

# Enriching the Science Learning Experience

*Yvonne Baker, Chief Executive, SETNET*

Each year successful pupils are pictured leaping in the air clutching that all important GCSE and A-level results paper, while proud parents and teachers share in their exhilaration and breathe a sigh of relief.

A-level and GCSE results undoubtedly stir mixed emotions, questions are raised on standards with the increasingly loud chorus of “are they too easy?” and single science and maths performance is put under the microscope.

Science exam results were in the headlines particularly this year as the CBI talked of the growing crisis in recruiting skilled scientists and engineers and the threat of this gap to international competitiveness.

There is no doubt that a large number of the UK’s wealth-creating businesses are facing recruitment issues and we frequently hear these concerns from our corporate supporters not just at a graduate intake but also at a technician level.

From some of the media coverage, the general public could be forgiven for thinking that science in school is generally in a dire situation.

However, although science teachers would be the first to tell you that there are always things that could be improved, there are many positive steps under way to tackle the challenge of encouraging more young people to pursue science, technology, engineering or mathematics (STEM) in their further studies and careers.

To support teachers in their ability to engage and inspire the next generation SETNET, the national Science, Engineering and Technology Network, was established in 1996. SETNET is tasked with bringing STEM activities and excitement into schools and colleges throughout the UK, enhancing and enriching the STEM curriculum. It does this through working with a range of partners, including its UK wide network of local SETPOINTS – organisations skilled in facilitating education-business links and working with other STEM partners to provide

access to high quality meaningful activities for students and schools. Furthermore, by linking schools to those companies and organisations that employ STEM-educated people, students can begin to get a clearer idea of the extensive and diverse range of careers available to them.

SETNET is one of the Government’s principal agents for encouraging young people’s engagement with STEM at school and we are continuously expanding our work, connecting with even more schools.

The need for such assistance is more relevant than ever as the new Science GCSE curriculum brings a much stronger focus on real-life applications of science and the issues surrounding scientific debate. Our goal is to work with the teaching profession to support and, where appropriate, deliver activities designed to complement these changes.

And whilst we firmly believe that the most important influence in engaging young people in STEM education is the quality of teaching, young people may not be sufficiently attracted to science qualifications if they cannot see rewarding and relevant careers at the end of their study.

The issues are complex, but we share the view widely expressed in the STEM community that much of the available formal careers advice still does little to dispel myths about science being for “boffins”, IT for “geeks” and engineering for those who don’t mind being “tough and grubby”.

For example, you only have to look at the numbers of women studying computer science (26% of total CS students) or engineering (14% of total engineering students) to know that a perception problem still exists.

It is the role of SETNET and its UK-wide network of SETPOINTS to help break down these perceptions. We want to make an impact on the career choices of young people by demonstrating through added value educational activities the relevance of STEM in today’s world and the

superb opportunities it offers.

That’s quite an ambition in today’s environment when young people are choosing not to study the “hard” and “boring” STEM subjects beyond the statutory minimum point but one we are confident we can achieve.

SETNET, together with our wide range of partners, provide a complementary range of services to those formal educational activities which were strengthened in the Government’s “Science and Innovation Investment Framework (SIIF) – Next Steps” document published alongside the budget in March.

With strong links to business and industry at a local, regional and national level, SETNET, the SETPOINTS and our associated partners can provide schools with access to a wide range of programmes, resources and activities to help give a “real world” sense of how STEM subjects can lead to a variety of employment opportunities. SETPOINTS may also be able to help schools by delivering some of those activities, or by pointing teachers to others who can do so.

Many such activities can be supported by our Science & Engineering Ambassadors (SEAs) programme – individuals from a wide variety of STEM backgrounds, from across the UK, who have offered their time and expertise to help schools inspire young people. Having a genuine focus on a future career path can act as a real stimulus to young people in achieving better qualifications.

The volunteer Ambassadors cover a broad spectrum of STEM disciplines and careers – from marine biologists to mathematicians studying climate change, aeronautical engineering apprentices to medical physicists and industrial chemists to electrical engineers developing satellite technologies.

SETNET and the SETPOINTS’ links to business and Higher Education allow us to provide teachers with appropriately trained, CRB-checked



Ambassadors who can act as role models and deliver exciting, novel demonstrations and project ideas.

At the same time, by providing this unique bridge between businesses and schools, SETNET and SETPOINTS can help employers gain a better understanding of the skills and attainment of young people, and the way in which their organisations can assist teachers.

Employers and individual Ambassadors tell us that they themselves gain from involvement with students and teachers – they further develop their confidence, presentational and managerial skills as well as, in some cases, igniting an interest in teaching as a career.

By the end of 2007 we aim to have expanded the SEAs Programme, from its current level of 12,000 to 18,000 volunteers. We will also be reviewing the training that all Ambassadors undergo to ensure it is of the highest standard and even better equips them to work with schools, particularly those which have not benefited before from dedicated STEM curriculum enrichment activities; the so-called “hard to reach schools”.

As DfES’s own review of science curriculum enrichment activities has shown, schools too often face a confusing plethora of choices, not all of which are properly linked to the curriculum or quality assured. This has led to many schools simply not taking advantage of any offerings.

SETNET is ideally placed to assist schools in making sense of this and is now playing a leading role in the establishment of the Regional STEM Support Centres, being developed to provide much more strategic and cohesive STEM approaches in the

English Regions.

Pilot STEM Support Centres are being established in three of the English Regions – South East, Yorkshire and the Humber and London, each co-ordinated by the appropriate SETNET Regional Director. In each of these three regions, a number of key steps have been completed to allow the STEM Support Centre development.

A funding commitment has been given by the appropriate Regional Development Agency (RDA) (for 2 or 3 years) for the initial establishment of the Centre and core functions. After consultation with appropriate organisations, individuals and groups in the regions, initial Management or Advisory Boards have been formed or are in the process of being finalised for each Regional STEM Support Centre, each with a regionally influential Chair. In addition, a STEM Communication Manager has been appointed for each Centre to support development of processes and methods for communicating proactively with schools and colleges. Early feedback in each of the Regions is highly positive with teachers, Local Authority Advisors and Inspectors, industrial contacts, STEM partners and others. All immediately identifying with the need for increased co-operation, coherence and clarity, STEM Support Centres are seen as a major development in meeting that need.

As Corinne Stevenson, a Senior Advisor Science at Hounslow Local Authority recently communicated to us: “Finally, a wonderful opportunity to ensure all pupils are excited and engaged and have access to science in the real world.”

Regions which have not been involved in the pilot stage are keen to get on board as soon as possible, since partners such as the RDAs, industry, schools, Association of Science Educators (ASE) and others have communicated early the benefits already seen from the pilots.

SETNET and SETPOINTS are also committed to supporting those organisations whose key role is teacher Continual Professional Development (CPD). Significant work is currently taking place to build sustainable partnerships between SETNET, SETPOINTS, the Science Learning Centres, ASE, NAIGS and other CPD providers to create end-to-end experiences where teacher CPD, introduction to enhancement activities and further classroom support can be delivered in a seamless manner.

Through the new Regional STEM Support Centres SETNET will be working to encourage such collaboration as well as signposting appropriate opportunities to teachers and schools. We will also be encouraging SETPOINTS and other partners to work with the Science Learning Centres to develop courses that have business support and contexts which are attractive and relevant for teachers.

By working together to tackle the issue of supply in three compatible ways: firstly by ensuring more science teachers are subject trained and provided with consistent professional development; secondly by providing those teachers with relevant, inspiring and engaging STEM activities; and thirdly matching that activity with improved careers from STEM advice and information, we could turn the tide on numbers.

It requires many organisations, Government, business and industry to work together to support our science, technology, engineering and maths teachers so that we can demonstrate to our young people the real opportunities. We can not just say it is important to do science, we have actively to show them the benefits.

This is why SETNET will continue to speak with teachers, schools and other organisations to achieve greater awareness of the services and opportunities we provide in the STEM arena.

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