and stimulate your students. The directories offer a reliable and comprehensive overview of each scheme that clearly explains their benefits to teachers and students.

Search filters allow you to narrow down your search to relevant providers and schemes. But rather than go direct please contact us. If there is a demand for more than one school we may be able to negotiate a discount for you by creating a larger booking. If we know of a school that has already used a provider we can put you in contact with them for feedback from a fellow teacher. And do not forget that everyone is in the directory. Not all local providers are covered and that is where we come in!

For more information on STEM Directories, please go to <http://www.stemdirectories.org.uk/>.



Useful Web Sites

www.exploris.org.uk/book-a-tour

www.schoolscience.co.uk

www.ase.org.uk

www.techengineering.org

www.bbc.co.uk/schools/bitesize

www.sciencemuseum.org.uk

www.teachers.tv

www.coolmath4kids.com

www.newscientist.com

www.raeng.org.uk

www.sep.org.uk



Red Kites, Frights and Things That Go Bump in The Night!

Free Halloween Fun For All The Family
with the RSPB and the Loughs Agency
Saturday 30th October 2-4 pm

River Watch Visitor Centre and Aquarium, 22 Victoria Road, Prehen, Derry, BT47 2AB



'WITCH' Way is The Red Kite?

Please help us solve clues to find out where the witch has hidden the red kite chick!
Join the RSPB for a spooky trail, a red kite tracking game (with equipment actually used in the field!) and red kite crafts and masks



The Royal Society for the Protection of Birds (RSPB) is a registered charity:
England and Wales no. 207076, Scotland no. SC037654

ASE Conference N.I. Science Park

The ASE is holding a Science Education conference at the Northern Ireland Science Park, Belfast of Friday 11 March 2011. The focus will be on meeting the learning needs of classroom teachers and technicians, particularly as they relate to the key constraints on effective delivery of STEM.



The conference will offer a series of workshops tailored to **technicians** and **primary and secondary science teachers**. Delivery will be through sharing knowledge on current good practice; providing advice on how to improve the quality of learning in your school; and, increasing awareness of the range of STEM provision which is currently available to schools.

For more information and to register your interest — go to aseniconf.weebly.com and leave your name and email contact address. You will be kept informed as the conference plans develop. You might also like to browse the new Association for Science Education website at www.ase.org.uk.



Buoyant Science Don't miss the boat !



Tasty Careers

The 'Tasty Careers' campaign, a new programme from Improve (the Food and Drink Sector Skills Council) supported by DEL and DARD, was launched on 12th October 2010 in the Waterfront Hall by Minister Michelle Gildernew.



L-R: Agricultural Minister Michelle Gildernew, Geoff Lamb (NI Operations Manager, Improve), Jordan Burns (Belfast Royal Academy), Rhiannon Stewart (Lagan College) and Emma Houston (Aquin Grammar)

Tasty Careers has been designed to educate and inform young people about the significant career opportunities that exist within the food and drink manufacturing industry. 'Tasty Careers' aims to help fill 6,000 Food and Drink manufacturing jobs by 2017.

There are over 18,500 full time employees in the local food and drink manufacturing industry. Due to an ageing workforce, it is expected that 6,000 skilled workers will need to be recruited before 2017 – approximately one third of the current employment levels. Contributing about £3 billion a year to the local economy, food and drink is the single largest manufacturing industry in Northern Ireland.

The 'Tasty Careers' campaign has identified 30 young people as real-life case studies from a range of job types and levels within the sector. These case studies are now available as a careers resource to teachers, young people and their parents through a 'teachers pack' and website: www.tastycareers.org.uk.

Some of these young people will act as ambassadors for the programme; visiting schools throughout Northern Ireland and providing students with insight into their day-to-day jobs and long-term career prospects.

Geoff Lamb, NI Operations Manager, Improve, said: "Our recent research has shown that there is a lack of awareness among pupils and even teachers and parents about the food and drink manufacturing sector. We hope that the programme will really help in boosting the profile of jobs in the food and drink manufacturing industry to young people."

For more information or to book an ambassador, schools can visit: www.tastycareers.org.uk.