



STEM NEWSLETTER



Winter 2013

Merry Christmas and best wishes for a successful 2014 from the STEM Team at the University of Worcester.

This edition of the STEM Newsletter is packed with information and suggestions for exciting Science, Technology, Engineering, Maths or Computing enrichment activities for your lessons and STEM Club activities.

If you haven't already made plans for next term and/or are still looking for ideas for celebrating National Science & Engineering Week (14th-23rd March, 2014), then have a look at the wide range of new opportunities listed inside.

Remember that we can provide you with free unbiased advice about:

- Choosing activities from the wide range of workshops and visits offered by third party organisations;
- Designing and planning your own STEM enrichment activities; and
- Improving STEM careers signposting in lessons and through developing improved careers information.

To request the support of free STEM Ambassador, please complete the online form at <http://networking.stemnet.org.uk/node/add/ambassador-request>.

On the next page we have some short reports about events which have taken place since our last newsletter – if you would like information about how to get involved in similar activities with your own students, please contact the STEM team in the first instance. Please keep sending us your STEM news and feedback about STEM workshops and other STEM Ambassador activities so that we can continue to improve the level of support which we can offer.



Using clubs to enrich and extend curriculum topics is a valuable contribution to school life and is encouraged by the Department for Education and praised by OFSTED Inspectors when they visit schools. Any club which is linked to a STEM subject – from Astronomy or Archaeology to 'Young Engineers' or Zoology Clubs all fall under the umbrella of STEM Clubs. Schools are requested to 'register' their active STEM Clubs with us, with the day and time that they operate so that we can identify FREE Ambassadors who could be available to visit/support. For support and advice about running clubs and developing activity programmes visit www.worcester.ac.uk/discover/support-for-schools.html



Nationally coordinated by STEMNET

Linking student project work to a nationally recognised award scheme

CREST Star scheme is a UK-wide award scheme enabling children, usually aged 5 - 11, to solve science, technology, engineering, and maths (STEM) problems through practical investigation. <http://www.britishtscienceassociation.org/creststar>

CREST Discovery Award is a brand new CREST Award aimed at young people aged 11-14 and is ideal for collapsed time-table days – typically 5 hours total duration <http://www.britishtscienceassociation.org/CrestDiscovery>

The **CREST Bronze Awards** provides an easy-to-run framework for curriculum enhancement for both student and teacher – typically 10 hours duration <http://www.britishtscienceassociation.org/crest-awards/crest-awards-11-19-yrs/about-crest-awards>

Longer term projects or suitable periods of work experience can be linked to the higher tiers of the award scheme—CREST Silver (30+hours) and CREST Gold (80+ hours).

Further information about all aspects of CREST can be found at crest@worc.ac.uk

Inside this issue:	Page
STEM Careers Information	2
Competitions & Challenges	2
Free Activities and Resources	4
Other Enrichment Opportunities	5
Computing Corner	6
News from Schools	6
Whats On Roundup	6



University of Worcester

The University of Worcester is STEMNET Local Coordinator for schools and STEM Ambassadors within Herefordshire & Worcestershire.

Would you like more help to encourage your students to appreciate the huge range of careers opportunities available to them when they follow STEM Based education and training routes? Fortunately, a number of professional organisations have worked with major STEM employers and a number of education and training providers to produce support and resources for schools and parents to access. In addition to the suggestions below, remember that STEM Ambassadors may be available to meet with students or attend school careers information events to give an insight into their professional areas.

Future Morph is the Science Council's careers website designed to provide information for young people, their parents and teachers about the jobs available from studying science and maths. It aims to show young people that studying science and maths post-16 can provide them with the skills and knowledge valuable in almost any career, making them very employable. www.futuremorph.org

The Maths Careers website www.mathscareers.org.uk/ provides a single starting point for people of all ages to find out where mathematics, statistics and operational research can lead. There are sections for teachers and careers advisers with a wide range of downloadable resources and maths activities and quizzes, together with links to other great resources – all suitable for use in the classroom or at home to enthuse and inform about maths. Themes include Environment, Health & Society, Business & Money, Entertainment, Science & Technology and Sport.

There is a great list of top 10 STEM careers resources available in this article from the Times Educational Supplement www.tes.co.uk/article.aspx?storyCode=6373300



Support for 14-18 year old chemistry students

ChemNet is the Royal Society of Chemistry network supporting 14-18 year old chemistry students. The support available showcases the various career options students have available to them by studying chemistry.

Link to the ChemNet presentation '**Discover the chemistry in your life...**', which explains in more detail the benefits of joining ChemNet.

Competitions & Challenges

Primary

Growing a Loaf

A great project to teach children where food comes from: 'Growing a Loaf' www.bbc.co.uk/news/uk-england-oxfordshire-24528800#<http://www.bbc.co.uk/news/uk-england-oxfordshire-24528800

Secondary

STEMNET have re-launched the STEM Challenges <http://www.stemchallenges.net/> removing all references to the Olympics so they can continue to remain relevant and useful to schools. Each STEM Challenge take 6-8 weeks and is an ideal activity to carry out in a [STEM Club](#) environment. The resources are also flexible enough to be used as part of normal school lessons. The STEM Challenges programme is also CREST accredited. Further information about the themes of the new challenges from www.worcester.ac.uk/discover/stem-clubs.html

We are here to help you - All FREE of charge

National Engineering Competition for Girls

Talent 2030 want you to tell them “How can engineers solve the challenges of the 21st Century?” Pick a challenge and tell them how it can be solved. £1000 for the winner of each category, shared between the team and the school. There are two age categories 11-14 and 15-18. The deadline for all entries is midnight on Saturday **21st December** 2013. Register your interest to receive advice and updates at www.talent2030.org/girlsengineering



RSC Bill Bryson Science Prize 2014



The Bill Bryson Prize is designed to recognise and encourage excellent science communication in schools and colleges by encouraging students to think creatively about science. The competition is open to students aged 5-18 with entries accepted in any format as long as they accurately communicate science. This popular competition will be judged in three categories: primary school, secondary school and international, with both individual and group entries accepted. The best entries from each category will receive £500 for their school, and £100 for the winning students to share.

Bill Bryson will present UK winners with their prizes at a special ceremony at the Houses of Parliament. Find out more and enter online from January 2014 <http://www.rsc.org/Education/events-and-competitions/bill-bryson-prize/>

Raspberry Pi programming competition.

Teams from primary and secondary schools across the UK are being invited to put their technology skills, ingenuity and creativity to the test. In this new competition, the challenge is for entrants to use the Raspberry Pi, to develop a project that will help the environment. The competition is open to four categories:

1. Primary school years 4-6
2. Secondary school years 7-11
3. Secondary school years 12-13
4. Higher education: undergraduates

Teams have until 31 January 2014 to submit their projects. Winners of each of the four categories will receive £1000. For more information and to register online visit www.paconsulting.com/events/pas-new-raspberry-pi-competition-for-2013-14

Biology Competitions



Biology Challenge aims to encourage an interest in biology beyond the school curriculum and to stimulate curiosity in the natural world. It is an online competition which consists of two 30 minute papers, providing schools with flexibility and maximising participation. The competition is open to pupils in Year 9/Year 10 in England and Wales. Teachers have until **10 January 2014** to [register students](#) to take part in the 2014 competition. The entry fee is £25 per school for unlimited student entries.

The **British Biology Olympiad (BBO)** challenges school or college students aged 16+ with an interest in biology to expand and extend their talents. Teachers have until **10 January 2014** to [register students](#). **This year two free BBO student registrations are being offered to each school.** The competition takes place online in schools – the first round takes 2 hours to complete and consists of multiple choice questions.

Please see further details about both competitions on the [UK Biology Competition's website](#).



Request a FREE Ambassador - Email STEMschools@worc.ac.uk



Schools Urged to Join Nationwide Flu Tracker

The British Science Association is working in partnership with the London School of Hygiene & Tropical Medicine, who run the UK's annual Flu survey, to monitor flu in schools on a national scale for the first time. The project will provide a critical insight into the spread of flu and engage young people first-hand in science. Schools across the country are being encouraged to get involved in the project, which will bring real scientific data into the classroom during National Science & Engineering Week in March 2014.

Schools will be supported with classroom materials including a lesson plan, activity ideas and student handouts to help educate pupils on the survey, encourage participation and support them in discussing the findings. Further information from <http://www.britishsocietyassociation.org/flusurvey>



Big Bang Fairs

Places at the national Big Bang at the NEC next March are already very scarce, so if you haven't already booked places, you need to act fast! <http://www.thebigbangfair.co.uk>

Alternatively, or even in addition to attending the national fair, you may be interested in organizing your own, school based event for your students and the wider community. Support and advice for planning 'Big Bang near me' events is available from www.thebigbangfair.co.uk/nearme/near_me_events/



THE Observatory SCIENCE CENTRE

National Astronomy Week

National Astronomy Week (NAW), Saturday 1 to Saturday 8 March 2014.

This Week was chosen as during this time Jupiter will be at its highest in the sky for many years, making it more visible than usual. This is a great opportunity to observe the Red Giant and one of the aims of the NAW is to use this event as an opportunity to inspire young minds about the night sky and help them learn more about astronomy. Downloadable resources, such as posters and ideas for events, will be available soon at <http://www.the-observatory.org>



Free Debate Kits

'I'm a Scientist Debate Kits' was a project funded by the Wellcome Trust to help get more debate and discussion in the UK's science classrooms. The kits are all about developing students' debating and discussion skills around contentious issues, with social, ethical and environmental aspects all covered with the kits following a tried and tested format, based on character cards and lesson notes. Role play gives students a chance to explore the different sides of the issue and compare others' points of view. Resources and teachers' notes are available to download from <http://debate.imascientist.org.uk/>

Salters Horners Advanced Physics Book Grants

Schools which teach the **Salters' A level Curricula** can apply for book grants of up to £500 towards books for the following courses:

[SALTERS-NUFFIELD ADVANCED BIOLOGY](#)

[SALTERS ADVANCED CHEMISTRY](#)

[SALTERS HORNERS ADVANCED PHYSICS](#)

Closing Date 30 APRIL 2014

For further information and to apply for the **Salters' Book Grants** online, saltersinstitute.co.uk/curriculum/book-

We are here to help you - All FREE of charge

Science Support

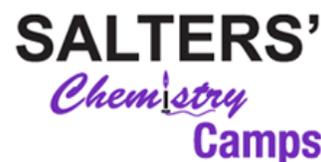


46 Salters' Festivals of Chemistry are planned at Universities throughout the UK and Ireland in 2014. Students experience hands-on practical chemistry challenges in the University labs, amazing chemical demonstrations, a Prizegiving Ceremony with prizes for winning schools and fun prizes and certificates for all participants!

Schools can enter one team of four students each and early registration is recommended to ensure a place at your preferred venue.

Closing date: 15 January 2014. For further information please visit www.festivalsofchemistry.co.uk

Salters' Chemistry Camps will be hosted at Universities across the UK in July 2014. These are residential Camps (3 days and 2 nights). Students experience hands-on practical chemistry challenges in University labs, exciting chemical demonstrations, a taste of life in University Halls of Residence and time to socialise and relax. Bursaries are available at each Camp. For further information about the Salters' Chemistry Camps 2014 and to access a Camps application form, please visit www.chemistrycamps.co.uk



Free Institute of Physics workshop for anyone teaching physics at secondary school level. If you would like to attend, please contact Nicky Thomas, on n-d-thomas@tiscali.co.uk. Although the workshops are free, they need to be booked in advance parts so that equipment can be ordered.

Local Physics Lectures

The local branch of the Institute of Physics (IoP) holds free evening lectures monthly featuring topics which are open to the general public and cover topics at a level which is suitable for G&T KS4 and post-16 students. Next lecture is on Thursday 23rd January 2014, at 7.30 on the St John's campus of the University of Worcester and is about The Aerodynamics and Flight Performance of Insects Lecture (joint with the IET)

CPD for Science teachers

The annual Association for Science Education (ASE) Conference runs from the 8th - 11th January 2014 at the University of Birmingham. On Friday 11th, STEMNET will be hosting a workshop on running practical activities in STEM Clubs. We know many of you will be planning to attend the conference, so come and say hello! More information on the conference is available on the [ASE website](http://www.ase.org.uk)

National Awards for Science Technicians

Nominate your hard-working technicians for this prestigious award, up to four awards of £250. For further information please visit www.saltersinstitute.co.uk or www.cleapss.org.uk. Closing Date Friday 31 January 2014



Maths Matters

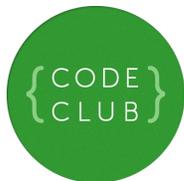
PuzzleFriday lesson resources, improve maths and numeracy skills by utilising a range of maths-related board games, card games & puzzles. Visit <http://7puzzleblog.com/about/> for more information.

STEM Networking Event

Book in now for the STEM Networking Event at the Wyche Innovation Centre, in Malvern on 2nd April 2014, 4-6pm. Come and network with local STEM Ambassadors to see how they could support you.

Request a FREE Ambassador - Email STEMschools@worc.ac.uk

Go Berserk have written a book to teach both primary and secondary school children how to make their own websites. Go Berserk making websites with HTML and CSS <http://www.go-berserk.com/HTMLbook.php>. Alongside the book they have created an e-book version, an iPad app Amelia Earhart's Flight Code Challenge <http://www.go-berserk.com/HTMLMacApp.php>, and online code checker. These resources are not free, but have received great feedback including recently been chosen as the Talk Talk Digital Hero for Northern Ireland.



Code Club is a nationwide network of volunteer-led after school coding clubs for children aged 9-11. Well thought out and easy to follow projects are provided to teach the children the basics of computer programming using Scratch before moving them on to designing web pages and programming in Python (a more complex computer programming language). Visit www.codeclub.org.uk to find out more.

News from Schools



A Smallpeice education expert spent the day at The Stourport High School delivering an engaging workshop for 60 of their Year 9 students. The students took part in the Sustainable Island project and they were set two challenges; one to design-and-build a free standing wind turbine that generates as much energy as possible and two to design and construct a reservoir that can store as much rainwater as possible. This was a brilliant way of encouraging creativity, team work, problem-solving and social skills. Everyone taking part found the day fun and inspirational. The quote of the day was “fun-gineering”!

Congratulations to the winning team – Hannah Johnson, Tom Allen, Seren Carpenter, Samuel Sargeant and Adam Tarrant

What's On...roundup

	Date	Go to page:
Science Education (ASE) Conference	8-11th January 2014	5
Biology Competitions	10th January 2014 register	3
Salters Festival of Chemistry	15th January 2014	5
The Aerodynamics and Flight Performance of Insects Lecture	23rd January 2014	5
Raspberry Pi Programming Competition	31st January 2014 deadline	3
Nominations for Science Technician	31st January 2014, deadline	5
National Astronomy Week (NAW)	1-8 March 2014	4
The Big Bang Fair, The NEC	13-16 March 2014	4
National Science & Engineering Week	14-23 March 2014	1
Bill Bryson Science Prize	31st March 2014 deadline	3
STEM Networking Event	2nd April 2014	5
Salters Chemistry Camps - Apply Now	July 2014	5

The University of Worcester is contracted to act as STEMNET Local Coordinator for schools and STEM Ambassadors within Herefordshire & Worcestershire. You can contact members of the STEM team by emailing STEMschools@worc.ac.uk or call Debbie Tunstall on 01905 542576

