

STEM TEAM Cambridgeshire

Science, Technology, Engineering and Mathematics Enhancement and Enrichment

Primary Newsletter

STEM TEAM Duxford 2009



Working in partnership with Imperial War Museum Duxford, STEM TEAM Cambridgeshire runs an annual science and technology fair. This is a great opportunity for school children to work with STEM Ambassadors and learn in a stimulating environment.

This year over 300 pupils from all over Cambridgeshire came to our STEM TEAM Duxford 2009 event in June. Cambridge University Engineers built bridges and constructed cranes. The Director of HoverAid UK spoke about how hovercraft are used to take doctors and emergency relief to people in Madagascar and pupils made model hovercrafts. Pupils learnt about the problems associated with plastic waste, made a plastic bottle raft and took part in our recycling quiz to see how long it takes for objects to biodegrade. A scientist from the Medical Research Council Laboratory and a Computer Software Engineer spoke about forces, Newton and rockets and pupils launched their own rocket high into the sky! Pupils took part in our K'Nex Challenge with their entries judged by a panel of expert engineers from Perkins. Pupils learnt about static electricity, reflexes, surface tension, chromatography, forces and acids and alkalis from the Chemists, Physicists and Biologists in our Quick Science Activity. A Hills Road Student Ambassador and an engineer from the British Antarctic Survey worked with pupils investigating aerodynamics and streamlining in a wind tunnel as they learnt about drag forces. Colourful kites were made and tested, but only after pupils had learnt how important kites have been in the history of science, past and present.

The Ambassadors bring a range of practical experience to the activities which enriches the pupils appreciation. They quickly adapt to the knowledge levels of the pupils and ask good open ended questions.- Mrs. Swain, The Perse Prep School. —The children learnt a lot in a short time, they loved participating and it was great fun, the kids are buzzing! - Mrs. Howard, Melbourn Primary School.

Please register your interest for 2010 at stempoint@stemteamcambridgeshire.org.uk

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STEM TEAM Cambridgeshire

News from STEM TEAM Cambridgeshire

STEM Ambassador Awards

STEM TEAM Cambridgeshire holds the contract for STEM Ambassadors in Cambridgeshire and we currently have over 600 Ambassadors. We are really proud to announce that three of our Ambassadors and one company we work with have been recognized in the National STEM Ambassador Awards.

We'd like to send our congratulations to **Christopher Cleaver** from The Engineering Department at the University of Cambridge who won the Best Activity Award. This rewards the Ambassador who has developed their own activity that has really engaged students about STEM. Christopher worked with Sixth Form students at Abbey College and the Leys School to develop a Carbon Footprint activity. This was delivered to a total of 260 Year 9 students at Abbey College. As a result of the activity, Governors at Abbey College have now agreed to commit at least £20,000 and a 5% annual CO₂ emission reduction which really demonstrates what an impact this activity has had!

We'd also like to send congratulations to:

Claire Cockcroft from the Babraham Institute was **Highly Commended** for the Support and Development Award. **Susan Foord** from The British Antarctic Survey received a **Commendation** in the Inspirational STEM Ambassador Award and **Napp Pharmaceuticals** were **Highly Commended** in the Most Dedicated Company Award.

Contact us if you would like Ambassador support at your school. Our Ambassadors can help with talks, careers events and activities.



STEM Activities from STEMTEAM Cambridgeshire

About Us

Our aims are:

'To inspire, encourage and help young people progress in STEM and help raise scientific literacy and appreciation of STEM among our school population.'

We have a portfolio of STEM activities available for schools and develop new activities in collaboration with companies and STEM Ambassadors. Each activity is delivered by a STEM Ambassador. Activities are designed to be open-ended to cater for the more able and well informed children in any group as well as being structured to give guided and experimental learning for all pupils.

STEM Exhibition at IWM Duxford

Your chance to showcase your schools work in STEM. Come and celebrate your successes and share good practice with other schools in Cambridgeshire! We're now rescheduling his exhibition for the Autumn Term so more of you can be involved. We will be in touch with each school to collect work you would like to exhibit at this event.

Our teams of STEM Ambassadors will be on hand to encourage and accredit best practice. **CREST Awards** will also be presented on the day.

We will have a guest presenter from Unilever talking about the Science of Ice Cream and there will be ice cream for all!



Please let us know whether you wish to attend.
Contact us at STEM TEAM Cambridgeshire by email to:
Melanie@stemteamcambridgeshire.org.uk



Bring along your school science club and give your pupils the opportunity to show us what they have been doing.



Did you watch The Speaker on BBC TV? Why not give your pupils the opportunity to prepare a 5 minute presentation on any science topic which interests them. Then come along to our STEM Showcase Day and they can present it to our panel of STEM Ambassadors. For hints on speaking in public, visit the BBC Speaker website at: www.bbc.co.uk/speaker



Have you been running a science, design and technology or maths project at school? Bring your displays and your pupils can talk to our STEM Ambassadors about their work.



Does your school take part in the CREST * Investigators Scheme? Come along and display what you have been finding out.

STEM TEAM Cambridgeshire

STEM Activities from STEM TEAM Cambridgeshire

Our Activities

A few of our activities for primary schools are highlighted here. Please contact us for a full list. Our half day activities cost £250 per 30 pupils and are supported by STEM Ambassadors. If you have a STEM Ambassador linked to your school, you can hire and use our equipment to run your own activity. Charges are ~£75 per 30 pupils depending on the activity and training is given. K'Nex kits can also be borrowed for £30 per 2 weeks. All equipment must be collected from and returned to our premises.

KS2 Robotics

Build a Jiggle Bot

Learn about electrical circuits, sensors and program control for robots. This activity comes with an Institute of Physics presentation, lots to stretch the more able yr 5 and 6 pupils and carries pupils of all abilities with the excitement of building their own moving, blinking robot.



KS2 Blood and Microbes

2 x two hour sessions, two weeks apart. These activities cater for pupils from a wide range of abilities and are based on the Primary Science Enhancement Programme.

Microbes: Pupils learn that micro-organisms can be both beneficial and harmful. They investigate the best conditions for growing mould and learn how this type of testing is useful in the production of antibiotics. They discuss what they think will happen, decide how

they will 'fair test' their hypothesis and monitor their experiment over the following two weeks. The children report their results, draw conclusions and discuss their findings so developing data collection and analysis skills.

Blood: The pupils learn that blood is not simply a red liquid! Each of the components and their roles are discussed along with the importance of blood clotting. Pupils then make a blood model with a range of sweets!



KS2 Physics of the Bicycle

This session is based on our very successful Cambridge Science Festival Activity funded by the Institute of Physics. Pupils find out about the physics behind a bicycle and then make a model of either a traditional bike or a bike of the future using a range of simple equipment including straws, connectors, pipe-cleaners, modeling materials and card.



STEM TEAM Cambridgeshire

These following sections give information on some of the schemes and enrichment opportunities available to schools.

Please let us know if you use this material or even research it.

We need to evaluate interest and record uptake for our brokerage service to schools and colleges in Cambridgeshire. Please also let us know if there is any particular area of STEM enrichment you would like us to research and evaluate for you.

As we build up a picture of each schools' interests and needs we can help you further and more effectively.

Many thanks!

STEM Activities from The University of Cambridge

THE ROCKET LAUNCH PAD PROJECT

Book a visit to Cambridge University Engineering Department for an exciting and informative workshop, the rocket launch pad project, building and launching paper rockets.

These **FREE** sessions book up very quickly so please let us know soon if you would like to take part.

Dates

5th -8th January
15th—17th March
14th—18th June

Morning sessions run from 09:30-12:00
Afternoon sessions run from 12:30-14:45.

Book by emailing

melanie@stemteamcambridgeshire.org.uk

or phone us on 01223 415650

On 20th July 2009 it will be 40th Anniversary of the first moon landing. See the NASA website for great images and information.
http://www.nasa.gov/mission_pages/apollo/40th/index.html

Activities from STEM TEAM Cambridgeshire KS 2 Rockets and Strong Structures

If you can't travel to Cambridge, contact us at STEM TEAM Cambridgeshire and we can bring the Rocket Launch Activity to your school delivered by a STEM Ambassador.

The activity is a half day event starting with a session concentrating on strong structures which includes a presentation and hands-on activity. Pupils learn about tension and compression and make a rocket launch pad out of paper tubes. This is followed by a presentation on the history and science of rockets and the opportunity for pupils to make paper tube rockets and have them launched high into the air!

This STEM TEAM Cambridgeshire Activity with STEM Ambassador support costs £250 per 30 pupils.



STEM TEAM Cambridgeshire

STEM Activities from Other Providers



Huntingdon Racecourse - KS2 Mathematics Activity

Give your pupils the opportunity to learn about maths in context and enjoy a day out at Huntingdon Racecourse.

During the session, pupils are given a range of practical activities to do including measuring lengths of the track and the width and height of fences. Pupils also investigate weight using the jockey scales

and get to see behind the scenes of the racecourse.

Dates for this activity will be published at the start of the new term. Contact us to express your interest and we will get back in touch to book a session.

Email:

Melanie@stemteamcambridgeshire.org.uk

Association for Science Education Conference



The Association for Science Education East of England Area Conference will be held at the John Innes Centre in Norwich on the 10th October 2009.

The theme of the conference is **Practical Work without Labs**.

Sessions will include:

QCA on assessment, Astronomy, Earth Sciences and Science Clubs.

For more details contact:

Jane Giffould ASE Field Officer

email: janegiffould@ase.org.uk

phone: 01787 476700

The full programme will be available on the ASE website from August 2009.

www.ase.org.uk

Crystal Growing Competition Eastern Region



Would your Key Stage 2 pupils like to grow a beautiful crystal and enter a fun competition? Would you like to give your school the opportunity to win Science Books, cash and an opportunity to visit the labs at the Medical Research Council.

If you would like to take part, please contact **Samantha Wynne** for more information.

Phone: 01223 402 406

Email: sw5@mrc-lmb.cam.ac.uk

National Science and Engineering Week 2010



National Science and Engineering Week (NSEW) is a 10 day celebration of science, engineering and technology run through the British Science Association. The full evaluation is now available to read online at: www.britishscienceassociation.org/web/nsew/NSEW_archive/NSEW+2009/report2009.htm

We ran a number of events during NSEW including our extremely successful Physics of the Bicycle Activity at Cambridge Science Festival. This was funded through an Institute of Physics Public Engagement

Grant. Next year National Science and Engineering Week is from 12-21 March.

Small Grant Scheme for Schools

The British Science Association run a small grant scheme for schools to help them run STEM activities during NSEW. www.britishscienceassociation.org/web/nsew/SchoolsandCollegessection/index.htm

The scheme opens in September and the website contains information on how to apply and examples of schemes that were funded in 2009.

STEM Activities from Other Providers

Planet Science—www.planetscience.com

Planet Science (www.planetscience.com) is a free fun science resource for children, young people, teachers and parents.

Helping primary and secondary science teachers to teach inspirational science in the classroom is one of the key aims of Planet Science. There's no substitute for natural talent of course, but we want to do all we can to assist that teacher-talent by providing resources, ideas and downloadable materials that can all be put to use in creating enjoyable and memorable lessons.

In addition to resources and information for teachers there is a section for children under 11 and email newsletters you can subscribe to.

Planet Science is produced by NESTA—The National Endowment for Science, Technology and the Arts, a unique and independent body with a mission to make the UK more innovative.



THE STEM DIRECTORIES

By now you all should have received copies of the STEM Directories for Science, Mathematics, Engineering and Technology. These contain listings of STEM enrichment and enhancement activities for schools and colleges. If you have not received your copies please let us know.

In each issue of our newsletter we'll highlight some of the schemes available to you.

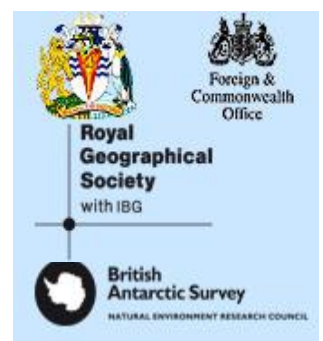
Discovering Antarctica—www.discoveringantarctica.org.uk

Discovering Antarctica is a BAFTA and Webby award nominated resource aimed at 7-11 year olds but full of content for all ages. It comprises interactives, downloads, images, videos, lesson based activities, worksheets and teachers' notes. It introduces the polar regions and the science and wildlife of Antarctica, its history, natural resources, tourism and political management. Produced by the

British Antarctic Survey (based in Cambridge), the Royal Geographical Society and the Foreign and Commonwealth Office, it has been developed to link directly into the science and geography curriculum. It is primarily for teachers to use in class or for homework but equally rewarding for students to explore and research all things Antarctic.

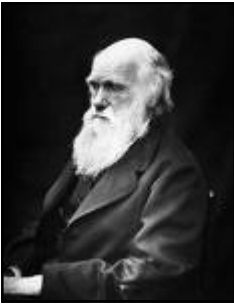
STEM DIRECTORIES

HAVE YOU RECEIVED YOUR FREE COPIES YET?



STEM Activities from Other Providers

Darwin—The Great Plant Hunt



To mark the 200th Anniversary of Charles Darwin's birth, the Wellcome Trust has commissioned and funded free educational resources for all primary schools in the UK.

The Great Plant Hunt—Following in Darwin's Footsteps is for 5-11 year olds and is delivered by the Royal Botanic Gardens, Kew. It is designed to encourage children to explore the natural world and join other schools in the biggest ever school science project.

The website:

www.greatplanthunt.org

contains a wealth of resources for each year group including the chance to take part in mass participation activities.



CREST * Investigators



CREST * Investigators is a UK-wide award scheme from the British Science Association that enables children to solve scientific problems through practical investigation. The activities focus on thinking about, talking about and doing science. They are designed to be used primarily outside of class time (for example, in a science club), though some are suitable for use in the classroom. The activities develop children's scientific enquiry skills and are curriculum linked.

Each activity includes ACTIVITY CARDS for children featuring a problem that is relevant to the lives of children. They also contain an ORGANISER'S INFORMATION SHEET which features step by step instructions for running the activity with highlighted safety points and a resource list. This makes it easy for someone without a science background to run the activity.

There are three award levels:
 Star 5-7 year olds, taking 8 weeks.
 SuperStar 7-11 year olds, taking 12 weeks.
 MegaStar 8-12 year olds, taking 12 weeks.

Examples of the activities are included on the British Science Association website at:

<http://www.britishscienceassociation.org/web/ccaf/CRESTStarInvestigators/index.htm>

STEM TEAM Cambridgeshire manage the scheme in this area for The British Science Association and you can register for the scheme and buy the resource packs through us.

Star resource pack = £30,
 SuperStar = £35
 MegaStar = £40

Resource packs include activity cards and enough logbooks, badges and stickers for 30 children. There are reductions in price if you buy more than one pack at a time. Once children have completed all the activities at their level, they can be awarded a CREST* Investigators Award costing £3 per child.

Contact us to register or for more information.

STEM TEAM Cambridgeshire

STEM TEAM Cambridgeshire works in partnership with STEM businesses and educational organisations. As a registered charity (No. 291332) we provide resources and deliver STEM activities in schools, Continued Professional Development for teachers and manage a number of national schemes for the county. We organise and run annual science fairs and competitions as part of both national and local networks.

We are the local arm of STEMNET as the STEMPoint contract holder 2008-2011 for Cambridgeshire and managers of the National STEM Ambassador scheme for the county.



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