



connecting schools to science, technology, engineering and maths

Welcome to the Science Connects Bulletin

Welcome to the 7th edition of the Science Connects Bulletin. This bulletin includes information on STEM (Science, Technology, Engineering and Maths) resources available to you to enhance pupils' understanding and confidence in the STEM subjects. This is an electronic bulletin which we produce every quarter, with a printed bulletin distributed every August. If you would like your name added to the distribution list for the printed bulletin please contact Alan Kerr at alan.kerr@glasgow.ac.uk

Science Connects can help teachers in the West of Scotland to inspire pupils by providing STEM Ambassadors (a free resource of CRB checked volunteers) who can help enthuse pupils; identifying STEM E&E Activities that can bring benefit within or beyond the curriculum and providing links with local businesses and STEM employers. If you would like more information or to arrange a visit to discuss your school's STEM

Celebration Event



We are pleased to announce that our Annual STEM Ambassador and Teacher Celebration Event will take place at :

Glasgow Science Centre
Tuesday 31st January 2012
from 5:00-7:30pm

At this event over 35 organisations, including STEM Providers, industrial companies, Science Centres and Festivals will be exhibiting their resources and activities which are available to schools.

Ambassadors and Teachers will be able to meet informally and share their views on what is required by teachers and can be offered by Ambassadors.

Attendance is by registration only.

Please register by emailing your details to:

Alan Kerr at alan.kerr@glasgow.ac.uk

In this Edition

[STEM Challenge 9](#)

[Oil and Gas 4U](#)

[BT's Online Mentoring](#)

[The Big Science Challenge](#)

[My World of Work](#)

[Generation Science](#)

[Salters' Festivals of Chemistry](#)

[Salters' Chemistry Camps](#)

[Global CREST Challenges](#)

[Work in the Energy Sector](#)

[STEM Clubs](#)

[Junior Saltire Prize Awards 2012](#)

[I'm an Engineer get me out of here](#)

[British Biology Olympiad](#)

[Biology Challenge](#)

[National HE STEM Programme](#)

[West Point Bridge Design Contest](#)

STEM Challenge 9



STEMNET and the Paralympic Torch Relay Team are challenging 11-14 year olds to create a spark to light the Paralympic Flame by the energy of human endeavour.

The Challenge is to design a spectacular human-powered invention for creating the spark which lights the Paralympic Flame.

For the Challenge entries, pupils must produce a design for their device and present to a panel of judges. They will also need to provide enough evidence to convince the judges that their invention will work which could include working models of part, or all of the device, diagrams, calculations and results from experiments.

Launch Date: 11th November 2011

Deadline for team entries: 23rd January 2012

For more information go to [the website](#).

The competition element of Challenges 1 to 8 has now closed. However, schools can download all of the resources to carry out the Challenges in school by visiting [the website](#)

Challenge 1: A National Handball Centre

Challenge 2: Adidas glove Challenge

Challenge 3: Anti-doping Challenge

Challenge 4: The Travel Challenge

Challenge 5: The Wetsuit Challenge

Challenge 6: The Website Challenge

Challenge 7: The BT App Challenge

Challenge 8: The Deloitte Parasport Challenge



Oil and Gas 4U



The new Oil and Gas 4 U website at www.oilandgas4u.com helps you learn more about a vibrant and dynamic global industry. If you're looking for an exciting career path and long term future with excellent rewards and benefits, the oil and gas industry could be the place for you.

Oil and Gas 4 U offers the latest information, free skills testing with direct links to companies recruiting right now, a graduate degree matcher and a range of case studies of people working in the oil and gas industry.



Upstream Oil and Gas Industry Technician Training Scheme 2011 Recruitment Campaign is now open.

The Upstream Oil and Gas Industry helps sustain its work force by operating a Modern Apprenticeship scheme. The scheme is managed by OPITO & ECITB and is fully funded and supported by the Oil and Gas Extraction Industry.

The four year training programme is comprised of two stages:

- Two years during which trainees attend an industry appointed college
- Two years on-the-job training with a sponsoring company, being mentored and working alongside experienced staff to gain job specific skills

For more information on the Modern Apprenticeship Scheme or to apply please visit the [OPITO website](#) or visit the Engineering Construction Industry Training Board website at www.ecitb.org.uk

BT's On-line Mentoring

Welcome to IT ambassadors

Pioneered by BT in collaboration with the national STEM Ambassador scheme, IT ambassadors connects young people and their teachers with those working in the communications and IT sector.

Our aim is to support teachers and young people by growing understanding of what our sector does, how it works and the technologies we use.



BT's on-line mentoring scheme, which can be accessed by schools/colleges entirely free of charge, offers safe and secure curriculum related on-line mentoring for young people, supporting students in ICT, Computing and Business Studies.

In addition to supporting young people, they are able to provide teachers/lecturers with a straightforward way of making contact with BT people - either to seek assistance with development of curriculum related resources or simply to answer a few technology or business related questions.

For more information, please email Pat Hughes via it.ambassadors@bt.com

Developed in conjunction with the National Science Technology Engineering and Maths Network (STEMNET) and Educational Charity Brightside-UNIAID, the IT ambassadors scheme gives your students the opportunity to interact with and be supported by professionals working in BT.

Although you may not know it, telephony and broadband are only a small part of their business - as a global communications company, they serve customers in more than 170 countries and have an IP network that connects over 1,270 cities around the world - they provide networked IT services to many of the world's most respected brands, such as Unilever, Thomson Reuters, Microsoft, Pepsico, Fiat, Novartis, AstraZeneca, BASF and Deutsche Post DHL - and their ambassadors are keen to share their knowledge and experience of business and working in the technology sector with students and teachers across the UK.

Aimed primarily at the 14-19 age group, the scheme is underpinned by a fully moderated, web based platform operated by the education charity Brightside-UNIAID: www.itambassadors.org.uk. The platform allows students to exchange messages with their mentor within a properly safeguarded environment and gives them access to an extensive and varied on-line 'Knowledge base'. All ambassadors acting as on-line mentors hold a recent, enhanced CRB check, independently verified by STEMNET. As the scheme is entirely electronic, location is not an issue; they have volunteer ambassadors from the length and breadth of the UK working with both city schools and schools in very rural locations.

The Big Science Challenge



Launched by the British Council and Rolls-Royce in collaboration with the Institute of Physics, The Big Science Challenge offers secondary students from the UK and Middle East the opportunity to put their Science and Engineering skills into action!

It's simple - teams of 11-16 year old will work together to:

- identify local, national or global issues concerning water.
- design an innovative solution to one of these problems.

The winning teams will be brought together in London to meet their international counterparts and present their work. In addition, one UK team will visit Dubai for an exciting programme of educational and recreational activities.



Through this competition, the British Council and Rolls-Royce aim to inspire young people and develop their skills in Science and Engineering in an international context.

The initiative will also give students the opportunity to work with peers in the UK and Middle East and develop intercultural understanding and global citizenship.

For more information, visit:

[The Big Science Challenge website.](http://www.thebigsciencechallenge.org.uk)

In collaboration with **IOP** Institute of Physics

My World of Work



My World of Work is a new website launched in August 2011 by Skills Development Scotland, its graphical interfaces make it very user friendly and allows the user to easily link to a wealth of information.

- My World of Work can help you to get a job and develop your career.
- Read feature articles on a wide range of topics including choosing a career, learning and training, applying for jobs and making a career change.
- The My World of Work toolkit can assist you with every step of your career journey from researching careers to building your first CV.
- My Strengths can help you to discover your strengths and how they fit in with your career goals.
- Search for learning and training opportunities with Course Choices.
- Find job vacancies online using Job Search.

To get the most out of My World of Work, create an account today, you can access the website by going to:

<http://myworldofwork.skillsdevelopmentscotland.co.uk>



Generation Science



Edinburgh International Science Festival's schools touring programme for 2012.

Science Shows and Workshops - helping you deliver the Curriculum for Excellence.

This year, they're celebrating 21 years of touring Generation Science shows all over Scotland. Over the years, they've engaged more than a million pupils with their educational and entertaining performances, and hands-on activities.

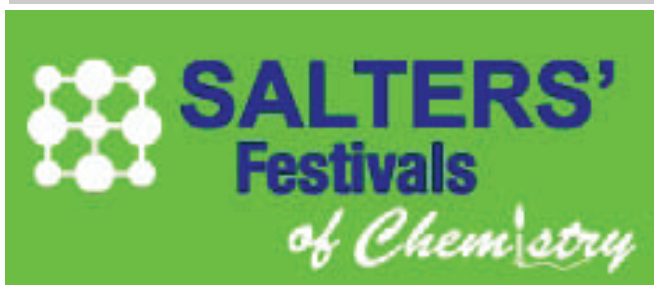
This year, from January to May, their team of skilled science communicators will be heading out across the country to bring science to life with a range of shows and workshops delivered in the classroom. They constantly develop the shows to meet the needs of teachers in line with the Curriculum for Excellence.

So, why should you book?

They make learning and teaching science simpler
They help deliver the Curriculum for Excellence
They constantly update and improve the programme to ensure every school enjoys an experience of the highest quality
They come to you, making your life easier
They make science fun
They can work together with you on science weeks, transition projects or individual science days in this, the year of the Olympic and Paralympic Games, and the International Year of Sustainable Energy for All.

For further details visit the website at www.generationscience.co.uk

Salters' Festivals of Chemistry



A big reminder to all teachers that entries to the Salters' Festivals of Chemistry 2012 open on Monday 28 November 2011. Places are allocated on a first-come-first-served basis so please enter as early as possible to ensure that your school is not disappointed!



Schools are able to enter one team of four students from Years 7 and/or 8 (or equivalent) for these very popular events.

Participants can enjoy:-

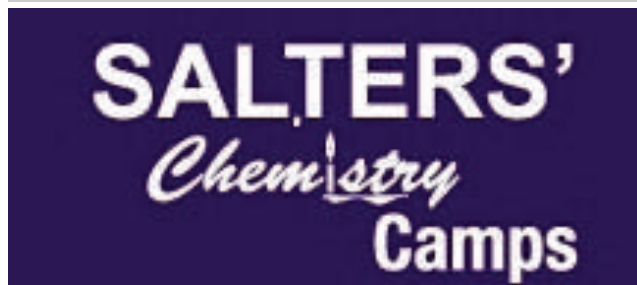
- Hands-on practical Chemistry challenges in University labs
- Exciting chemical demonstrations
- Prize giving ceremony with prizes for winning schools
- Fun prizes and certificates for all participants

These events are completely free (not including travel expenses) with no advance preparation required.

For further information about the 2012 Salters' Festivals of Chemistry please visit the website: www.salters.co.uk/festivals/index.html

Or contact the Festivals Administrator
Email: festivals@salters.co.uk

Salters' Chemistry Camps



Application forms for the Salters' Chemistry Camps 2012 can be downloaded from the website from Monday 28 November 2011. Applications will be considered in the order in which they are received you are therefore advised to apply as early as possible for students to secure a place at the Camp of their choice.

A school may nominate up to four students from Year 10 (or equivalent).

Students can experience:-

- Hands-on practical Chemistry in University labs
- A taste of life in University Halls of Residence
- Lively chemical demonstrations
- A variety of evening social activities

For further information about the 2012 Salters' Chemistry Camps please visit the website www.salters.co.uk/camps/index.htm

Or contact the Camps Administrator on:
Tel: 020 7628 5962 ext. 213
or Email: camps@salters.co.uk



Practical Action

GLOBAL CREST CHALLENGES

Looking for a challenging STEM project for your students?

Want to encourage your students to achieve a CREST award and maybe go on to take part in national competitions such as the Big Bang Fair?

Then Practical Action's Global CREST challenges are perfect for you. Challenges are based on real problems faced in developing countries. They are divided into five themes - water, food, energy, shelter and transport. The resources give students starting point ideas for projects and to help them we link to technical briefs which are used by real engineers in the field.



Working on these projects provides students with a great opportunity to gain a real understanding of how science and engineering can be used to the benefit of people in the developing world.

All details are contained in [the website](#).

STEM Clubs

If you are running an after-school or lunchtime club related to any sort of STEM activity, eg Young Engineers and Science Club, Astronomy Club, Maths Club, Food Technology Club, Camera Club etc you will be interested to know that STEMNET has set up a STEM Clubs to network and share information.

The STEM Clubs offer a wealth of information to teachers who are involved in Clubs and gives you guides on starting and running a club, ideas, resources information, challenge information etc online. There is no cost involved, all you have to do is register the club on the Stem Club website.

STEMNET wants to enable every school or college in the country to have a STEM Club and is hence providing a sharing of information platform to every club.

More information about STEM Clubs can be found on the website at www.stemclubs.net

Work in the Energy Sector



Working in the Energy Sector - A guide for teachers and those who provide careers advice

Education Scotland has produced the Working in the Energy Sector leaflet.

The leaflet contains lots of information about the Energy Sector

- What the energy sector is.
- What skills will be in demand?
- The many diverse roles involved.
- Facts about the energy sector in Scotland.
- Information and resources.



The energy sector is set to become a key driver in the Scottish economy, offering exciting job opportunities for people at every career stage.

It is estimated that between 52,000 to 95,000 energy-related jobs will be created in the coming decade as Scotland realises its ambitions to become a world leader in wind, wave and tidal renewable technologies. In total, the transformation to a low carbon economy could generate an estimated 130,000 jobs.

The oil and gas sector continues to grow too with companies in this industry looking to recruit 10,000 employees over the next 5 years

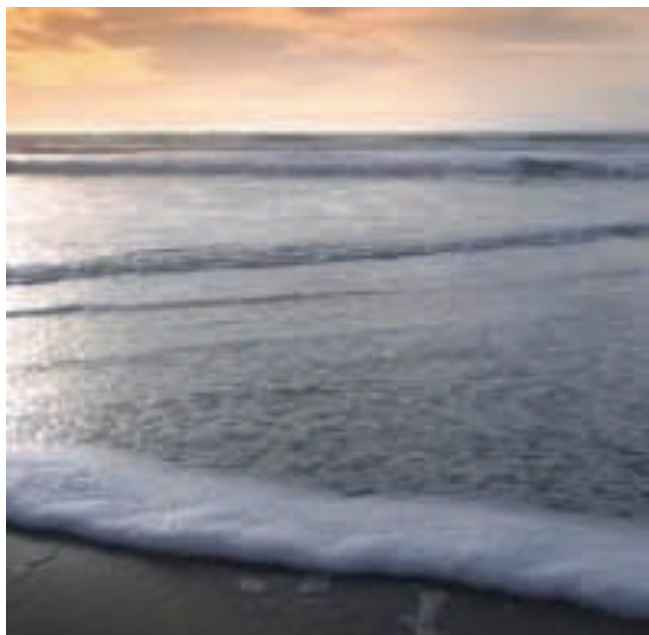
To request printed copies of the leaflet please email: globalcitizens@educationscotland.gov.uk or Tel. 0141 282 5000.

You can download a copy of the leaflet and find out more information from [Education Scotland's website](#).

Junior Saltire Prize Awards 2012

We are delighted to let you know that the briefs for the Junior Saltire Prize Awards 2012 have just been launched.

The Scottish Government has set up The Saltire Prize, Scotland's £10 million challenge to accelerate the commercial development of marine energy. Scotland is particularly well-placed to do this given its history of technological innovation and its vast reserves of renewables potential. Scotland boasts 25 per cent of Europe's tidal power and 10 per cent of Europe's wave power.



To help raise the profile and awareness of this prize and the opportunities that Scotland has to exploit its marine renewables potential, the Scottish Government is again funding Junior Saltire Prize Awards for primary and secondary school pupils. The award is being managed by Skills Development Scotland (SDS) in partnership with the Scottish Council for Development and Industry (SCDI).

The competition is open to all schools in Scotland in three age categories:

[P5-P7 Brief](#)
[S1-3 Brief](#)
[S4-6 Brief](#)

Young Engineers and Science Clubs excelled in the inaugural awards last year, with Braeview Academy, Dundee, winning the secondary competition (£750 plus Saltire medal) and Moorfoot Primary, Inverclyde, winning the primary category (£500 plus Saltire medal). So we are hoping many clubs will rise to the challenge again!

Key dates are given in the brief, but please note that teams should register at jsaward@sds.co.uk by 31 January 2012.

If you have any questions about the competition please email jane.martin@scdi.org.uk

I'm an Engineer Get me out of here



What is I'm an Engineer? I'm an Engineer gets your students talking with engineers, showing them the context of their studies. It's completely free for schools and takes place online for 2 weeks: 12th – 23rd March 2012

Your students ASK the engineers questions, live CHAT to them in an MSN style text chat, and VOTE for the engineer they think deserves to win the £500 prize to communicate their work.

Apply to take part at:
<http://imanengineer.org.uk/teacher-registration/>

At a glance I'm an Engineer:

- Introduces engineering into lessons, supporting the Maths, D&T and Science curriculum
- Provides an alternative way of involving engineers in school by bringing modern engineering into the classroom
- Gets students enthusiastic about engineering as a possible career
- Is supported by lesson plans and resources for different year groups and ability levels, from years 7–13
- Is completely free for schools to take part!!

For more information please visit the website at:
<http://imanengineer.org.uk/teachers>

Application deadline is 9th January 2012.



UK Biology Competitions (UKBC) is a Special Interest Group of the Society of Biology. It was set up in 2010 as a single body to organise Biology Challenge and the British Biology Olympiad.

Registration for the 2012 competitions is now open.

British Biology Olympiad registration forms must be submitted before 17th January 2012 and Biology Challenge forms by 31st January 2012.

British Biology Olympiad

Open to all post-16 students in the UK.

Challenging the most talented young biologists.

Selecting students to represent the UK in Singapore July 2012.

Format

Round 1 - multiple choice paper taken in schools in February 2012

Round 2 - written paper taken in schools in February

Finals - practical assessments and an additional written paper taken at the University of Birmingham in April 2012

Aims

The British Biology Olympiad challenges and stimulates gifted students with an interest in Biology to expand and extend their talents. In offering a wider syllabus than A-level, it allows gifted students to demonstrate their knowledge and to be suitably rewarded and publicly recognised by the award of medals, certificates and other prizes.

It is hoped that competing in the Olympiad will encourage students already interested in this valuable, wide-ranging and rewarding subject to continue their study beyond A-level.

In addition to encouraging and rewarding pupils in their studies the BBO provides a means of selecting a team to represent the UK at the International Biology Olympiad.

The IBO, underwritten by UNESCO, seeks to challenge by both theory and practical tests some of the top pre-university biology students in the world, with 60 countries taking part. The UK teams have had considerable success at IBO and we are very grateful to BBSRC for its continued support of the UK team's participation.

For details please visit [the website](#).

Biology Challenge

The Biology Challenge is open to pupils in S2/S3 in Scotland.

Aims

- To encourage an interest in biology beyond the school curriculum and stimulate curiosity in the natural world.
- To involve as many pupils as possible in a challenging and interesting biology competition.
- To act as a junior version of the British Biology Olympiad, raising its profile and encouraging participation.

Format

Biology Challenge is an online competition which takes place in schools. Questions will be set on the school curriculum but the Biology Challenge will also reward those students whose knowledge of the subject has been increased by reading books and magazines, watching natural history programmes and taking notice of the news media for items of biological interest, students who are generally aware of our natural flora and fauna.

The Challenge consists of two 30 minute papers to maximise participation and provide flexibility. The two papers can be taken together or separately, whichever is more convenient to a school. Pupils do not even have to take both papers, a school may want to use the more demanding second paper for the pupils who achieved the highest scores from the first.

Schools will be able to conduct the Challenge in whatever way best suits their pupils, ensuring that they enjoy participating and have a reasonable expectation of recognition for their achievements. As well as being able to submit their pupils' scores to the national competition schools will be encouraged to award their own prizes and to make use of certificates provided for them.

For more information please visit [the website](#)

HE STEM Programme



Part of the National HE STEM Programme Widening Participation - Good Practice Guide

The Good Practice Guide pools together examples of STEM activities from across the region and nationwide, which you can search through in the following categories:

Outreach: Activities conducted by universities in local communities or on-campus

Curriculum & Support: Activities enhancing school or undergraduate curricula and / or enhancing student support

Diversity: Examples of inclusive outreach activities

National Best Practice: Activities drawn from the Royal Society of Chemistry, the Institute of Physics, the Institute of Mathematics and its Application and the Royal Academy of Engineering

External: Activities run by non-HEI organisations

These can be found by visiting [the website](#).

Also listed are links to an extensive range of top tips and resources in relation to various STEM activity issues with regards: starting STEM activities; tackling common challenges; enhancing sustainability of activities and useful resources.

Video Resources

The project has developed a total of 32 video clips, a mixture of short (no more than a couple of minutes) and longer (up to 10 minutes) productions. The videos include both staff and student perspectives and have two broad uses:

Videos for use in outreach

The videos are for generic use; they are not University of Exeter-branded. Please feel free to incorporate them however you deem fit. You can search, view and download the videos through the categories below:

1. Making Choices: Why Choose STEM Subjects?
2. Studying STEM Subjects at University
3. Why choose Maths?
4. Why choose Physical Sciences?
5. Why choose Engineering?
6. Research in STEM Subjects
7. Staff Development - Active Learning
8. Staff Development - Research-led Teaching

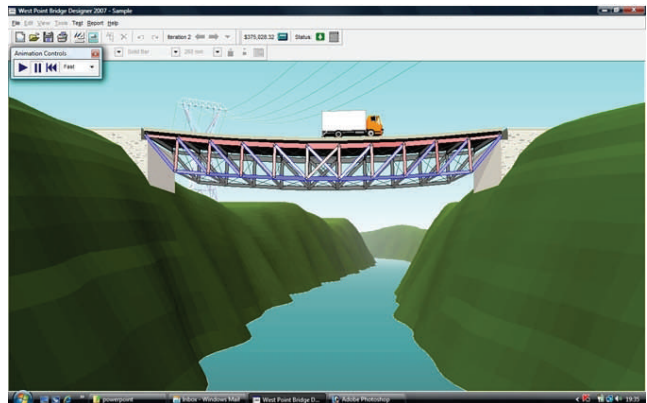
To view the videos please go to [the website](#).

West Point Bridge Contest



The Institution of Civil Engineers (ICE) is the qualifying and professional body for 80,000 Civil Engineers world-wide, with approximately 7500 members in Scotland. ICE Scotland, in partnership with Jacobs, would like to invite your school to participate in the West Point Bridge Design Contest 2012. ([see attached flyer](#)).

Substantial prizes are on offer for the winning students (detailed on flyer).



The contest is open to S1, S2 & S3 students throughout Scotland, and involves designing a bridge using free software which can be downloaded from the internet. Taking part in this contest will give students an insight into engineering design processes and team working as well as an understanding of how truss bridges work. They will gain an understanding of concepts such as compression, tension and material properties.

This contest would make an ideal project for a science club, but is also appropriate to be used as a teaching aid for science, technology, engineering and maths subjects.

ICE would like to arrange for your school to be visited by a practicing Civil Engineer from industry, who would give your students a presentation about engineering, covering some basic engineering concepts and introducing the contest to your students.

Visits to schools should take place in January/February 2012 but if you could get in touch as early as possible they will have more time to find an engineer to visit you.

If you and your students would be interested in participating in this event, please contact John McPartlin at the ICE

email: John.McPartlin@virginmedia.com

Science Connects

Science Connects is the STEMNET contract holder responsible for the co-ordination and management of the STEM Ambassador Programme in the West of Scotland. STEMNET creates opportunities to inspire young people in Science, Technology, Engineering and Mathematics and operates a network of contract holders throughout the UK.



**STEM
AMBASSADORS**
ILLUMINATING
FUTURES

There are 4 STEMNET contract holders in Scotland who work collaboratively to promote and raise awareness of STEM Enhancement & Enrichment activity provision in Scotland.

STEMNET
Contractor 2011-2015



Contacts for these contract holders are :

HIGHLANDS & ISLANDS

Janice Wallace
STEM North of Scotland
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Tel: 01463 244 274
Fax: 01463 244 338
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www.stemnorthofscotland.com

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