

# THE STEM DIRECTORY ENGINEERING AND TECHNOLOGY 2008/9

A directory of engineering and technology enrichment  
and enhancement activities for schools and colleges

"YOUNG PEOPLE  
CAN ENGINEER  
ASTONISHING THINGS"

*shape the future*

The bottom half of the cover features a complex geometric pattern of intersecting lines. The lines are primarily pink and white, creating a grid-like structure that recedes into the distance, suggesting depth and perspective. The background is a solid dark grey or black.

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## **As a teacher, you can help discover these talents**

**Getting pupils and students involved in engineering activities builds motivation for science, design & technology and mathematics. It can increase attainment in national tests by stretching the most able and by offering alternative learning styles for all, and it helps students consider what an engineering career might offer them.**

Engineering offers a fantastic range of career options. Everyone can find their own place, as a technician, an advanced specialist, a designer, a project manager or as an engineering business leader at the highest level.

Each of these career destinations can be reached by many different routes, for example, through an apprenticeship, further education or through higher education.

There is no limit to the breadth of engineering. After all, every part of modern life depends on engineering including our homes, food, energy, transport, health and the environment. And engineering has a crucial role in finding a sustainable future for us all.

In here you will find a range of engineering activities for school and college students of all ages. These activities are:

- Committed to enhancing and enriching science, technology, engineering and mathematics (STEM) teaching and learning in schools.
- Designed to stimulate demand for STEM careers.
- Developing robust standards of quality assurance.
- Available, where indicated across the UK.

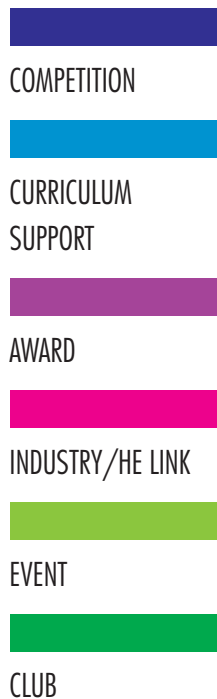
In response to the call from education, from government and business to see a more fruitful and coordinated approach to the promotion of engineering and technology in schools and colleges, the Shape the Future campaign was launched in November 2005. It is owned by the professional engineering community and has a steering group made up from many of the organisations listed on page 5.

The aims of the campaign are:

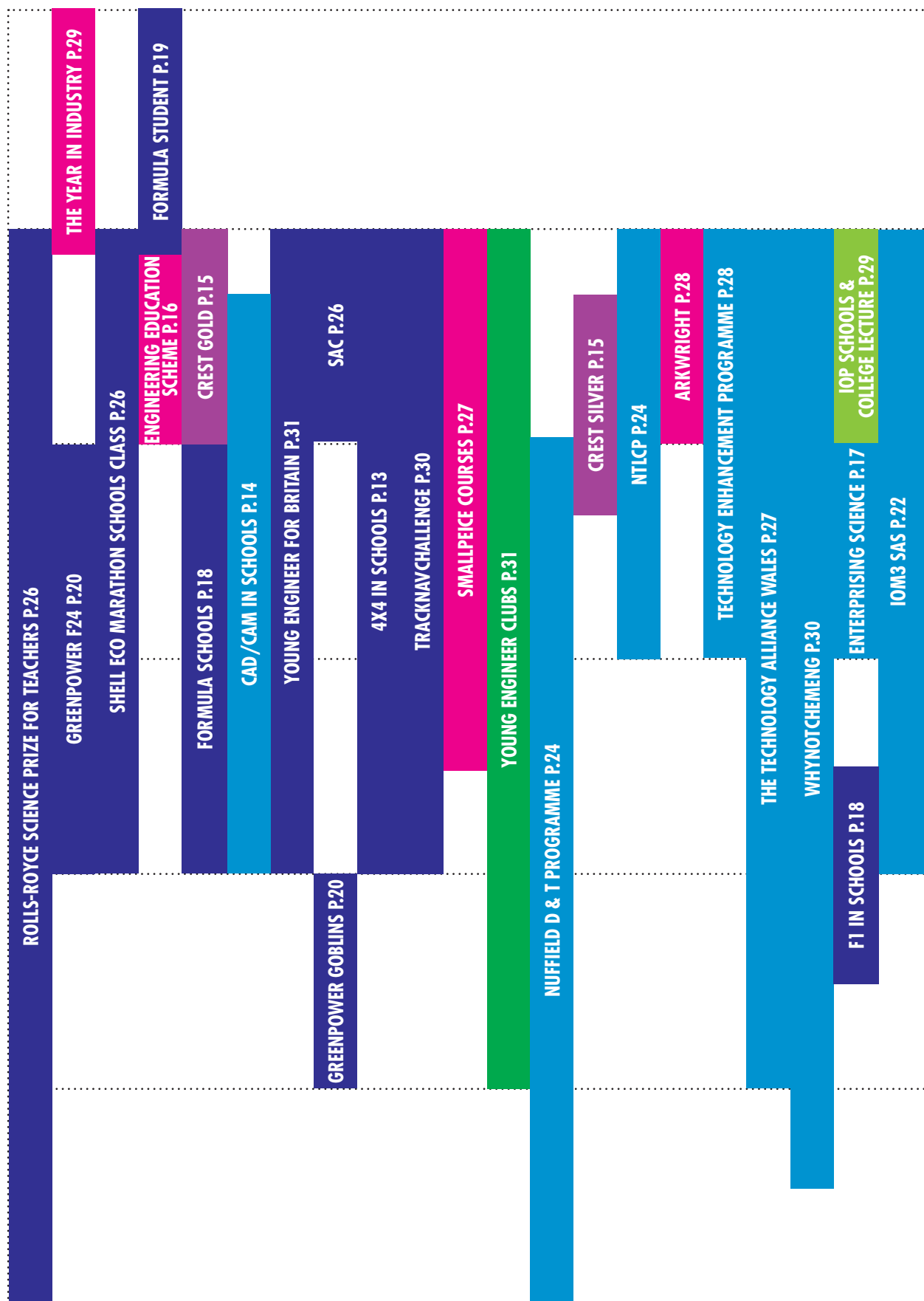
- To bring greater coherence and coordination of engineering and technology activities, resulting in more effective, efficient and better targeted programmes.
- To contribute to a simpler vision of STEM amongst young people and their influencers and in particular their teachers.
- To ensure more young people take part in 'hands on' activities, in particular from groups and schools not previously engaged.
- To support STEM teachers more effectively.
- To keep STEM teachers better informed about opportunities whilst cutting down the number of unwanted mailings.
- To help with careers education and guidance in STEM.

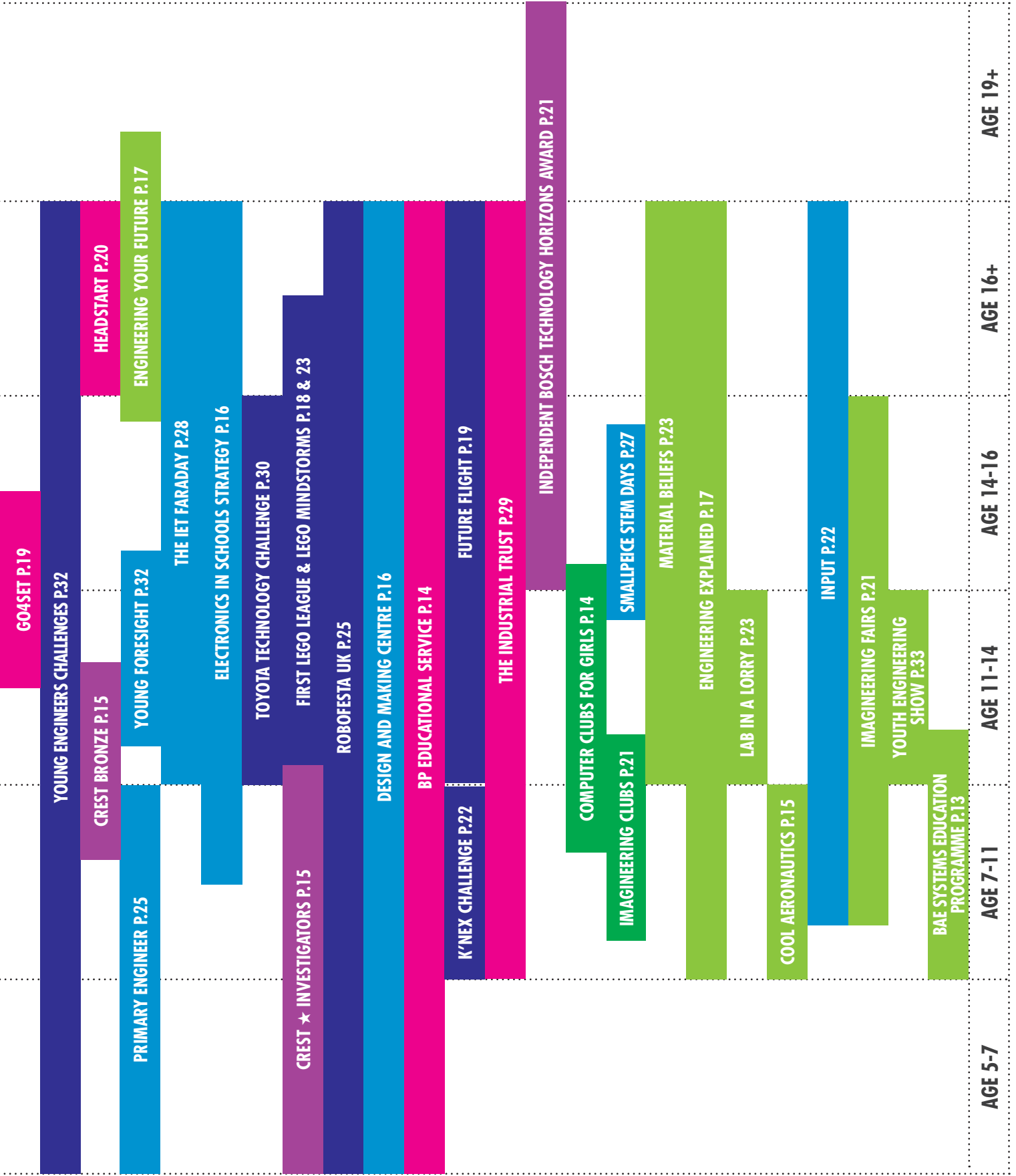
# ENGINEERING & TECHNOLOGY: SUMMARY OF UK-WIDE SCHEMES AND ACTIVITIES IN ENGINEERING AND TECHNOLOGY

## Key



This diagram is based on the map of STEM activities developed by the Learning Grid and is used with permission.





INCREASING TIME COMMITMENT ←

## About this Directory

The directory is divided into separate entries for UK-wide schemes, listed alphabetically by scheme name (see page 13) and then by Regional and Other schemes, also listed alphabetically by scheme name (see page 35).

UK-wide means that scheme providers can deliver throughout the four countries of the United Kingdom. Regional schemes are offered in one or more of the nine regions of England or on a devolved nation basis (Scotland, Wales, Northern Ireland).

Each entry provides information about what the scheme offers and the benefits it brings to the teachers and/or students. Each scheme is mapped to general curriculum links and to more specific subject links. Please refer to the graphic diagram below for more information in understanding how to read entries.

## How to use this directory

**SCIENCE: INTRODUCTION**

**Section tab**

**Subject Key**

- Ap Applied Science
- DT Design/Technology
- Eng Engineering/Manufacturing
- IT ICT/Digital
- Ma Mathematics
- Sc Science
- Bi Science – Biology
- Ch Science – Chemistry
- Ph Science – Physics

**Key section**

**Engineering Inspirations**

**TYPE: IN-SCHOOL EVENTS, CPD AGE RANGE: 11-19**

Engineering Inspirations is an event held every July for students in York and North Yorkshire and further afield. Students from KS3–KS5 display their best engineering, science and maths project work, completed before attendance in July. The day also includes numerous drop in activities, hands-on stands, the culmination of in-school challenges and a teacher challenge. The event allows young people to compete and compare results with their peers. It also fosters business–education links, and the opportunity to engage with employers.

Contact: Harriet Dow  
North Yorkshire Education and Business Partnership  
Tel: 01904 693632  
Email: harriet@nybep.org.uk  
Web: www.nybep.org.uk

**Subjects covered**

**Curriculum areas covered**

- NATIONAL CURRICULUM
- EVERY CHILD MATTERS
- WORK RELATED LEARNING/ ENTERPRISE
- DIPLOMA
- CITIZENSHIP
- ENRICHMENT AND EXTENSION
- SELF-EVALUATION FORM

**Regions covered**

**Scheme logo**

YORKSHIRE & THE HUMBER  
NORTH-EAST ENGLAND  
**nybep**

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### **Why have the STEM Directories been created?**

This directory is in response to the Government's science, technology, engineering and mathematics (STEM) Programme Report published in October 2006. The report called for better coordinated support for the promotion of engineering and technology in schools to avoid duplication and waste, to focus public funding on national schemes that are known to be effective and to give teachers better guidance in the choices they make on behalf of their students.

This selection of quality engineering activities for schools has been compiled following wide consultation with the professional engineering community and particularly by a partnership of:

The Royal Academy of Engineering  
The Gatsby Charitable Foundation  
The Learning Grid  
The Engineering and Technology Board  
STEMNET  
The British Association for the Advancement of Science  
The Association for Science Education  
The Design and Technology Association  
The Institute of Physics  
The G15 group of chief executives of engineering institutions

The Engineering Education Alliance, a body drawing together all engineering institutions including the:

Institute of Acoustics, Royal Aeronautical Society, Institution of Agricultural Engineers, Chartered Institution of Building Services Engineers, Institute of Cast Metals Engineers, Institution of Chemical Engineers, Institution of Civil Engineers, British Computer Society, Energy Institute, Institution of Engineering and Technology, Institution of Engineering Designers, Society of Environmental Engineers, Institution of Fire Engineers, Institution of Gas Engineers and Managers, Institute of Healthcare Engineering & Estate Management, Institute of Highway Incorporated Engineers, Institution of Highways & Transportation, Institution of Lighting Engineers, Institute of Marine Engineering, Science and Technology, Institute of Materials, Minerals and Mining, Institute of Measurement and Control, Institution of Mechanical Engineers, Institute of The Motor Industry, Royal Institution of Naval Architects, British Institute of Non-Destructive Testing, Institution of Nuclear Engineers, Society of Operations Engineers, Institute of Physics, Institute of Physics & Engineering in Medicine, Institute of Plumbing and Heating Engineering, Institution of Railway Signal Engineers, Institution of Structural Engineers, Chartered Institution of Water and Environmental Management, Institution of Water Officers, Welding Institute.

By lending their support, these organisations agree to promote STEM activities in schools in a coherent way, reducing the proliferation of initiatives that can be confusing and counter-productive. The result is that the full breadth of modern engineering is promoted in schools right across the UK, avoiding unnecessary distinctions being drawn between engineering disciplines that can over-complicate the simple message of engineering for all.

### **How the activities have been selected**

The activities listed in this document have been selected on the basis of their national or regional reach, their quality, their curriculum links, their commitment to evaluating impact, their ability to cover the wide range of modern engineering and the endorsement and support offered by the professional engineering community both nationally and in the regions.

One type of formal quality assurance is the quality standard for engineering education activities developed by the Learning Grid. Quality is assessed by an independent panel of primary and secondary teachers, lecturers and engineers working in industry. All of the activities shown here are committed to quality and evaluation of impact and some have chosen to implement the Learning Grid's assurance standard. For an up to date list see [www.learninggrid.co.uk/initiatives](http://www.learninggrid.co.uk/initiatives)

In addition to the activities listed here, there are of course very many excellent activities that are more local, often supported by one of the regional centres operated by the Engineering Institutions listed on page 5.

### **So what's in it for you?**

Here are some examples of how engaging with these activities enables teachers to enhance and enrich the school curriculum and provide opportunities to explore engineering first hand.

Peter Crompton of Fortismere School, an 11–19 comprehensive school in London, explains why he is involved:

"I have been a contact teacher for one activity since 1995. Since that time over 100 Fortismere students have been involved and this has set a platform for their lifelong learning. The benefits to students have been enormous. The project-based applied learning has resulted in considerable personal development, further developing the essential life skills of teamwork, problem solving, creativity and innovation. The experience of industrial enterprise is a perfect preparation for the world of work giving essential insights into the tools required to succeed in their chosen career path.

The school has benefited with enhanced higher education, business and industrial links and my own professional development has been considerable. Working alongside companies has increased my understanding of what companies need and the skills required by them of my students. My experience has also resulted in significant project input into the wider curriculum."

Jenny Harrison chose to study engineering at Birmingham University after participating in these activities:

"I think taking part really encouraged me to be successful in engineering. I met loads of friends and it showed me there are so many exciting possibilities available for anyone who is willing to go for it."

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## Principles of Curriculum Enhancement and Enrichment of STEM

A curriculum enhancement or enrichment of STEM is something that provides the school or college with opportunities to deliver more relevant content. To enable a STEM enhancement or enrichment to take place effectively in the curriculum and ensure access for all we need to ensure that:

- **It will make a difference to learning.** It may improve motivation, attitudes, enthusiasm which can impact back on teaching and learning in lessons. A change in attitude, perception, attendance and aspiration may increase knowledge and understanding while engaging students in a stimulating and exciting addition to normal lessons.
- **It will fit into the curriculum design and delivery methods.** STEM activities and programmes must fit into curriculum design and delivery methods and justify their value.
- **It will improve teacher's understanding of STEM education and the benefits that they will gain by engaging with a STEM activity.** Raising teacher awareness and understanding of the STEM aspects of business, industry, enterprise, careers, environment, lifestyle and the importance of STEM to students as future citizens.
- **We have better access to resources from industry that will make a difference in the classroom.** Ensuring we have active STEM Science & Engineering Ambassadors, businesses and industries who are committed to working with schools and pupils to raise engagement with STEM related activities and programmes.

In order to improve access to STEM we need to ensure that all STEM activities and programmes have:

- A direct link to the curriculum content that is being taught and demonstrate that it can be delivered through an enhanced or enriched STEM activity through subjects or aspects such as citizenship etc.
- Links to the 'enterprise' culture showing how the STEM activities can be used to develop the strands of the enterprise curriculum.
- Links to the extended school providing opportunities for schools to develop STEM related activities outside the normal school provision.
- Links to Every Child Matters priorities.
- Links to applied and vocational provision including Double Award GCSE's and Diplomas.
- Be able to be referenced directly to the Self Evaluation Form.

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### **Tailored advice on activities**

With the vast array of science, technology, engineering and mathematics (STEM) activities and schemes available, it is difficult to know which one fits your needs, or indeed where to start. STEMNET and its STEMPOINT contract holders offer tailored assistance on understanding this rich and diverse landscape.



STEMNET aims to ensure that more young people in the UK make a choice to enter STEM related careers at all levels, and future generations are properly informed about the science and technology that surrounds them. With the support of its partners, it achieves this in two ways:

- By bringing STEM activities, experiences and excitement in to classrooms throughout the UK, enhancing and enriching the curriculum.
- By linking those companies and other organisations that employ STEM educated people, and schools, in such a way that young people can get a clear idea of the diverse and exciting range of careers available to them.

STEMNET has recently awarded STEMPOINT contracts to local organisations which understand the landscape of STEM enhancement & enrichment and are able to help you identify which schemes or activities can best help you meet your school/college and student needs.

Organisations holding STEMPOINT contracts are there to help you in a number of ways. For example they can:

- Provide you with information on the STEM schemes and activities available to you – including those in this directory and other schemes specific to your local area.
- Work with you to understand the specific requirements of your school and students, and what kind of activity may be appropriate for you.
- Based on a knowledge of the evaluation of activities, recommend specific activities to you or help you choose between various options.
- Collect your feedback on activities and use this to help scheme providers improve their offerings.

To find out more, call STEMNET on 020 3206 0450, e-mail us at [info@stemnet.org.uk](mailto:info@stemnet.org.uk) or look at our web page [www.stemnet.org.uk](http://www.stemnet.org.uk)

### Science & Engineering Ambassadors

Did you know there are thousands of people using STEM in their work who are willing to come and help your students get excited about science, technology, engineering and maths? Environmental scientists, civil engineers, marine biologists, medical physicists, apprentices, professors, digital designers, financial modellers, energy analysts and many more.

The Science and Engineering Ambassadors (SEAs) programme is co-ordinated nationally by STEMNET ([www.stemnet.org.uk](http://www.stemnet.org.uk)) and managed sub-regionally by organisations holding SEAs Management Contracts.

Science & Engineering Ambassadors are all volunteers who are willing to give their time and energy to help you enthuse your students about STEM subjects and illustrate how STEM is used in the world around them. They are available to support the activities included in this directory or to help you with any other STEM-related activity you wish to run – at the same time acting as role models for careers in and/or from STEM.

If you would like to find a Science & Engineering Ambassador to help with an activity or to make a longer-term link with your school or college, please contact STEMNET to find out which organisation holds the SEAs Management Contract for your area.

To find out more, call STEMNET on 020 3206 0450, e-mail us at [info@stemnet.org.uk](mailto:info@stemnet.org.uk) or look at our web page [www.stemnet.org.uk](http://www.stemnet.org.uk)



## **The next steps of the project**

Following the success of the first two engineering and technology directories under Shape the Future, this new edition of the engineering and technology directory is published alongside sister publications of science and mathematics.

The family of publications – the STEM Directories – are being developed over three years and whilst this first set marks a milestone, it is only the beginning of much consultation to be conducted, both with teachers and lecturers and with the STEM community of providers of schemes.

Following publication in September 2008, we will be conducting a consultation programme with teachers and STEM scheme providers to review initial reactions and to build constructive feedback into the second phase of the project – which is likely to be an online resource for launch in 2009.

### **Comments, queries or suggestions**

The STEM Directories in 2008/9 are only a staging post for further development. The STEM Directories team would be delighted to receive any comments (both positive and negative) about the Directories themselves OR any of the schemes or activities listed within them.

Please complete an online feedback form at **[www.stemdirectories.org.uk](http://www.stemdirectories.org.uk)** or contact the project at **[feedback@stemdirectories.org.uk](mailto:feedback@stemdirectories.org.uk)**

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## Did you know?

**National Science and Engineering Week (NSEW)** provides a focus for engineering activities such as those listed in this document. NSEW is a UK wide, 10 day long celebration of science and engineering which happens each year in March. In 2008, 1.4 million people were estimated to have attended 3,500 events across the country, with 25% of all schools getting involved!

NSEW is a great opportunity to organise events, activities or science related trips within schools to inspire and engage children with science and engineering related subjects. Mass participation activities, competitions, grants, resources such as challenge packs, free materials such as posters and bookmarks and advice are all available to schools that organise and register events. The next National Science and Engineering Week is from 6–15 March 2009.

Web: [www.the-ba.net/nsew](http://www.the-ba.net/nsew)  
Email: [nsew@the-ba.net](mailto:nsew@the-ba.net)

That **Enterprise Week** takes place in November each year. The week is part of the Make Your Mark campaign – inspiring young people to turn their ideas into reality.

Web: [www.enterpriseweek.org](http://www.enterpriseweek.org)

That **Design and Technology Week** takes place each year in June.

Web: [www.data.org.uk](http://www.data.org.uk)

That every year the **'enginuity'** pack of careers resources is sent out to over 5,000 secondary schools. The resources are aimed at young people, teachers and advisers searching for clear and up to date information about careers in engineering and technology.

Web: [www.enginuity.org.uk](http://www.enginuity.org.uk)

# UK-WIDE SCHEMES AND ACTIVITIES IN ENGINEERING AND TECHNOLOGY



## Subject Key

<b>Ap</b>	Applied Science
<b>DT</b>	Design/Technology
<b>Eng</b>	Engineering/Manufacturing
<b>IT</b>	ICT/Digital
<b>Ma</b>	Mathematics
<b>Sc</b>	Science
<b>Bi</b>	Science – Biology
<b>Ch</b>	Science – Chemistry
<b>Ph</b>	Science – Physics

## 4x4 in Schools Technology Challenge

TYPE: **COMPETITION** AGE RANGE: **11-19**

4x4 in Schools is an activity which can raise awareness, interest and enthusiasm in engineering through the practical application of design and technology, mathematics and science. The challenge is to design and build a radio-controlled four-wheel drive vehicle to the specification provided which will then successfully navigate a set track. This annual challenge provides an opportunity for students to work in design teams and gain an awareness and understanding of project management and key skills. The challenge can be undertaken by groups of four to six students either in lessons or as an extra-curricular activity. The process encompasses research, design, testing, evaluating and competing. Cross-curricular themes can also be exploited enabling working with other departments.

Contact: Dave Howes, Project Manager  
 Tel: 020 7344 8449  
 Email: [contactus@4x4inschools.co.uk](mailto:contactus@4x4inschools.co.uk)  
 Web: [www.4x4inschools.co.uk](http://www.4x4inschools.co.uk)

## BAE Systems Education Programme

TYPE: **ROADSHOW, EVENT** AGE RANGE: **9-12**

The BAE Systems Education Programme consists of an in-school roadshow comprising a dramatic performance and an interactive workshop. This is supported by a network of BAE Systems Ambassadors visiting schools, delivering a whole host of activities ranging from lessons to career talks, as well as a series of websites for teachers and young people. The roadshow aims to inspire, engage and motivate young people to consider a future career in engineering, supported by the network of BAE Systems Ambassadors allowing young people to hear from and benefit first-hand from people working in this field. The websites raise awareness of the types of jobs available to anyone considering a career in science, technology and engineering.

Contact: Lee Phillips  
 BAE Systems  
 Tel: 01484 686451  
 Email: [baesystems@cragrats.com](mailto:baesystems@cragrats.com)  
 Web: [www.baesystems.com/education](http://www.baesystems.com/education)



NATIONAL CURRICULUM  
 EVERY CHILD MATTERS  
 WORK RELATED LEARNING/  
 ENTERPRISE  
 DIPLOMA  
 ENRICHMENT AND EXTENSION



DIPLOMA  
 ENRICHMENT AND EXTENSION



## BP Educational Service

**TYPE: INDUSTRIAL LINK AGE RANGE: 5-19**

The BP Educational Service (BPES) responds to educational enquiries about BP and produces and distributes educational resources that focus on energy, environment, leadership and business skills. The resources are developed with practising teachers and other educational experts and focus on the key curriculum areas of science, environmental studies, engineering, citizenship, PSHE/PSE/PSD, design and technology, literacy, business studies and geography. BPES offers teachers and students the opportunity to take advantage of cutting-edge industry expertise and use real-life contexts to bring the curriculum to life. All materials are curriculum linked. In an independent audit of BPES materials, teachers stated that there was a significant increase in their students engagement with science, technology, engineering and mathematics (STEM) subjects after they had used BPES resources.

Contact: BP Educational Service enquiry team  
 Tel: 0871 472 3020  
 Email: [bpes@bp.com](mailto:bpes@bp.com)  
 Web: [www.bp.com/bpes](http://www.bp.com/bpes)



NATIONAL CURRICULUM  
 WORK RELATED LEARNING/  
 ENTERPRISE  
 CITIZENSHIP  
 ENRICHMENT AND EXTENSION



## CAD/CAM in Schools

**TYPE: CURRICULUM SUPPORT AGE RANGE: 11-18**

The CAD/CAM in Schools programme was first launched in 1999, offering industry-standard software to secondary schools, 6th form colleges, and to all trainee teachers enrolled on design and technology courses. Pupils are also able to use the software at home. Teachers access the software via a training programme provided by accredited trainers, and receive ongoing advice from a network of support centres and a dedicated website. A main focus of the training is on the pedagogy related to the appropriate use of CAD/CAM within the curriculum. The programme is managed by the Design and Technology Association on behalf of the DCSF.

Contact: Carole Williams  
 Design and Technology Association  
 Tel: 01789 473911  
 Email: [carole@data.org.uk](mailto:carole@data.org.uk)  
 Web: [www.cadinschools.org](http://www.cadinschools.org)



EVERY CHILD MATTERS  
 WORK RELATED LEARNING/  
 ENTERPRISE  
 DIPLOMA  
 CITIZENSHIP  
 ENRICHMENT AND EXTENSION  
 SELF-EVALUATION FORM  
 CPD

## Computer Clubs 4 Girls

**TYPE: CLUB AGE RANGE: 10-14**

Computer Clubs for Girls (CC4G) is an innovative, award-winning initiative created by e-skills UK and funded by DCSF. CC4G raises the standard of girls' ICT skills while transforming their attitudes to careers in IT. Popular interests such as music, fashion, dance and celebrity have been combined with elements of primary and secondary ICT curricula to deliver an engaging and fun approach.

Contact: CC4G  
 Tel: 0800 328 5161  
 Email: [cc4ghelpdesk@e-skills.com](mailto:cc4ghelpdesk@e-skills.com)  
 Web: [www.cc4g.net](http://www.cc4g.net)



EVERY CHILD MATTERS  
 DIPLOMA  
 CITIZENSHIP  
 ENRICHMENT AND EXTENSION  
 SELF-EVALUATION FORM

## Cool Aeronautics

TYPE: **EVENT** AGE RANGE: **9-10**

Cool Aeronautics are one-day events organised by the Royal Aeronautical Society to showcase aerospace and aviation to a young audience and show how subjects such as maths, science, ICT and more play a part. Around 90 children attend each event, taking part in educational and fun experiences to apply their knowledge to aerospace challenges. The day starts with three interactive talks giving the children the chance to ask questions and incorporate video, ICT, kit demonstrations etc. During the extended lunch period, children can play in the 'Have-a-go' zone which includes flight simulation games, building paper aeroplane activities, and competitions themed around aerospace. The afternoon consists of three aerospace-themed workshops and the classes rotate through each one.

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NATIONAL CURRICULUM

## CREST Awards

TYPE: **AWARD SCHEME** AGE RANGE: **11-19**

Through CREST, young people explore the nature of science, technology, engineering and mathematics (STEM) by doing creative problem solving through mini-projects. Awards are made at three levels (bronze, silver and gold). At the higher levels, practising scientists and engineers mentor the projects and the students. Students submit their projects for Regional CREST celebration events. The best projects at each award level will then be selected for a place at the National Final. CREST develops practical and thinking skills, encourages teamwork and development of communication skills and prepares students for the world of work. For the teachers, CREST offers the opportunity to work more closely and in a different way with the participating students.

Contact: Samantha Murphy  
CREST Awards  
Tel: 020 7019 4943  
Email: [crest@the-ba.net](mailto:crest@the-ba.net)  
Web: [www.the-ba.net/crest](http://www.the-ba.net/crest)



NATIONAL CURRICULUM  
EVERY CHILD MATTERS  
WORK RELATED LEARNING/  
ENTERPRISE  
DIPLOMA  
ENRICHMENT AND EXTENSION  
SELF-EVALUATION FORM



## CREST ★ Investigators

TYPE: **CLUBS AND AWARDS** AGE RANGE: **5-12**

The CREST ★ Investigators scheme provides schools and other organisations with packs full of motivating activities. The activities focus on thinking and talking about science, encouraging children to solve scientific problems through practising investigation. They are designed to be run by organisers of after-school clubs and science clubs, or even by Brownies and Cubs, using everyday materials, though some are suitable for use in the classroom. CREST ★ Investigators has three Awards: Star (usually for 5-7 year olds), SuperStar (usually for 7-11 year olds) and MegaStar (usually for 8-12 year olds). Star and SuperStar engage children with a range of activities set in different contexts. At MegaStar, the children undertake a series of projects, each containing several activities. This scheme has a strong emphasis on progression, with each award building on skills developed in the previous award.

Contact: Samantha Murphy  
The British Association for the  
Advancement of Science  
Tel: 020 7019 4943  
Email: [creststar@the-ba.net](mailto:creststar@the-ba.net)  
Web: [www.the-ba.net/creststar](http://www.the-ba.net/creststar)



NATIONAL CURRICULUM



## Design and Making Centre

**TYPE: CURRICULUM SUPPORT AGE RANGE: 5-19**

The Design and Making Centre (DMC) was founded in 1986 to foster designing and making in Cornish schools. The DMC has continued to grow, it is now an award-winning technology centre, providing resources nationally and worldwide for all key stages. The DMC provides a wide range of beautifully illustrated resource materials for both primary and secondary schools, and provides best value materials and equipment. The DMC materials clearly identify opportunities in maths, science and engineering as well as art and design and therefore provide an integrated learning experience for students.

Contact: David Prest  
Design and Making Centre  
Tel: 01209 719354  
Email: [dmcentre@cornwall.gov.uk](mailto:dmcentre@cornwall.gov.uk)  
Web: [www.designandmakingcentre.co.uk](http://www.designandmakingcentre.co.uk)



NATIONAL CURRICULUM  
EVERY CHILD MATTERS  
WORK RELATED LEARNING/  
ENTERPRISE



## Electronics in Schools Strategy

**TYPE: CURRICULUM SUPPORT AGE RANGE: 11-19**

The one-day course is split between appropriate electronic circuit theory and practical use of circuit design software whilst building simple controllable circuits. The Electronics in Schools Strategy (EISS) aims to transform teachers' expertise (and thereby pupils' learning) by providing high quality postgraduate professional development, associated resources and the time to develop professional knowledge. The approach to professional development devised by EISS was extensively evaluated and validated during development by an independent research team from the Open University led by Professor Patricia Murphy. This initiative is managed by the Design & Technology Association and works closely with the DCSF, IET and TDA.

Contact: Kevin Greenwell  
Bedfordshire & Luton Education Business Partnership  
Tel: 01525 408697  
Email: [greenwellk@blebp.co.uk](mailto:greenwellk@blebp.co.uk)  
Web: [www.blebp.co.uk/staff/programme\\_info\\_staff.htm](http://www.blebp.co.uk/staff/programme_info_staff.htm)



EVERY CHILD MATTERS  
CPD



## Engineering Education Scheme

**TYPE: INDUSTRY LINK, COMPETITION, EVENT AGE RANGE: 16-17**

The Engineering Education Scheme links a team of up to four talented Year 12 students, and their teacher, with a professional engineer (or engineers) from a company to work on a real engineering problem for 5-6 months. The students experience project management, report writing, communication skills, teamwork and problem solving whilst developing skills focused on creativity and innovation. Students benefit by experiencing the world of work and clearer understanding of science, technology, engineering and mathematics (STEM) subjects and courses from different contexts. The scheme provides a launch event, a residential university workshop and a celebration and assessment day for each team project. The majority of students receive CREST Gold Awards.

Contact:  
In England (an EDT scheme):  
Engineering Education Scheme in England  
Tel: 01707 393323  
Email: [info@thescheme.org.uk](mailto:info@thescheme.org.uk)  
Web: [www.thescheme.org.uk](http://www.thescheme.org.uk)

In Wales:  
Engineering Education Scheme – Wales  
Tel: 01656 669381  
Email: [admin@eesw.org.uk](mailto:admin@eesw.org.uk)  
Web: [www.eesw.org.uk](http://www.eesw.org.uk)

In Scotland (an EDT scheme):  
Engineering Education Scheme in Scotland  
Tel: 0141 548 4152  
Email: [scotland@thescheme.org.uk](mailto:scotland@thescheme.org.uk)  
Web: [www.thescheme.org.uk](http://www.thescheme.org.uk)

In Northern Ireland:  
Bill Connor  
Tel: 028 9262 7755  
Email: [bill.connor@sentinus.co.uk](mailto:bill.connor@sentinus.co.uk)  
Web: [www.sentinus.co.uk](http://www.sentinus.co.uk)



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## Engineering Explained

TYPE: **EVENT AGE RANGE: 7-19**

Science made simple bring professional engineering shows to schools around the UK. Topics range from 'Who Wants to be a Superhero' to a show on medical engineering. All the shows are highly interactive and entertaining. Science made simple bring all the required equipment to the school and can perform to as many students as you can fit into your hall. The shows aim to enthuse and excite students about engineering by using an interdisciplinary approach and topics that the students are already interested in (eg travelling and superheroes). The shows relate to the curriculum, but are also designed to extend the experience beyond the curriculum. At all levels the show content contains messages about how engineering works, and what engineers do.

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science made simple  
Tel: 029 2087 6884  
Email: [huw@engineeringexplained.co.uk](mailto:huw@engineeringexplained.co.uk)  
Web: [www.engineeringexplained.co.uk](http://www.engineeringexplained.co.uk)



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## Engineering your Future

TYPE: **CAREERS EVENT AGE RANGE: 17-18**

Engineering Your Future is a joint careers event established to provide an opportunity to see that engineering is a career worth pursuing. It is jointly coordinated and sponsored by the Institution of Mechanical Engineers, the Institution of Civil Engineers, the Institution of Engineering and Technology and the Institute of Marine Engineering, Science and Technology. The day is split into five sessions providing insights into civil, electrical, mechanical and marine engineering in which attendees learn about these areas of engineering from companies. The last session is called 'Routes into Engineering' and is hosted by a graduate engineer and an apprentice engineer. The sessions are designed to be practical and interactive and to provide an insight into life as an engineer.

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SETPOINT London East  
Tel: 020 8983 1277  
Email: [susanna.wisborg@btinternet.com](mailto:susanna.wisborg@btinternet.com)



WORK RELATED LEARNING/  
ENTERPRISE  
DIPLOMA

## Enterprising Science

TYPE: **CURRICULUM SUPPORT, TEACHER TRAINING, IN-SCHOOL ROADSHOW AGE RANGE: 11-16**

Enterprising Science offers both teachers and students inspirational, curriculum-linked support. The Talk Science teacher masterclass, delivered by the Science Museum, is a unique opportunity for science teachers to develop their skills in facilitating classroom discussion around contemporary science issues. The one-day course aims to equip teachers with skills to develop scientific literacy, facilitate student understanding of how science works and increase enthusiasm for science. The Carbon Challenge in-school roadshow, delivered by BP presenters, is a high impact science, maths and enterprise roadshow that uses voting technology, film and a series of hands-on activities to teach students about school carbon emissions and how they could be reduced. The roadshow activities develop group discussion and presentation skills.

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BP Educational Service  
Tel: 0870 333 0428  
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Web: [www.enterprisingscience.com](http://www.enterprisingscience.com)



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## F1 in Schools – The Formula One Technology Challenge

**TYPE: COMPETITION AGE RANGE: 11-19**

F1 in Schools is a multi-disciplinary challenge in which teams use Computer Aided Design software to design test and manufacture miniature compressed air powered balsa wood Formula One cars. The cars are raced side-by-side, competing regionally, nationally and internationally for the Bernie Ecclestone trophy. Teams of four to six students must raise sponsorship and manage budgets to fund research, travel and accommodation. Students benefit by experiencing the Design–Analyse–Make–Test–Race process deployed by the teams in the real world of Formula One. The challenge inspires students to use IT to learn about engineering, physics, aerodynamics, design, manufacture, branding, graphics, sponsorship, marketing, leadership/teamwork, media skills and financial strategy, and apply them in a practical, imaginative, competitive and exciting way.

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 F1 in Schools  
 Tel: 020 7344 8449  
 Email: [contactus@f1inschools.co.uk](mailto:contactus@f1inschools.co.uk)  
 Web: [www.f1inschools.co.uk](http://www.f1inschools.co.uk)



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## FIRST LEGO League

**TYPE: COMPETITION AGE RANGE: 9-16**

FIRST LEGO League is a UK-wide programme that combines hands-on, interactive robotics activities with a sports-like atmosphere, using a LEGO MINDSTORMS robot set. Teams consist of up to 10 children, with the focus on team building, problem solving, creativity and analytical thinking. Teams face an annual challenge emulating a real world event or situation, and must also undertake a research project as well as design, build, programme and test a fully autonomous robot capable of accomplishing the challenge. This must all be completed within eight weeks. Students benefit from development in self-confidence as well as experiencing that they can achieve more by working within a team, in addition to specific science, technology, engineering and mathematics (STEM) skill enhancement.

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 First Hand Technology  
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 Email: [info@firsthandtechnology.org.uk](mailto:info@firsthandtechnology.org.uk)  
 Web: [www.firsthandtechnology.org.uk](http://www.firsthandtechnology.org.uk)



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## Formula Schools

**TYPE: COMPETITION AGE RANGE: 11-16+**

A motorsports engineering concept that asks teams to work to a deadline to complete a challenge ranging from performance engineering to team marketing strategies. School teams link with a technology-based company to design, build, and race their own biofuel or electrically powered, radio-controlled cars. All the hardware to produce two 'starter' chassis is supplied and schools then enter their final solution at the annual Race Day event to score points in categories including power-train and chassis, body and aerodynamics, teamwork and driving.

Contact: Rob Austin  
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## Formula Student

TYPE: **COMPETITION** AGE RANGE: **18+**

Formula Student is an annual competition whereby university students design, manufacture and compete with a single-seat racing car from scratch. Students experience everything from research, design, manufacturing and development, and receive valuable feedback. Static and dynamic tests are set so that judges can measure the students' understanding of the science behind their cars. Students not only gain knowledge of design and manufacturing but of management in dealing with pressure and tight deadlines as well as marketing and communication, as they must finance, document and present their manufacturing process. They are also encouraged to get involved with industry sponsors, who often prove to be useful career contacts. As well as teams competing from UK universities, Formula Student attracts teams from countries across the globe.

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Tel: 020 7973 1287  
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Web: [www.formulastudent.com](http://www.formulastudent.com)

## Future Flight – Greener by Design

TYPE: **COMPETITION, STUDENT & TEACHER RESOURCES** AGE RANGE: **11-19**

Future Flight – Greener by Design is a free, web-based competition that invites pupils to design an environmentally friendly airliner for 2050. Because sustainable aviation is the key challenge in 21st century aeronautics, pupils follow the same design process as that used by the aeronautics industry to design a futuristic airliner in easy steps and then test its efficiency in terms of cost, greenhouse gas emissions and noise levels. There are also ready-to-use lesson plans, careers info, and teaching resources for schools, posters and even paper planes online. It provides an exciting link between science, technology, engineering and mathematics (STEM) subjects and real-world applications. It also informs the teacher of current environmental, transport and economic issues. It is excellent for stimulating debates.

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Future Flight  
Tel: 023 8059 4467  
Email: [competition@futureflight.org](mailto:competition@futureflight.org)  
Web: [www.futureflight.org](http://www.futureflight.org)

## Go4SET

TYPE: **INDUSTRY LINK & COMPETITION** AGE RANGE: **11-14**

Go4SET is a work-related, project-based, applied-learning activity. Teams of six pupils work with a teacher and industrial mentor on an environmentally themed science, technology, engineering and mathematics (STEM) project over a period of 10 weeks. The project matter has equal relevance to the company and school. Projects are rigorously assessed and reported on by panels of assessors from industry, education and commerce. Go4SET has a competition format and all pupils are eligible for the CREST awards. By working closely with an industrial mentor, pupils benefit by getting a taste of real-life industry. They also benefit from experiencing project management, report writing, communication skills, teamwork and problem solving.

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## Greenpower F24

TYPE: **COMPETITION** AGE RANGE: **11-16**

For this Greenpower initiative, a special specification for an electric car is issued to secondary schools along with a 24 volt electric motor and a set of four 12 volt lead/acid batteries. Cars are designed and built within the schools with the help of teachers, co-opted engineers, parents and sponsoring companies. They then compete in a number of Greenpower run marathon and sprint events throughout the country, using well-known motor racing circuits.

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 Web: [www.greenpower.co.uk/racing/formula24.php](http://www.greenpower.co.uk/racing/formula24.php)

## Greenpower Goblins

TYPE: **COMPETITION** AGE RANGE: **7-11**

The Greenpower Goblin kit car is designed specifically to offer primary school pupils a chance to get involved in a simple, practical engineering project to build a racing car that embraces many relevant aspects of science and technology. Mainly aimed at Years 5 and 6, the project allows widespread participation by pupils, teachers and parents/carers, especially on race days. There is also potential to get the wider community involved, such as local engineering businesses. There is an annual 'Gathering of Goblins' at Goodwood, where each competing member of every team receives a certificate.

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 Web: [www.greenpower.co.uk/racing/goblins.php](http://www.greenpower.co.uk/racing/goblins.php)

## Headstart

TYPE: **INDUSTRY LINK** AGE RANGE: **16-17**

Headstart is a well established education programme held every summer at 31 universities, providing students interested in mathematics or science with informed choices regarding technology-based degree courses and careers. Headstart provides a taste of university life at the time students are making their university decisions. Headstart students participate in a series of practical problem-solving activities, lectures and presentations, visits to local technology companies, meetings with recent graduates and academics. The programme provides an opportunity for students to identify sources of funding and support.

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 EDT  
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 Web: [www.headstartcourses.org.uk](http://www.headstartcourses.org.uk) or  
[www.insightcourses.org.uk](http://www.insightcourses.org.uk) for girls only courses



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WORK RELATED LEARNING/  
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## Imagineering Clubs

TYPE: **CLUB** AGE RANGE: **8-12**

Imagineering Junior Engineering Clubs are aimed at encouraging children of primary school age to become the next generation of engineers and scientists. In these clubs, children are helped to make working models from a series of kits. As well as practical skills, through their natural curiosity, they gain an understanding of how their models work and of engineering and science in general. A typical club will involve 12 children, girls and boys, with mixed skills and backgrounds making their own working model which they can take home when finished. The club will be led by two engineer partner tutors with assistance from a teacher and parent. Imagineering holds the Learning Grid Quality Standard.

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Web: www.imagineeringweb.co.uk



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## Imagineering Fairs

TYPE: **EVENT** AGE RANGE: **8-16**

The Imagineering Fairs are major annual events, consisting of stands with fun, interactive projects for young people (and their parents) provided by large and small manufacturers, universities, colleges, schools and institutions.

Contact: Joy Smith  
Imagineering Foundation  
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Email: joy.jcm@btinternet.com  
Web: www.imagineeringweb.co.uk



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## Independent Bosch Technology Horizons Award

TYPE: **COMPETITION** AGE RANGE: **14-19+**

The Technology Horizons Award is an essay competition that challenges young people to express their views on how engineering and technology has impacted on society now and in the future. Schools and colleges set the essay challenge as coursework or homework in a variety of subjects including English, design and technology, engineering, science and PHSE. The winning essays in each category are reproduced in the *Independent*. The essay competition provides an opportunity for students to realise the importance of engineering. This has led to a change in how students perceive engineering as a result of the research they have carried out.

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The Royal Academy of Engineering  
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Web: www.raeng.org.uk



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## INPUT

**TYPE: INDUSTRY LINK AND CURRICULUM SUPPORT AGE RANGE: 9-19**

INPUT (INdustry Projects Understanding Technology) projects provide an interesting insight into many areas of technology, and link industry and education in exciting ways. The projects have been developed for a wide age range and can be adapted to suit a wide range of abilities. Projects varying in duration from 1-5 hours are available. For primary students, the projects usually last around an hour, but a 2-3 hour (half day) format is often used. Projects can be tailored to suit the requirements of sponsoring companies, venues or specific curriculum needs.

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 INPUT National  
 Tel: 07785 236052  
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 Web: www.input.uk.com

## IOM3 Schools Affiliate Scheme

**TYPE: CURRICULUM SUPPORT, EVENT AGE RANGE: 11-19**

The Schools Affiliate Scheme (SAS) was designed by the Institute of Materials, Minerals and Mining to support the teaching of materials, minerals and mining topics in the science and technology curricula and to raise awareness of careers offered in the discipline. The scheme provides teaching resources, school visits (presentations and hands-on activities adaptable to suit a wide range of abilities), journals, newsletters and an information service. Presentations can be reinforcement ahead of exams or as an introduction to a topic about to be taught or can teach a particular aspect of the curriculum (eg smart materials) where learning providers have a limited knowledge. The scheme enables and facilitates the teaching of concepts in readily identifiable contexts.

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 The Institute of Materials, Minerals and Mining  
 Tel: 01302 320486  
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 Web: www.iom3.org

## K'Nex Challenge

**TYPE: COMPETITION AGE RANGE: 7-11**

Sponsored by Hasbro and run by Young Engineers, the four tier challenge is open to all primary schools or organisations teaching school years 4, 5 and 6 (or equivalent). The aim of this challenge is to provide primary school pupils with an introduction to the exciting world of engineering and technology. Once registered, schools will be contacted by one of the local organisers who will arrange a suitable date for a school visit. This school level, lower tier session will normally be delivered by a Science and Engineering Ambassador and will include a talk and an opportunity for some practical activities using K'Nex materials. Successful pupils then move onto a local final, then a regional final. A national final is held each year.

Contact: Young Engineers  
 Tel: 01428 727265  
 Email: projects@youngeng.org  
 Web: www.youngeng.org

Eng Sc

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 Ch Ph

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Ap DT Eng Ma  
 Sc Ph

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## Lab in a Lorry

TYPE: **EVENT** AGE RANGE: **11-14**

Lab in a Lorry is an interactive mobile science laboratory staffed by volunteer working scientists and engineers. Students typically spend a lesson onboard the lorry and in that time will get to do two of the three experiments. Students work in small groups of about six so that they can all get involved. Each lorry is a self-contained experience – it rolls up and is ready to go. Lab in a Lorry allows students to have a go at real science. The experiments on board the lorries are not demonstrations and they are not science centre exhibits. The experiments are exploratory and informed by curiosity and intuition, but also bounded and guided by the experience and insight of working scientists.

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## LEGO MINDSTORMS

TYPE: **CLUB** AGE RANGE: **8-16+**

Robotics is a popular and effective way for teachers to cover important areas of their science, technology, engineering and maths curricula and the LEGO MINDSTORMS for Schools series is tailor-made for classroom and after-school club use. It includes construction sets, programming tools and activity packs. The sets are for groups of 2 to 3 children working together in a hands-on, problem solving way. Youngsters are presented with challenges that they must solve together. The activity packs introduce them to real-life applications of automated technology and provide them with the skills they need to come up with their own solutions to problems. Activity materials are only available from a number of educational suppliers. In addition, the UK also has two LEGO MINDSTORMS Centres: one at LEGOLAND in Windsor and the other at W5 in Northern Ireland.

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Contact: Anke Jongen (W5)  
Email: ankejongen@w5online.co.uk  
Web: www.lego.com/eng/education/mindstorms



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## Material Beliefs

TYPE: **EVENT** AGE RANGE: **11-19**

Material Beliefs is a collaborative project between engineers and designers that takes emerging biomedical and cybernetic technology out of labs and into public spaces. The project focuses on technologies which blur the boundaries between our bodies and materials, and how design as a tool for public engagement can be used to stimulate discussion about the value of these forms of hybridity. The aim is to generate a body of work for public exhibition and engagement events. Material Beliefs provides enrichment and enhancement by creating a new dialogue between science and engineering researchers and students.

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Web: www.materialbeliefs.com



CITIZENSHIP  
ENRICHMENT AND EXTENSION

*Material  
Beliefs*

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## National Teaching and Learning Change Programme: Engineering

**TYPE: CURRICULUM SUPPORT AGE RANGE 14-19**

This suite of resources aims to facilitate and support teachers and learners working together to plan learning in ways which increasingly enable learners to become 'expert learners' in engineering. Resources are developed to complement the work of the Subject Learning Coaches and to inspire teachers and trainers to embrace the philosophy of the National Teaching and Learning Change Programme. They are devised to be used as stand alone resources and as tools within programmes. The resources will be accessible through the Excellence Gateway and will support increasing personalisation for learners.

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 Web: www.bdplearning.com

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## Nuffield Foundation Primary D&T

**TYPE: CURRICULUM SUPPORT AGE RANGE: 5-11**

This curriculum development project has produced a set of teacher materials, primary solutions in design & technology, that can be purchased at low cost from the Design & Technology Association. The pack includes a CD-ROM that contains 24 units of work, a teacher guide and a sample unit of work. The units of work are also available free of charge from the project website which also contains a showcase of pupils work and a comprehensive range of tutorials to support the teaching of the units. The approach and materials were extensively evaluated and validated during development by an independent research team from the Open University led by Professor Patricia Murphy. The project works closely with the Design & Technology Association, DCSF and QCA. The site and primary solutions pack cover both Key Stage 1 and Key Stage 2 curricula (England).

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 Nuffield Curriculum Centre  
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 Web: www.primarydandt.org

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## Nuffield Foundation Secondary D&T

**TYPE: CURRICULUM SUPPORT AGE RANGE 11-16+**

This curriculum development project devised the approach to teaching and learning design & technology that was incorporated into the National Curriculum orders for the subject in England. The project has produced a wide range of curriculum materials for both teachers and pupils that are available free of charge from the project website. The approach and materials were extensively evaluated and validated during development by an independent research team from the Open University led by Professor Patricia Murphy. The project works closely with the Design & Technology Association, DCSF and QCA. The site and materials cover both National Curriculum Key Stage 3 and Key Stage 4 curricula.

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Eng

ENRICHMENT AND EXTENSION  
 CPD

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## Primary Engineer

**TYPE: CURRICULUM SUPPORT, COMPETITION AGE RANGE: 5-11**

Primary Engineer is a complete primary liaison project to support primary design and technology. Teachers can run whole-class activities, but also available are INSET courses, challenge activities and resources. It is delivered nationally through secondary schools working with primary schools. Secondary teachers attend a practical two-day course which they then cascade to primary teachers. Primary teachers benefit from the CPD which effects the delivery of design and technology to support the practical application of science, maths and ICT. Cross-curricular links and resources enable children to break down curriculum barriers and become effective problem solvers. The scheme also facilitates the primary to secondary transition. Events enable schools to work with other local schools, the wider community and invariably large numbers of parents.

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DT Eng IT Ma

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## RoboCupJunior UK

**TYPE: COMPETITION AGE RANGE: 7-16+**

RoboCupJunior is one of the activities offered as part of RoboFesta-UK, the UK arm of international robotics movement RoboFesta, designed to promote science, technology, engineering and mathematics (STEM) through robotics activities. Teams of pupils design and build robots to perform specific tasks such as dancing, rescuing and playing football. The competition begins with regional heats and culminates in an annual international final.

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Ap DT IT Ma

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## RoboFesta-UK

**TYPE: INDUSTRY LINK, EVENT AGE RANGE: 5-19**

RoboFesta-UK is an educational robotics network open to individuals and organisations involved with hands-on robotics activities. These events may take place anywhere. The network was established to help co-ordinate robotics-related events and competitions, and provide resources and support to everyone involved with hands-on robotics activities. Robotics activities and competitions are effective means of interesting youngsters in science, technology, engineering and mathematics (STEM) subjects. They are cross-curricular and involve the development of a wide range of skills, including mechanical and electronic design, programming and team work. The benefits of RoboCupJunior include free involvement in regional and national events, and the chance to represent the UK at an international RoboCup event.

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Ap DT Eng IT

Ma Ph

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## Rolls-Royce Science Prize

**TYPE: COMPETITION AGE RANGE: TEACHERS OF ALL PHASES**

The Rolls-Royce Science Prize is an annual awards programme open to all schools and colleges in the UK and Republic of Ireland. Each year teams of three to six adults are invited to submit ideas for science teaching projects. Entries are taken in three age categories: 3–11, 11–16 and 16–19 with 59 schools winning cash prizes of £1000 upwards. Projects ideas can be in any area of science and a free, searchable database of all previous entries is available on-line. The closing date for submissions is the end of February each year. For further information and access to the on-line entry form, please visit the website.

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Web: www.rolls-royce.com/scienceprize

Sc

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## Schools Aerospace Challenge

**TYPE: COMPETITION AGE RANGE: 16–18**

This long-running competition organised in partnership with the Institution of Mechanical Engineers is open to teams of four from schools, colleges and youth organisations around the UK. Each year a new brief is set focusing on aircraft design with a prize of £5000 (shared between team members and the sponsoring school/youth organisation) available for the winning team.

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Eng

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## Shell Eco-marathon Youth Challenge UK

**TYPE: OUT-OF-SCHOOL EVENTS AGE RANGE: 11–19**

The Shell Eco-marathon Youth Challenge UK is an annual fuel economy competition. Competitors from schools and youth teams construct a vehicle that meets the required safety aspects and run it around a circuit using as little fuel as possible. The best designs consider aspects of aerodynamics, rolling resistance, engine efficiency and driving techniques to achieve the highest fuel economy. The benefits to students are that they will be able to apply learning from the classroom to the production of a physical object. They work on this as a team over a long period of time. It also highlights to them the importance of environment, sustainability and fuel economy. The scheme assists teachers to demonstrate physics and engineering subjects, and their real-world relevance.

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Web: www.shell.com/ecomarathon

Ap DT Eng Ph

NATIONAL CURRICULUM  
WORK RELATED LEARNING/  
ENTERPRISE  
ENRICHMENT AND EXTENSION

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## Smallpeice Trust Residential Courses

**TYPE: INDUSTRY LINK, CURRICULUM SUPPORT, EVENT AGE RANGE: 12-19**

The Smallpeice Trust offers a choice of around 30 different residential four-day courses for students with activities to develop skills in team working, design and creativity. These subsidised courses take place around the school holidays at universities around the country and are designed to help students achieve better grades within the curriculum. All courses are heavily subsidised to ensure every student can consider finding out what a career in engineering might entail. Projects are based on real-life engineering challenges and engineering professionals are on-site to give guidance throughout the stay. In addition, there is a fully supervised programme of evening-based social activities. The final evening usually culminates in a formal dinner and disco to celebrate achievements of the course. The course timetable usually includes subjects such as biomedical engineering, engineering experience, marine technology, materials technology, mining & materials, nanotechnology, nuclear engineering, supercomputing and sustainable energy.

Contact: Hassana Begum  
The Smallpeice Trust  
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EVERY CHILD MATTERS  
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SELF-EVALUATION FORM




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## Smallpeice Trust STEM enrichment days

**TYPE: IN-SCHOOL EVENTS, CURRICULUM SUPPORT AGE RANGE: 12-14**

The Smallpeice Trust visits schools for short introduction sessions designed for 12-14 year old students to enhance their understanding of, and aptitude for, problem solving, creativity, design, and engineering. Easy to organise, they are inspiring and fun for everyone taking part. Groups of 50 students work together in small teams on 'design and make' projects to improve their creative thinking and problem-solving skills. For students in the process of choosing Level 2 options, STEM day activities are especially geared to run as a complement to the curriculum in science, technology, engineering and maths. The Smallpeice Trust will work with you to decide on the most suitable project work for your students. The activities are varied and range from designing, testing, and refining motorcars powered by super-capacitors to electromagnetic cranes, wind turbines, and bridges. The Trust will fit the course around whatever rooms and equipment are available. Half-day and full-day options are available with times flexible to suit normal school hours.

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Web: [www.smallpeicetrust.org.uk](http://www.smallpeicetrust.org.uk)



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## Technology Alliance Wales

**TYPE: CURRICULUM SUPPORT AGE RANGE: 7-19**

An organisation comprising representatives from industry, education and the Welsh Assembly Government that exists to enrich and enhance technology education. It uses four training centres across Wales to introduce new initiatives through training programmes and seminars. Technology Alliance Wales has supported and pioneered the use of new technologies in schools to improve the quality of technology education in Wales and to encourage pupils to enter our engineering, manufacturing and technological industries.

Contact: Bob Cater  
Email: [tawwaterton@aol.com](mailto:tawwaterton@aol.com)  
Web: [www.waterton.co.uk](http://www.waterton.co.uk)



## Technology Enhancement Programme

**TYPE: CURRICULUM SUPPORT AGE RANGE: 14-19**

The Technology Enhance Programme (TEP) is supported by the Gatsby Technical Education Projects and is a registered charity. TEP develops unique and leading edge design, technology and engineering curriculum resources. TEP promotes sound teaching and learning, ideas and creativity with an emphasis on supporting and developing the Advanced (Level 3) Diploma in Engineering. We work closely with our member schools and colleges and a wide range of educational and industrial partners. All secondary schools and colleges can benefit through INSET/CPD, popular low cost resources and national conference activities as well as visiting the TEP website and through the termly journal *TEP News and Views*.

Contact: Nick Baldwin  
Tel: 01992 709745  
Email: [nickbaldwin@enterprise.net](mailto:nickbaldwin@enterprise.net)  
Web: [www.tep.org.uk](http://www.tep.org.uk)

## The Arkwright Scholarships Trust

**TYPE: INDUSTRY LINK AGE RANGE: 16-19**

The Arkwright Scholarships Trust promotes the rewards of an engineering/technology career to young people through sponsored scholarships, providing direct contact with industry. Applications are welcome from students who are studying D&T at an affiliated school, and plan to study relevant A Level subjects to an engineering/technological course at university. Through this scheme, students will benefit from the experience of a formal application process including an interview. Scholars have access to the Arkwright Alumni website for early information of new sponsorship opportunities and receive £500 to support their studies. Advantages for teachers are having the opportunity to join the interviewing team, creating links to local industry, heightening the profile of the D&T department within the school and community and £450 per scholar for departmental development.

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Arkwright Scholarships Trust  
Tel: 01926 333210  
Email: [jclark@arkwright.org.uk](mailto:jclark@arkwright.org.uk)  
Web: [www.arkwright.org.uk](http://www.arkwright.org.uk)

## The IET Faraday

**TYPE: CURRICULUM SUPPORT, COMPETITION, EVENTS AGE RANGE: 11-18**

The IET Faraday informs young people about the world of science, engineering and technology and inspires them to become involved in it. The engagement of young people and teachers is through a programme of specially-made films, student challenges, live events, school visits and teaching resources. Resource materials are available free to all schools via the website. Students will create their own challenge competition entries and compete for fantastic prizes. There is also the opportunity for school to take part in action-packed challenge days around the country. Winners from the day will be chosen to attend the live Faraday challenge event to select the 'Faraday team of the year' award. This will be held in London at the start of National Science and Engineering week. Every year, the IET Faraday explores different aspects of science and engineering to highlight the diversity and excitement of this high technology profession. In 2008/9 the theme is engineering in sport. Inspiring role models will reinforce the image of engineering as a worthwhile, interesting and varied career choice, while highlighting its vital contribution to society.

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## The Industrial Trust: In-company educational events

**TYPE: INDUSTRY LINK, EVENT AGE RANGE: 7-19**

The Industrial Trust organises and completes educational work-related events in workplaces and other out-of-school venues. The Trust works with teachers and companies to design tailor-made events to meet agreed learning needs. Events usually feature one or more aspects of science, technology, engineering and mathematics (STEM), ICT, business and enterprise. By using a work environment and involving industry and enterprise, the programmes help students to see STEM (and other subjects) in their inter-related and widest sense while learning about career opportunities that they might aspire to. These events dispel pre-conceived bias relating to gender, ethnic and professional stereotypes by enabling students to see people they can relate to.

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## The IOP Schools and Colleges Lecture Series

**TYPE: EVENT AGE RANGE: 14-16**

The IOP schools and colleges lecture is delivered by presenters, chosen for their ability to communicate and who travel throughout UK. The free interactive lecture is designed to show school pupils contemporary developments in physics in a fun and lively way. It is hosted by series of schools, colleges and universities across the country each year. Groups from other schools can book to attend the lectures for free. The lecture is important as it shows how classroom physics relates to the real world and cutting-edge research, while still linking to the curriculum. Students benefit from seeing physics presented in a fun and lively way and linked to the latest scientific developments. Teachers benefit by updating their subject knowledge.

Contact: Claire Mills  
The Institute of Physics  
Tel: 020 7470 4887  
Email: education@iop.org  
Web: www.iop.org/activity/education



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**IOP** Institute of Physics

## The Year in Industry

**TYPE: INDUSTRY LINK AGE RANGE: 18+**

The Year in Industry (YINI) helps gap year students find paid, challenging, rewarding and fully supported placements. Placements are predominantly for science, engineering and technology students and last for 9-12 months. Students receive mentoring and training courses, and are encouraged to join the relevant professional institutions. YINI gives students the opportunity to begin their university degree having had a practical experience of the kind of work they will do upon graduating. They can apply the theory they have learned in a real-world environment, helping them prepare for the world of work. The students are provided with leadership and management training, and develop communication, teamwork and problem-solving skills.

Contact: Claire Hall  
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## Toyota Technology Challenge

TYPE **COMPETITION** AGE RANGE: **11-16**

Toyota Manufacturing UK and Rapid Electronics Ltd organise the Toyota Technology Challenge – an educational, fun and affordable school-based national technology competition for teams aimed at younger secondary school students. There are two categories to the challenge: Solar Power and PIC Microcontroller. The challenge is to design and build an environmentally-friendly model vehicle for a chance to win cash prizes, trophies, certificates and, for the best of the best in each category, a European trip.

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Rapid Electronics Ltd  
Tel: 01206 751166  
Email: [toyotachallenge@rapidelec.co.uk](mailto:toyotachallenge@rapidelec.co.uk)  
Web: [www.rapidonline.com/toyota/](http://www.rapidonline.com/toyota/)

## TrackNAVCHALLENGE

TYPE: **COMPETITION, EVENT** AGE RANGE: **11-19**

TrackNAVCHALLENGE is a challenge in which teams of four to six are tasked with designing and building a radio-controlled four-wheel drive vehicle that can emulate what a Land Rover can do. It's about traction and control, not speed! The challenge is designed to introduce young people to the world of engineering and enterprise in a relevant and appropriate manner that is fun, exciting and challenging. TrackNAVCHALLENGE supports both the engineering and design and technology curriculum. Support available from Land Rover includes visits, talks to the team and materials that support business acumen as well as the delivery of relevant engineering concepts. Teachers are supported with 4x4 technology material and access to engineers where necessary.

Contact: Ruth Martin  
Land Rover  
Tel: 01926 648299  
Email: [tracknav@landrover.com](mailto:tracknav@landrover.com)  
Web: [www.tracknavchallenge.co.uk](http://www.tracknavchallenge.co.uk)

## whynotchemeng

TYPE: **CURRICULUM SUPPORT** AGE RANGE: **7-19**

whynotchemeng promotes chemical engineering as a career choice. It provides careers literature for school libraries, teaching resources for teachers of students aged 7-16, demonstrations for science lessons and events, posters for classrooms and comprehensive information about chemical engineering aimed at school students aged 14-18, teachers and parents. The website presents tools that teachers can use to provide information on chemical engineering as a career choice. Students can find information on what chemical engineering is all about, the variety of sectors chemical engineers work in and information about the universities who offer chemical engineering degree courses.

Contact: Claire Cooke  
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Web: [www.whynotchemeng.com](http://www.whynotchemeng.com)



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## Young Engineer for Britain

TYPE: **COMPETITION, EVENT AGE RANGE: 11-19**

The Young Engineer for Britain competition is a national celebration of the best creative projects in the country from students aged 11–19. It provides both a regional and national showcase for engineering, technology and design achievements. Young Engineers challenges students, both as individuals or in a team, to use their imagination to create, design, develop and manufacture an original idea for a commercially viable device or system that meets a useful everyday need they have identified. Extensive competition support is offered through the website. Finalists travel to the regional and national finals where they gain enormous benefit from meeting like-minded individuals, meeting senior engineers and business people, and seeing a wide range of other projects. Top projects often become commercial successes but everyone has an opportunity to shine.

Contact: Joanne Phillips  
 Young Engineers  
 Tel: 01428 727265  
 Email: [projects@youngeng.org](mailto:projects@youngeng.org)  
 Web: [www.youngeng.org](http://www.youngeng.org)



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## Young Engineers Clubs

TYPE: **CLUB AGE RANGE: 7-19**

Schools and youth groups taking part in any engineering-related enrichment activity are eligible to join the Young Engineers Club network. Network membership is free and gives schools access to resources to help enrich the engineering experience they offer students. Club network services include: grants and discounts; Club activity programmes (ages 7–14), a ready-made, year-long programme of affordable hands-on activities to use in club sessions with new members; Activity Bank, a searchable database of one-off club activities; and Club Showcase (ages 7–18), for large and small, new and established clubs. Young Engineers Club network helps to develop individual and team skills, including project management, leadership, communications and presentational skills. Club projects can be made sufficiently diverse to meet all levels of ability.

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 Young Engineers  
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 Email: [clubs@youngeng.org](mailto:clubs@youngeng.org)  
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**Young Engineers: The Airbus Challenge – Project Eggs Factor; The BAA Challenges; The Royal Navy Challenge; and The Lloyd’s Register Educational Trust Engineering Experience**

**TYPE: COMPETITION, EVENTS AGE RANGE: 5-19**

The Airbus Challenge, Project Eggs Factor, helps to promote and demonstrate a number of key principles such as structures, stability, flight, propulsion, safety, drag and lift. The challenge for 2009 is to develop a system that will carry an egg safely over a ‘bottomless’ chasm. At the end of the year, prizes are awarded to those entries with the most imaginative and creative solutions and selected schools may be invited to take part in the UK Young Scientist and Engineers Fair 2009 (KS2 – KS5 or equivalents).

The BAA Challenge 2009 is to design and build a baggage buggy that will carry luggage safely and quickly from the baggage hall to an aircraft. Designs chosen for the final are made into fully working models and presented in a formal pitch to their fellow students and to engineers from BAA. This is then followed by a practical demonstration of their solution. Teams compete for trophies and £1000s of prizes (KS2 – KS5 or equivalents).

The Royal Navy Challenge offers an opportunity to apply scientific and engineering principles to solve a practical maritime problem. The 2009 mission is to devise a maritime vehicle that will help to repair and rescue a stricken cruise liner. Finalists are selected to fully develop and manufacture their mission solutions. At the final, teams spend a night at an exciting Royal Navy venue and compete for £1000s of prizes, trophies and helicopter rides (KS3 and above or equivalents).

The Lloyd’s Register Educational Trust Engineering Experience offers up to six young engineers drawn from schools across the UK the opportunity to travel abroad to see engineering in action in another country. In 2007, the successful students visited the UK, Belgium and the Netherlands. These challenges add breadth to elements of the maths, science and D&T parts of the curriculum and provide practical opportunities to apply a variety of theories and to learn by doing. The challenges have separate levels for primary and secondary (or novice and experienced) to cater for all students.

Contact: Joanne Phillips  
 Young Engineers  
 Tel: 01428 727265  
 Email: [projects@youngeng.org](mailto:projects@youngeng.org)  
 Web: [www.youngeng.org](http://www.youngeng.org)



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**AIRBUS**

**BAA**



**Lloyd's Register**  
 Educational Trust

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## Young Foresight

TYPE: **CURRICULUM SUPPORT AGE RANGE 13-14**

Young Foresight is an educational initiative for design & technology within the English and Welsh national curriculum. It is primarily designed for pupils in Year 9 but can be used with older and younger pupils. Over a term, pupils work in teams to design future products and services, developing their own design briefs and specifications. Young Foresight has been included in the Key Stage 3 strategy for design & technology. The approach and materials were extensively evaluated and validated during development by an independent research team from the Open University led by Professor Patricia Murphy.

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 YF (Education & Training) Ltd  
 Tel: 020 7793 1882  
 Email: [info@youngforesight.org](mailto:info@youngforesight.org)  
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## Youth Engineering Show

TYPE: **EVENT AGE RANGE: 11-14**

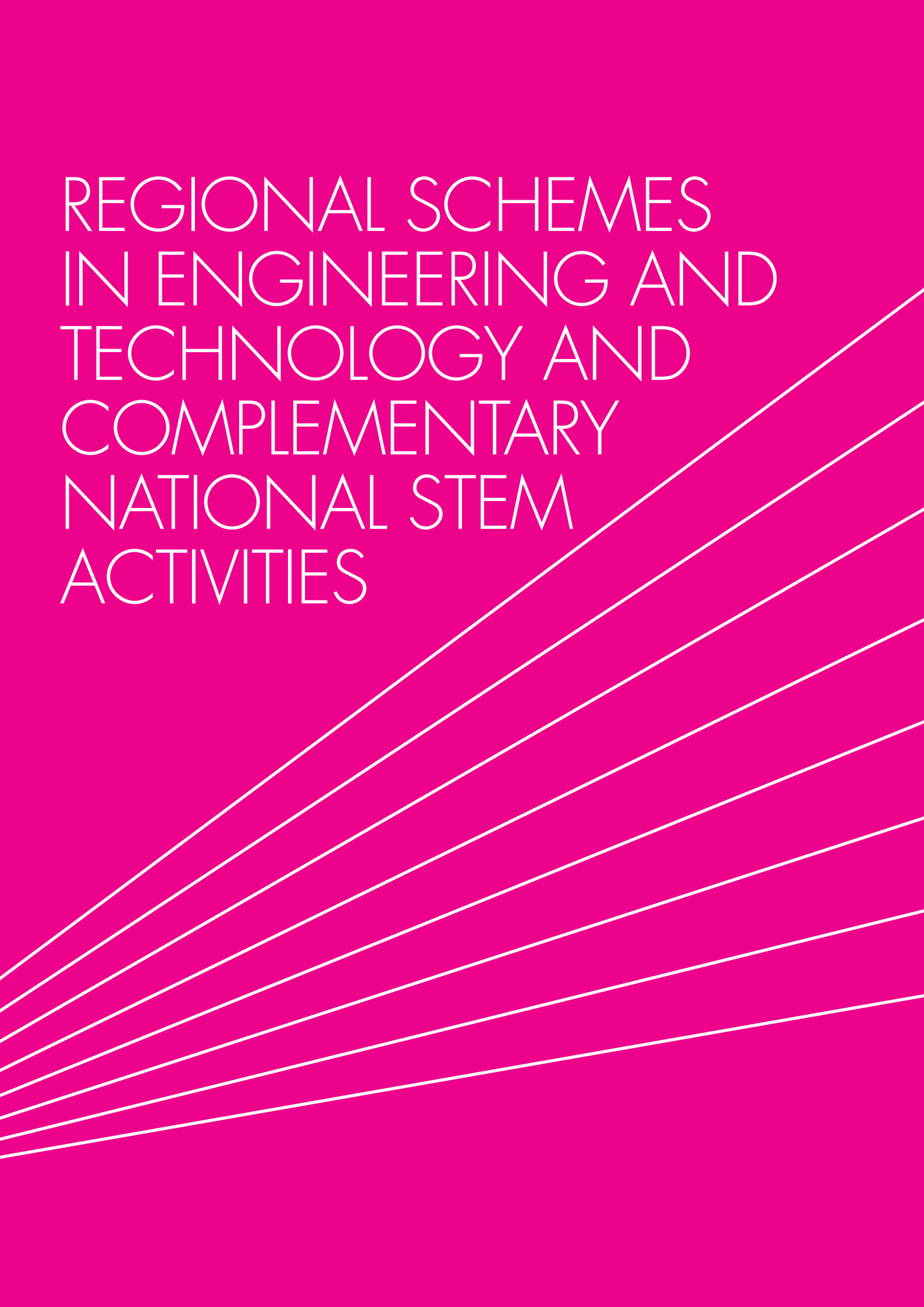
This lively one-hour programme covers the role of engineers in creating the world around us, from bridges, ships and software to cars, mountain bikes and mobile phones. Presented by Michael Rodd and Michaela Hyde of Tomorrow's World, the show usually runs over several days in one location, with three presentations on each day for local schools. In 2007, 82% of participants rated the show 'excellent' or 'good' and 55% said they were now more likely to choose an engineering career. The star of the show is Honda's amazing ASIMO robot, the inspiring achievement of a team of mechanical, electronic and software engineers.

Contact: Network Events  
 Tel: 023 9263 1331  
 Email: [linda@networkevents.ltd.uk](mailto:linda@networkevents.ltd.uk)  
 Web: [www.learninggrid.co.uk/yes](http://www.learninggrid.co.uk/yes)



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REGIONAL SCHEMES  
IN ENGINEERING AND  
TECHNOLOGY AND  
COMPLEMENTARY  
NATIONAL STEM  
ACTIVITIES

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## Subject Key

<b>Ap</b>	Applied Science
<b>DT</b>	Design/Technology
<b>Eng</b>	Engineering/Manufacturing
<b>IT</b>	ICT/Digital
<b>Ma</b>	Mathematics
<b>Sc</b>	Science
<b>Bi</b>	Science – Biology
<b>Ch</b>	Science – Chemistry
<b>Ph</b>	Science – Physics




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## Architecture Workshop

TYPE: **OUT-OF & IN-SCHOOL EVENTS** AGE RANGE: **5-19**

Architecture Workshops are cross-curricular workshops in which pupils engage in problem-solving activities, as individuals and then in groups, to build large-scale structures. The themes of each workshop are often dictated by the individuals taking part and the location of the workshop, making each event unique. The workshops stimulate students' creative thinking, interpretation, visual problem-solving and team-working skills. Pupils benefit further by achieving greater spatial awareness and understanding of the built environment, as well as enriching their knowledge of science, technology, engineering and mathematics (STEM). For example, building a 12m Viking Long Boat captures the imagination as pupils get to grips with rowing past icebergs as they sail to America.

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 Architecture Workshops Association  
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 Web: [www.architectureworkshop.org](http://www.architectureworkshop.org)



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## At Home in Space

TYPE: **OUT-OF & IN-SCHOOL EVENTS, STUDENT & TEACHER RESOURCES**  
 AGE RANGE: **5-19**

At Home in Space is a show-and-tell presentation with participative workshops, detailing living and working in space. It brings space technology and exploration into the classroom in a fun way that supports cross-curricular activities for all age groups. The activity supports teachers in delivering and understanding difficult subjects, eg flying in space, seasons, phases of the moon. The activity benefits from contacts and real experiences within the space programme.

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## Bolton Science and Technology Centre

**TYPE: OUT-OF & IN-SCHOOL EVENTS, STUDENT & TEACHER RESOURCES, CPD**  
**AGE RANGE: 5-19**

Bolton Science and Technology Centre (BSTC), part of the Bolton science technology, engineering and mathematics (STEM) service, offers schools access to advanced design and manufacturing and science equipment, not usually found in schools. BSTC delivers drop-in science and engineering clubs and robotics activities, catch-up and revision classes and family learning days. BSTC also runs a broad CPD programme for teachers of STEM subjects that includes work in industrial contexts and promotes understanding of innovation. This work takes place in schools and in our purpose-built high technology centre. Working alongside teachers and their pupils, BSTC introduces new activities and ways of working to immediate benefit for the pupils involved and impact on all pupils in each school as the practice becomes embedded in the school.

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**NORTH-WEST ENGLAND**

**Bolton Science and  
 Technology Centre**

## By Design Sports Science Programme

**TYPE: IN-SCHOOL EVENTS AGE RANGE: 7-19**

Science underpins our daily lives and sport is no exception. By Design offers two types of presentations that can be delivered in schools, as well as a supporting chemistry and sport website. The 'Sport, Ethics and Engineering of the Olympic Games' lecture offers an exciting insight into the world of engineering and sport. The lecture aims to highlight the presence of engineering throughout sport and the ethical issues this raises. Students will have the opportunity to meet and engage in a lecture and debate with sport engineers and Olympic athletes, opening their eyes to the world of engineering and how it has helped change the theatre of sport. 'The Science of Sport' presentation focuses on the human body, which is at the heart of sport, and understanding the body's chemistry and mechanics gives a great insight into how it works. The Chemistry and Sport website provides teachers with a variety of resources that highlight the chemistry and science behind many sporting events that run throughout the year. The website provides student handouts, teacher notes and presentations.

Contact: Robert Boyd, By Design  
 Tel: 01827 316297  
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 Web: [www.bydesign-group.co.uk](http://www.bydesign-group.co.uk)



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**bydesign**

## Children Challenging Industry

**TYPE: IN-SCHOOL EVENTS, STUDENT & TEACHER RESOURCES, CPD**  
**AGE RANGE: 5-11**

Children Challenging Industry (CCI) aims to create enthusiasm for learning science amongst primary school children by providing classroom-based training for teaching the science element of the National Curriculum. This, and liaison with local science-based manufacturing companies, enables pupils to see how their school science is used in a real life context. Through three half-day classroom teaching sessions, the external advisory teacher demonstrates high quality scientific enquiry using industrial contexts. A tailored visit to a company to support the classroom science investigations follows. To encourage all staff in a school to use industrial contexts in their science teaching, the advisory teacher comes into provide whole-staff training on CCI, and introduces staff to a range of hard-copy and web-based resources for industry-focused scientific enquiry at the 4-11 age range.

Contact: Joy Parvin and Gayle Pook  
 Tel: 01904 432523  
 Email: [ciec@york.ac.uk](mailto:ciec@york.ac.uk)  
 Web: [www.ciec.org.uk](http://www.ciec.org.uk)



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**NORTH-EAST ENGLAND  
 NORTH-WEST ENGLAND  
 YORKSHIRE & THE HUMBER**



## Computing Science Inside

**TYPE: IN-SCHOOL EVENTS, STUDENT & TEACHER RESOURCES, CPD**  
**AGE RANGE: 11-19**

Computing Science Inside offers a range of lesson-length workshops for use by teachers in classrooms. The aim is to highlight the computer science that underpins the technology revolution all around us, thereby demonstrating the difference between computer use (ICT training) and computer science / software engineering. Some workshops require role-play and activity, others are worksheet based. The aims are to engage and enthuse pupils through active participatory techniques. A recent survey showed that the majority of children did not understand the difference between ICT and computer science. Teachers comment that there are few other materials that demonstrate this difference, and that the high level of active learning involved in the workshops is unusual. It inspires pupils to consider computing as an interesting and rewarding subject.

Contact: Quintin I Cutts  
 Tel: 0141 330 5619  
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 Web: csi.dcs.gla.ac.uk

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## Design & Technology Workshops at Enginuity

**TYPE: OUT-OF-SCHOOL EVENTS AGE RANGE: 5-19**

The Ironbridge Gorge Museums Trust offers a range of three-hour workshops at the interactive D&T Centre, Enginuity. Offered all year round, these focus on the QCA schemes of work for design and technology, ICT and science. The main element of the workshop assignment is to design, make and test a product. Workshops on offer include Wheels and Axles (KS1), Buggy Racer Challenge (KS2-KS3), Bridging the Gap (KS2-KS4), Parachuting Parcels (KS2-KS3), Pneumatic Cranes (KS2), Robots (KS2-KS4) and Product Analysis (KS4-KS5). Workshops take students out of the normal classroom environment and offer exciting and inspiring challenges that encourage the application of science, technology, engineering and mathematics (STEM) knowledge and skills within relevant and meaningful contexts.

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 The Ironbridge Gorge Museum Trust  
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## Engineering Inspirations

**TYPE: IN-SCHOOL EVENTS, CPD AGE RANGE: 11-19**

Engineering Inspirations is an event held every July for students in York and North Yorkshire and further afield. Students from KS3-KS5 display their best engineering, science and maths project work, completed before attendance in July. The day also includes numerous drop in activities, hands-on stands, the culmination of in-school challenges and a teacher challenge. The event allows young people to compete and compare results with their peers. It also fosters business-education links, and the opportunity to engage with employers.

Contact: Harriet Dow  
 North Yorkshire Education and Business Partnership  
 Tel: 01904 693632  
 Email: harriet@nybep.org.uk  
 Web: www.nybep.org.uk



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## Futurenergia

**TYPE: STUDENT & TEACHER RESOURCES, OUT-OF-SCHOOL EVENTS**  
**AGE RANGE: 7-19**

Energy is our Future is a project designed to empower students to make a positive difference in protecting our planet's future. It challenges European students to participate in a series of online activities around the themes of energy efficiency, climate protection and conserving natural resources. The goal is to help them understand how these issues relate to their own lives, and stimulate them to come up with solutions for future generations. Three of the activities are competitions and the winning students are honoured at a prize giving ceremony in Brussels. It helps students learn to make a difference in using energy and find out more about the role of advanced materials such as plastics in saving energy and creating a sustainable future.

Contact: Hanane Taidi  
 Plastics Europe  
 Tel: +32 (2) 676 1740  
 Email: hanane.taidi@plasticseurope.org  
 Web: www.plasticseurope.org



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## Hands on Science

**TYPE: OUT-OF & IN-SCHOOL EVENTS, STUDENT RESOURCES AGE RANGE: 5-14**

Hands on Science develops and delivers educational science-based workshops. Topics include crime scene investigation, energy, rockets and robots, but new workshops are constantly created to help schools achieve their specific learning objectives. Hands on Science workshops are either delivered in-school directly to children or sometimes to parents and children together. Hands on Science takes the subject areas the teacher is looking to work on and presents them in a way students will have not seen before.

Contact: Mark Walton  
 Hands on Science Ltd  
 Tel: 07710 087259  
 Email: enquiries@hands-on-science.co.uk  
 Web: www.hands-on-science.co.uk



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## Hands On Workshops and Collaborative Learning and Understanding of Engineering and Science

**TYPE: IN-SCHOOL EVENTS, CPD AGE RANGE: 5-14**

Hands On Workshops (HOW) and Collaborative Learning and Understanding of Engineering and Science (CLUES) are programmes of hands-on workshops for schools. Sessions are designed for a class of 30 children. During a visit, a workshop leader can work with up to three classes. Activities currently on offer in the HOW programme for primary students include optical toys, torches and lighthouses, rockets and jets, celebrations and decorations, time and moving through water. CLUES workshops cover topics including moving freight, marketing toy kits, producing energy, time and time keepers, lighting the seas and urban transport. Activities are designed for a class of 30 students and can take place in any teaching room. These sessions are especially valuable for schools that want to raise attainment and aspiration in science. They are designed to give teachers confidence and to enthuse students. They are also valuable for more experienced practitioners who want to gain some fresh insights into teaching science and integrating it with other areas of the curriculum.

Contact: Maria Neonaki  
 London Metropolitan University – Institute for Health Research and Policy  
 Tel: 020 7133 4414  
 Email: m.neonaki@londonmet.ac.uk  
 Web: www.londonmet.ac.uk/research-units/ihrp



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## Intech Science Centre

**TYPE: OUT-OF & IN-SCHOOL EVENTS AGE RANGE: 5-19**

At Intech science centre and planetarium you can push it, pull it, turn it watch it, try it and build it, while enquiring, discovering, understanding and learning. Located near Winchester in an award-winning, purpose-designed building, over 100 exhibits support and enhance the science, technology and maths curricula with opportunities for scientific enquiry and cross-curricular activities. Trails and resources help teachers guide their students around the exhibition. There are also curriculum-based workshops, science shows, the UK's largest capacity digital planetarium, outreach activities and an equipment library. At Intech students discover that science and technology are interesting and fun. It provides hands-on activities where children can learn by doing. It is able to demonstrate real applications and context, showing where in the world science and technology are used and how.

Contact: Angela Ryde-Weller  
Intech  
Tel: 01962 891907  
Email: angelarydeweller@intech-uk.com  
Web: www.intech-uk.com



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## Interactive STEM Workshops

**TYPE: IN-SCHOOL EVENTS AGE RANGE: 7-19**

The Interactive science, technology, engineering and mathematics (STEM) workshops are all delivered in the school environment, and cover topics such as forces, friction, speed, aerobic and anaerobic activity. The workshops have a longer-term impact being remembered by students, as they have specialist high technology equipment allowing them to deliver specific messages in a format that enables the students to remember difficult areas of the curriculum. The cross-curricular linkages are beneficial to teachers and students as they are provided with a fantastic experience that can be used in a variety of ways following the delivery of the session. Typical examples of this include the students using their own data in ICT lessons.

Contact: Robert Boyd  
By Design  
Tel: 01827 316297  
Email: info@bydesign-group.co.uk  
Web: www.bydesign-group.co.uk



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## Jaguar Cars Maths in Motion Challenge for Schools

**TYPE: OUT-OF & IN-SCHOOL EVENTS, TEACHER RESOURCES AGE RANGE: 7-19**

The Jaguar Cars Maths in Motion Challenge for Schools provides software which requires students to set up a virtual racing car, to enter a race against cars set up by other students. It is competitive, factual and generates a lot of excitement. Teams progress through knockout rounds in March and May each year, with the National Final taking place in June. Many schools, once involved, have set up maths clubs, specifically to take part, for the very first time. Many schools have used this as the catalyst for a transition year's project and have linked with other schools to run their own 'private' challenges. The Challenge uses basic understanding of mathematics to simulate something very complex in a way that creates a great learning environment.

Contact: Brian Richardson  
Jaguar Cars Maths in Motion Challenge for Schools  
Tel: 01487 741223  
Email: info@mathschallenge.org.uk  
Web: www.mathschallenge.org.uk



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## L M Interactive

**TYPE: IN-SCHOOL EVENTS AGE RANGE: 7-19**

L M Interactive offers a wide range of science shows covering topics in physical science, engineering and mathematics. Current topics covered include fire, air and the atmosphere, time and time measurement, navigation and electricity. All shows are written and presented by Richard Ellam, a highly experienced presenter, and most shows feature purpose made, well-engineered props. L M Interactive science shows incorporate demonstrations which are not normally done in schools and bring together material normally taught in schools in separate disciplines, with the aim of providing a richer context for the science and technology covered. Teachers get to see novel demonstrations and advice on replicating these in the classroom is freely given. These shows provide valuable starting points for post-show discussions and classroom activities.

Contact: Richard Ellam  
Tel: 01761 412797  
Email: richard@lminteractive.eclipse.co.uk  
Web: www.lminteractive.co.uk

## Learning at Head of Steam

**TYPE: STUDENT & TEACHER RESOURCES, OUT-OF-SCHOOL EVENTS  
AGE RANGE: 5-19**

Students have access to the museum and its collections illustrating the development of the railways in the North-East, and in particular the development of engineering. As well as museum objects, it is also possible to access the archival collections. Visiting the museum and accessing its collections fits into the national curriculum, and also into new vocational qualifications. The scheme aims to develop partnerships with schools and colleges to increase access to these materials. The museum context also illustrates the people behind the science, technology, engineering and mathematics (STEM) pioneers who drove the developments.

Contact: Sarah Gouldsbrough  
Darlington Railway Museum  
Tel: 01325 734128  
Email: sarah.gouldsbrough@darlington.gov.uk  
Web: www.head-of-steam.co.uk

## North East Process Industry Cluster Education Engagement Programme

**TYPE: TEACHER RESOURCES, OUT-OF & IN-SCHOOL EVENTS, CPD  
AGE RANGE: 5-19**

The North-East Process Industry Cluster (NEPIC) is an organisation working closely with the chemical, pharmaceutical, biotechnology and biofuels industries of North-East England, and their supply chain which includes many engineering companies. From board games with an environmental slant to real-life problem solving, primary science shows to a residential Chemistry Jamboree, NEPIC has a range of activities available and is able to develop new activities to suit. NEPIC puts science, technology, engineering and mathematics (STEM) study into context for students and take the learning beyond the classroom. Teachers benefit from an enhanced understanding of the process industries and gain experience of industry that can be used within the classroom in future years.

Contact: Emma Youdale  
North-East Process Industry Cluster  
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Email: emma.youdale@nepic.co.uk  
Web: www.nepic.co.uk



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## Oilstrike

**TYPE: STUDENT & TEACHER RESOURCES AGE RANGE: 14-16**

The Royal Society of Chemistry's 'Oilstrike' is an interactive chemistry-themed game for 14-16 year olds. Students learn about oil exploration, drilling and fractional distillation while trying to maximise profits, as they build their own refineries in locations around the world. Answering multiple choice questions correctly at key points in the game will reduce costs, increase the amount of oil that can be refined and increase profit. The game includes an infobank that contains a wealth of information about drilling for oil, transporting and refining oil, and using the products of refining. The game can be used in lessons, or by students on their own outside of lesson time.

Contact: Emma Woodley  
Royal Society of Chemistry  
Tel: 020 7440 3349  
Email: [education@rsc.org](mailto:education@rsc.org)  
Web: [www.rsc-oilstrike.org](http://www.rsc-oilstrike.org)

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## Primary & Secondary Schools Education Programme

**TYPE: OUT-OF & IN-SCHOOL EVENTS AGE RANGE: 5-18**

A wide selection of inspiring and hands-on activities designed to support Curriculum for Excellence. Programmes cover nursery to S6 and include activities such as DNA extraction, hands-on experiments, circuit soldering and robot programming. Debates for S5-6 provoke thought and discussion on ethical and controversial science issues. The activities seek to deliver inspiring science and technology experiences that cannot be achieved in school through the exhibition, workshops and shows. All activities seek to deliver the values of Curriculum for Excellence, and promote active learning and confidence. Dundee Science Centre exists to complement in-school learning, and is inspected by HMIE. Visits can be tailored to your needs. Outreach service also available.

Contact: Hannah Crookes  
Dundee Science Centre (Sensation)  
Tel: 01382 868610  
Email: [hannah.crookes@dundeesciencecentre.org.uk](mailto:hannah.crookes@dundeesciencecentre.org.uk)  
Web: [www.sensation.org.uk](http://www.sensation.org.uk)

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## Primary Science Enhancement Programme

**TYPE: STUDENT & TEACHER RESOURCES, IN-SCHOOL EVENTS, CPD AGE RANGE: 5-11**

The Primary Science Enhancement Programme (PSEP) aims to create enthusiasm for learning science amongst primary school children by providing CPD. This is achieved via a day's training, and is offered through certain regional science learning centres, local authorities and science, technology, engineering and mathematics (STEM)-related organisations. Teachers are introduced to a series of practical science investigations set in industrial contexts, and available via a wide range of teaching resources. The day includes first-hand experience of a curriculum-relevant industrial visit, tailored to follow the classroom science investigations. The teachers have the opportunity to participate in a PSEP visit, resulting from personnel being trained by the advisory teacher in communicating effectively with primary children, curriculum relevance and suitability for 9-11 year olds. The website houses training materials for use by teachers starting out with science-industry links, creativity and assessment for learning strategies, as well as many interactive areas for children's use in the classroom.

Contact: Joy Parvin & Gayle Pook  
University of York  
Tel: 01904 432523  
Email: [ciec@york.ac.uk](mailto:ciec@york.ac.uk)  
Web: [www.ciec.org.uk](http://www.ciec.org.uk)

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## RAF Education Programme

**TYPE: IN-SCHOOL EVENTS, STUDENT & TEACHER RESOURCES**

**AGE RANGE: 11-16**

The RAF Education Programme offers maths and science educational resources and workshops to help students see practical applications of their studies. Online interactive resources are available and teachers' notes, curriculum maps and certificates are provided in the teachers' area. Teachers can also order interactive CD-ROMs, science posters and workshop visits from the RAF team. The programme has been developed in consultation with teachers and gives them the opportunity to show students the relevance of what they have learnt in the classroom. The resources are all curriculum-linked and use real-life contexts and profiles to bring the curriculum to life and innovative approaches and formats to excite students of all abilities and learning styles.

Contact: Amy Weaver  
EdComs  
Tel: 0871 472 3016  
Email: raf@edcoms.co.uk  
Web: www.raftarget.com

## Robotics Programme

**TYPE: OUT-OF & IN-SCHOOL EVENTS AGE RANGE: 7-19**

The Robotics Programme includes a range of hands-on courses that facilitate application of learning of many topics from within the science and maths curriculum. Robotics courses include topics such as gearing and forces, robotic platform and parts assembly, programming hardware and software options, sequencing and writing, remote control devices and programmes, and autonomous programming with sensors. Courses are suitable for a range of abilities, designed for a duration of one day or up to two weeks and available in-school or at other locations as required. Teachers will be able to extend activities in other curriculum areas, and will learn of new materials which can be sourced to create new hands-on activities. Students will apply their learning in science, maths and D&T in a new challenging team environment.

Contact: Richard Palfrey  
Exscitec  
Tel: 01730 235689  
Email: richard.palfrey@exscitec.com  
Web: www.exscitec.com  
www.firstuk.org

## Schools Programmes & Free Permanent Galleries at the Museum of Science and Industry

**TYPE: OUT-OF-SCHOOL EVENTS, TEACHER RESOURCES, CPD**

**AGE RANGE: 5-19**

The Museum of Science and Industry (MOSI) historic site includes five large buildings and 14 galleries. These are packed with engaging exhibits for teachers and pupils to explore the science and industry of the world's first industrial city. A range of classroom and gallery sessions are offered, eg activity tours, science shows, debates and presentations. Packs are sent to teachers who book a session and they are given suggestions for preliminary and follow-up work. Our science and history debates for KS4 and KS5 students use external speakers and practical activities to develop understanding and encourage students to speak out. MOSI school programmes all directly link into the national curriculum or other key learning initiatives such as citizenship or literacy.

Contact: Caroline Dickinson  
Museum of Science and Industry (MOSI)  
Tel: 0161 8330027  
Email: education@mosi.org.uk  
Web: www.mosi.org.uk



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## Science Museum Learning

**TYPE: OUT-OF & IN-SCHOOL EVENTS, STUDENT & TEACHER RESOURCES, CPD**  
**AGE RANGE: 5-19**

From scientific inventions to contemporary science the Science Museum brings science to life, and life to science. The Science Museum offers an extensive range of learning programmes for every age and audience. Events at the Science Museum boost student learning and engagement through memorable live science demonstrations and IMAX/museum theme days. The Science Museum Outreach team can bring a wide range of interactive curriculum-linked shows and workshops into your school or science club. The Science Museum also offers courses and events for teachers at all stages of their career. Web resources are available and can be used in the classroom for homework and with science clubs. Science Night is an all-night extravaganza with a scientific twist; an evening of science fun rounded off by camping in the Science Museum overnight. Science Museum programmes are linked closely to the curriculum for all science levels and are presented in a fun and exciting way. All of the Science Museum's learning programmes are developed with our target audiences and advisors who ensure that we offer up-to-date events and support.

Contact: Education Booking Office  
 The Science Museum, London  
 Tel: 020 7942 4777  
 Email: [edbookings@sciencemuseum.org.uk](mailto:edbookings@sciencemuseum.org.uk)  
 Web: [www.sciencemuseum.org.uk/educators](http://www.sciencemuseum.org.uk/educators)

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## Science, Technology, Engineering and Maths Workshops

**TYPE: OUT-OF & IN-SCHOOL EVENTS, STUDENT & TEACHER RESOURCES**  
**AGE RANGE: 5-19**

The Assault Glider Trust (AGT) offers visits to its conservation hangar and runs workshops across science, technology, engineering and mathematics (STEM) subjects for KS2-KS4, further and higher education institutions. Workshops can be run in-house or as outreach activities. The Trust also accepts work placements throughout the year. The Trust allows students to see the practical applications of STEM subjects within a fully health and safety assessed engineering environment. Visits to, and activities in, the AGT's conservation hangar offer students the opportunity to engage with their aviation heritage as well as experiencing hands-on learning. There are few places in the country that offer such a unique experience.

Contact: Tim Jenkins  
 RAF, Shawbury  
 Tel: 01939 250009  
 Email: [t.n.jenkins@btconnect.com](mailto:t.n.jenkins@btconnect.com)  
 Web: [www.assaultgildertrust.co.uk](http://www.assaultgildertrust.co.uk)



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[sciencemuseumlearning](http://sciencemuseumlearning.org)



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## Shell Education Service

**TYPE: OUT-OF & IN-SCHOOL EVENTS, TEACHER RESOURCES**

**AGE RANGE: 5-12**

Shell Education Service supports science teaching to primary school children in a hands-on, investigative way to encourage them to explore and question science. The programme delivers practical, investigative science workshops in schools. The underlying philosophy of all workshops is one of investigative science skills. They are designed to support scientific enquiry and skills in science. To ensure the workshops are relevant to teachers, they were developed in consultation with Ofsted, the Royal Society, the British Association for the Advancement of Science and the Association for Science Education. Benefits to students include coping better with scientific enquiry and skills in science and gaining an enthusiasm for science. Teachers are given new ideas for delivering scientific enquiry and skills in science.

Contact: Martin Wesley  
Shell Education Service  
Tel: 020 7934 3199  
Email: [spherescience@yahoo.co.uk](mailto:spherescience@yahoo.co.uk)  
Web: [www.shell.co.uk/ses](http://www.shell.co.uk/ses)



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## Silverstone Innovation Centre Design Challenge

**TYPE: OUT-OF-SCHOOL EVENTS, STUDENT & TEACHER RESOURCES**

**AGE RANGE: 11-19**

The Silverstone Innovation Centre Design Challenge is a competition where students respond to one of the five different design challenges in either groups of two to four or individually by creating a design project (max three teams per school unless by special arrangement). The competition format lends itself to either incorporation into existing design and technology work or within an extra-curricular club (such as Young Engineers). The students work together to investigate and research the challenge, develop ideas and concepts and finally present their ideas to a group of judges on a competition day, part of which involves a 'Dragon's Den' type presentation. The challenge develops students interest and skills required for further education in design and technology and helps develop business skills need in the work place.

Contact: Dianne Wilson  
Silverstone Innovation Centre  
Tel: 01327 856000  
Email: [d.wilson@oxin.co.uk](mailto:d.wilson@oxin.co.uk)  
Web: [www.oxin.co.uk/designchallenge](http://www.oxin.co.uk/designchallenge)



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## Sodarace

**TYPE: OUT-OF & IN-SCHOOL EVENTS, STUDENT & TEACHER RESOURCES**

**AGE RANGE: 7-19**

Sodarace is a free online education resource for scientific learning, design and play where humans and machine-intelligences compete and collaborate to create racers and racetracks in an online Olympics. Sodarace is an easy to use multi-application resource to allow examination of issues in science, physics, engineering, design and also introducing concepts in artificial intelligence through models of evolutionary biology and other research areas. The fusion of art and science, along with the playful nature of the interaction, pulls students into a range of learning activities across the curriculum.

Contact: Peter McOwan  
Queen Mary, University of London  
Tel: 020 7882 5224  
Email: [pmco@dcs.qmul.ac.uk](mailto:pmco@dcs.qmul.ac.uk)  
Web: [www.sodarace.net](http://www.sodarace.net)



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## Space Academy

**TYPE: OUT-OF & IN-SCHOOL EVENTS, STUDENT & TEACHER RESOURCES, CPD**  
**AGE RANGE: 9-19**

Space Academy provides education programmes, built around schools' curricula in science, technology, engineering and mathematics (STEM) using space as the inspirational hook. It draws on the skills of universities in the region, and employers who need scientists and engineers and includes opportunities for educators in the field of STEM subjects. Space Academy is a project that couples the UK's areas of excellence at the cutting edge of space technology with the subject that often provokes inspiration and wonder in young people, in a programme that addresses the pressing needs of business and the country's future competitiveness in a global market. Space Academy boosts teacher subject knowledge and confidence, and enhances pedagogic skills set. It also enhances student engagement in curriculum studies.

Contact: Chris Darby  
 National Space Center  
 Tel: 0116 2610261  
 Email: [chrisd@spacecentre.co.uk](mailto:chrisd@spacecentre.co.uk)  
 Web: [www.spacecentre.co.uk](http://www.spacecentre.co.uk)

## Teachers from Industry Science & Technology Workshops for Primary Schools

**TYPE: IN-SCHOOL EVENTS AGE RANGE: 5-11**

Hands-on science and technology workshops for pupils, themes include electricity, forces and motion. All tuition and quality resources provided by our experienced teachers. The workshops are delivered in the classroom. The workshops are valuable to teachers' continuing professional development as an alternative to an INSET course. It will help class teachers by providing booster lessons, revision and practical hands-on activity. The children receive the benefit of a visiting expert, specialist lessons, quality equipment and a fun hands-on experience.

Contact: Suzanne Margaret Brown  
 Teachers from Industry Ltd  
 Tel: 01244 335746  
 Email: [teachers.industry@btinternet.com](mailto:teachers.industry@btinternet.com)  
 Web: [www.teachersfromindustry.co.uk](http://www.teachersfromindustry.co.uk)

## Toys and Technology

**TYPE: OUT-OF-SCHOOL EVENT AGE RANGE: 5-11**

A hands-on session for pupils, with a number of related activities designed to develop their understanding of toys from the past, and the materials, movement, power and technology of the time they were made. They also provide a glimpse into the lives of the children who played with them. The programme is mainly aimed at KS1 children but can be adapted to meet the needs of KS2 pupils. The programme enriches science, history and D&T strands of the national curriculum by giving children the opportunity to explore real objects in a museum setting. Toys naturally excite the imagination of children and provide an excellent introduction to both history and technology. The programme is offered at Dewsbury Museum, dedicated to the theme of childhood, by education staff.

Contact: Pauline Lawton  
 Kirklees Museums and Galleries  
 Tel: 01484 223804  
 Email: [pauline.lawton@kirklees.gov.uk](mailto:pauline.lawton@kirklees.gov.uk)  
 Web: [www.kirklees.gov.uk](http://www.kirklees.gov.uk)



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## University of Southampton National Cipher Challenge

**TYPE: OUT-OF-SCHOOL EVENTS, STUDENT & TEACHER RESOURCES**  
**AGE RANGE: 11-19**

The National Cipher Challenge is an online code-breaking competition for UK schools, taken by a wide spread of abilities and ages. The competition is run annually throughout the autumn term with graded challenges published periodically over a period of three months. The messages to be broken are the chapters in an adventure story, enriched with ideas from science, history and engineering. Solutions are published throughout the competition so that those who are struggling can still follow. The scheme introduces participants to the thrill of discovery and genuine problem solving in mathematics and computer science. It presents mathematics as an exciting activity and involves them in a long-term project that is often seen as real and involving by the competitors.

Contact: Graham A. Niblo  
 University of Southampton – National Cipher Challenge  
 Tel: 023 8059 3674  
 Email: [cipher@soton.ac.uk](mailto:cipher@soton.ac.uk)  
 Web: [www.cipher.maths.soton.ac.uk](http://www.cipher.maths.soton.ac.uk)

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## Wizz-Bang STEM Roadshow

**TYPE: OUT-OF-SCHOOL EVENTS, STUDENT & TEACHER RESOURCES**  
**AGE RANGE: 11-14**

Wizz-Bang is a nationwide roadshow presented by young graduates, scientists and engineers designed to show the exciting, real-life applications of science, technology, engineering and mathematics (STEM) subjects. The subject of the 2008 roadshow sponsored by OPITO (The Oil & Gas Academy), will be Energy. With the demand for fuel and food reaching dramatic proportions, how will science, technology and engineering help us rise to the challenge of providing energy for future generations? This and many other questions will be explored in this exciting, explosive and interactive presentation. The live shows are linked to the KS3 science curriculum for England and Wales and S1/S2 in Scotland. Pre- and post-show resources for teachers are available.

Contact: Bekky Wright  
 Wizz-bang (LJ Communications)  
 Tel: 01749 676267  
 Email: [bekky@wizz-bang.co.uk](mailto:bekky@wizz-bang.co.uk)  
 Web: [www.wizz-bang.com](http://www.wizz-bang.com)



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## Further information

Other organisations providing course and careers directories, educational support materials and other information include:

### General

The Engineering and Technology Board	<a href="http://www.etechb.co.uk">www.etechb.co.uk</a>
The Learning Grid	<a href="http://www.learninggrid.co.uk">www.learninggrid.co.uk</a>
The Best Programme	<a href="http://www.raengbest.org.uk">www.raengbest.org.uk</a>
WISE – The WISE Directory of Initiatives	<a href="http://www.wisecampaign.org.uk">www.wisecampaign.org.uk</a>
The UK Resource Centre for Women in Science, Engineering & Technology	<a href="http://www.setwomenresource.org.uk">www.setwomenresource.org.uk</a>
STEMNET (Science, Technology, Engineering and Mathematics Network)	<a href="http://www.stemnet.org.uk">www.stemnet.org.uk</a>
The Association for Science Education	<a href="http://www.ase.org.uk">www.ase.org.uk</a>
The Design and Technology Association	<a href="http://www.data.org.uk">www.data.org.uk</a>
The National Association of Advisors and Inspectors in Design and Technology	<a href="http://www.naaidt.org.uk">www.naaidt.org.uk</a>
The Scottish Executive	<a href="http://www.scotland.gov.uk">www.scotland.gov.uk</a>
The Welsh Assembly Government	<a href="http://www.wales.gov.uk">www.wales.gov.uk</a>
The Northern Ireland Office	<a href="http://www.nio.gov.uk">www.nio.gov.uk</a>
Guidelines for Developing and Evaluating Resources for Schools, EEA Report, 2005	<a href="http://www.the-eea.org.uk">www.the-eea.org.uk</a>
NOISE (New Outlooks In Science & Engineering)	<a href="http://www.noisemakers.org.uk">www.noisemakers.org.uk</a>

### Careers

General engineering and technology careers information	<a href="http://www.enginuity.org.uk">www.enginuity.org.uk</a>
Careers Scotland	<a href="http://www.careers-scotland.org.uk">www.careers-scotland.org.uk</a>
Careers Wales	<a href="http://www.careerswales.com">www.careerswales.com</a>
Careers Service Northern Ireland	<a href="http://www.careersserviceni.com">www.careersserviceni.com</a>
Apprenticeships	<a href="http://www.apprentices.co.uk">www.apprentices.co.uk</a>
The Engineering Institutions' Engineering Education Alliance	<a href="http://www.the-eea.org.uk">www.the-eea.org.uk</a>
N-geneering West Midlands	<a href="http://www.ngen.org.uk">www.ngen.org.uk</a>

### Role Models

SCENTA Role models	<a href="http://www.scenta.co.uk/rolemodels">www.scenta.co.uk/rolemodels</a>
Science and Engineering Ambassador (SEAs)	<a href="http://www.stemnet.org.uk">www.stemnet.org.uk</a>

SEAs are also available by placing a request to a local organisation holding a STEMPOINT contract.

STEMPOINT contracts are awarded by STEMNET to provide learning support services.  
[www.stemnet.org.uk](http://www.stemnet.org.uk)

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### Further information continued

Architecture Workshops	<a href="http://www.architectureworkshops.org">www.architectureworkshops.org</a>
British Physics Olympiad	<a href="http://www.le.ac.uk/physics/BPhO/index.shtml">www.le.ac.uk/physics/BPhO/index.shtml</a>
Bubblz the Mathematical Clown	<a href="http://www.bubblzthec clown.co.uk">www.bubblzthec clown.co.uk</a>
Cambridge Science Festival	<a href="http://www.cambridgescience.org">www.cambridgescience.org</a>
Cogent Career Pathways	<a href="http://www.cogent-careers.com">www.cogent-careers.com</a>
Computer Science for Fun	<a href="http://www.cs4fn.org">www.cs4fn.org</a>
Daresbury Laboratory – Outreach	<a href="http://www.scitech.co.uk">www.scitech.co.uk</a>
Daresbury Laboratory – Talking Science & Site visits	<a href="http://www.scitech.co.uk">www.scitech.co.uk</a>
Dr Mark’s INSPIREducation™	<a href="http://www.Dr-Mark.co.uk">www.Dr-Mark.co.uk</a>
Explore-At-Bristol	<a href="http://www.at-bristol.org.uk">www.at-bristol.org.uk</a>
Faculty of Science and Faculty of health	
Food Biosciences Summer School	<a href="http://www.reading.ac.uk/foodbiosciences/">www.reading.ac.uk/foodbiosciences/</a>
Generation Science	<a href="http://www.generationsscience.co.uk">www.generationsscience.co.uk</a>
Hands On	<a href="http://www.hands-on-science.co.uk">www.hands-on-science.co.uk</a>
Institute of Physics Teacher Network	<a href="http://www.iop.org/activity/education/index">www.iop.org/activity/education/index</a>
Maths in the Pipeline	<a href="http://www.techfestsetpoint.org.uk">www.techfestsetpoint.org.uk</a>
Maths Inspiration	<a href="http://www.mathsinspiration.com">www.mathsinspiration.com</a>
More Maths Grads	<a href="http://www.moremathsgrads.org.uk">www.moremathsgrads.org.uk</a>
Planet Science Newsletter	<a href="http://www.planet-science.com">www.planet-science.com</a>
Primary Outreach Programme	<a href="http://www.techfestsetpoint.org.uk">www.techfestsetpoint.org.uk</a>
Researchers in Residence	<a href="http://www.researchersinresidence.ac.uk">www.researchersinresidence.ac.uk</a>
Royal Society Partnership Grants	<a href="http://www.royalsociety.org">www.royalsociety.org</a>
Science and Humanities Education	<a href="http://www.scienceandhumanities.co.uk">www.scienceandhumanities.co.uk</a>
Science made simple	<a href="http://www.sciencemadesimple.co.uk">www.sciencemadesimple.co.uk</a>
Science Shows for Schools	<a href="http://www.scienceshowforschools.com">www.scienceshowforschools.com</a>
Scottish Science & Technology Roadshow (SCI-FUN)	<a href="http://www.scifun.ed.ac.uk/">www.scifun.ed.ac.uk/</a>
STFC ROE Visitor Centre & Outreach Programme	<a href="http://www.roe.ac.uk/vc/">www.roe.ac.uk/vc/</a>
Study Days for A-level and GCSE Students	<a href="http://www.thetrainingpartnership.org.uk">www.thetrainingpartnership.org.uk</a>
Techniquiest Outreach Programme	<a href="http://www.techniquiest.org">www.techniquiest.org</a>
The Association for Science Education	<a href="http://www.schoolsscience.co.uk">www.schoolsscience.co.uk</a>
The Particle Detectives	<a href="http://www.particledetectives.net">www.particledetectives.net</a>
The Sixth Form Challenge – Manchester Literary and Philosophical Society	
TryScience	<a href="http://www.stemsalford.org">www.stemsalford.org</a>
UK Research Councils	<a href="http://www.tryscience.org">www.tryscience.org</a>
Widening Participation STEM Activities	<a href="http://www.rcuk.ac.uk/sis">www.rcuk.ac.uk/sis</a>
	<a href="http://www.rdg.ac.uk/wideningparticipation">www.rdg.ac.uk/wideningparticipation</a>

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## Shape the Future **STEPS at work**

The Royal Academy of Engineering is working with the National Education Business Partnerships Network to offer professional development opportunities for science, technology, engineering and mathematics (STEM) teachers, lecturers and careers specialists. Professional Development Placements (PDPs) with business and industry are an effective way for teachers to enhance their teaching and learning, gain vital work-related experience and case studies for the classroom and also update their business and careers knowledge.

PDPs provide teachers with the opportunity to identify how their subjects are used in the world outside of the classroom. This makes their teaching more relevant and exciting as they will be using examples and case studies from local employers. It brings the curriculum to life and adds excitement to STEM subjects.

If you would like to find out about the placement opportunities in your area, please contact:

Jenny Asher, Development Manager,  
National Education Business Partnerships Network  
Tel: 01635 279916  
Email: [jenny@nebpn.org](mailto:jenny@nebpn.org)  
Web: [www.nebpn.org](http://www.nebpn.org)

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**Notes**



## What are the STEM Directories?

The 2008/9 Engineering and Technology Directory is part of a family of three publications, launched in September 2008, called the STEM Directories (STEM: science, technology, engineering and mathematics). Three separate directories have been produced in 2008 to serve the needs of science, mathematics and design and technology teachers across the UK.

Led by the key players in the STEM community and funded by the UK Government, the directories aim to improve coherence and coordination of STEM schemes and activities by providing STEM teachers and lecturers with a reliable and comprehensive overview and signpost to enrichment and enhancement activities across the UK.

*"The STEM Directories are a mine of useful information. There is a huge range of rich and relevant schemes and activities designed to help us teach and enthuse our students about the wonder and opportunity across science, engineering and mathematics. Essential for every teacher in the country." (Secondary teacher)*

To find out more go to: [www.stemdirectories.org.uk](http://www.stemdirectories.org.uk)  
or email: [directories@stemdirectories.org.uk](mailto:directories@stemdirectories.org.uk)

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