

National News

Summer 2011

Ongoing Support from the Stimulating Physics Network

We are delighted to announce that the Stimulating Physics Network will continue to support teachers of physics and their students until at least March 2012 and possibly beyond to 2014, thanks to continued funding from the Department for Education. The network will continue to be run by the Institute of Physics in partnership with the national network of Science Learning Centres. Our local Physics Network Co-ordinators will continue to run their free hands-on workshops open to all teachers. You can contact your regional External Liaison Officer to find out what workshops are running in your region or if you can bring together a group of secondary science teachers from local schools we can arrange the workshop you want when and where it suits you.

Our Teaching and Learning Coaches (TLC) will continue to work with whole science departments to enhance physics teaching and learning. This is an intensive relationship, with each TLC working with a maximum of only 12 schools in their region. Schools are invited by the Stimulating Physics Network to take part based on current take-up of physics and the potential to improve. Once the schools are selected, the TLC works closely with the whole science department to develop subject knowledge and enhance teaching practices. While the TLCs draw on the many free resources created by the Stimulating Physics Network, the main focus of their work is on CPD for the teachers.

One TLC describes the process of beginning intensive support with a school:
"Initial contact occurred between me and the Assistant Headteacher in the Science department. In this hour-long meeting, the aims of the network were discussed as they applied to school and plans were made. Staff were given time to audit their own needs and decide, as a department, the CPD they needed. To maintain the momentum of staff development, I started working with the two NQTs in the department... The department as a whole requested courses on Electricity and Forces. The Electricity course was very positively received. The big circuit and the rope model of current were immediately written into the schemes of work. In an effort to provide variation, I have also been asked to deliver revision



lessons to various GCSE classes in the school. These have taken the form of 'model' lessons with a number of school staff sitting at the back taking notes. Not to leave anyone out, I am regularly welcomed into school by the technicians. They meet me at the door with questions; What's this for? How do we show this concept? Technicians are an incredibly important resource in a school and their input is, often, undervalued!"

This term we are looking to recruit some more schools to join this intensive support programme so keep an eye out for an invitation sent to the Head of Science

For more details on the full range of support offered by the Stimulating Physics Network around the country, contact your External Liaison Officer (ELO) to find out what is happening in your region. See the back page for their contact details.

Propelling physics teaching into the future

The Stimulating Physics Network is a government funded project run by the Institute of Physics and the National Network of Science Learning Centres. Our aim is to improve the take-up of A level physics by offering free events, resources and activities to support teachers and inspire students in secondary schools across England. stimulatingphysics.org

Keeping in Touch with Space

Sadly NASA's space-shuttle programme comes to a close this year after more than 130 shuttle missions over 30 years. Space has proved an inspiring subject for the last 50 years since Yuri Gagarin took his first flight and, even with NASA ceasing its exploration, it is still something that can be used to engage today's students with physics. The Stimulating Physics Network offers activities and resources that bring space into your classroom.

Teaching Astronomy and Space: video resource

Working with Teachers TV, the IOP has created a series of 15-minute programmes on space that explore the science behind our solar system. They include interviews with astronomers and solar physicists, explorations of the science behind the solar system and discussion topics for your students, all accompanied by teaching notes, additional teaching resources and weblinks.

To view these programmes visit: tinyurl.com/iopspace

Rocket Launchers

Not strictly speaking space rockets, but this workshop offers the excitement of creating your very own launch countdown as you fire paper rockets from your DIY air pressure launcher. This is one of the most popular workshops run by our team of Physics Network Co-ordinators. During the session you will build a compressed air rocket launcher from plumbing parts and explore how you can lead students through an exploration of forces and motion through the design of paper rockets

Contact your local ELO to find out about workshops in your area or to request a bespoke session for you and a cluster of local schools.

Astrophysics CPD

The Science Learning Centres offers an Astrophysics workshop designed to give teachers of physics a firm grounding in key theories of space science, highlight recent advances in the field and offer an insight into current research efforts. The content is linked clearly to GCSE science specifications to make it easy to translate the course elements into your lessons.

To find out where Astrophysics is running near you visit: tinyurl.com/slcspc

Advancing into Space

TAP (Teaching Advanced Physics), the IOP website, was created to support teachers of A level physics. It has a section dedicated to astronomy that offers detailed 'episodes' covering observing stars, red shift, the expanding universe and cosmology. Each episode contains topics for discussion, guides to practical demonstrations, suggested student activities and an engaging variety of resources from poems to pictures.

Explore the resources available at: tap.iop.org/astronomy

Space in 3D

At physics.org, the IOP has collected together some of the best online resources from around the world to support physics teaching and learning. This collection includes many engaging and innovative approaches to exploring space from space.com, a news site dedicated to astronomy, sky-watching, space exploration, commercial spaceflight and related technologies, to 'challenging the space frontier' from Scholastic. One of the latest resources added to the physics.org is a visually stunning way to explore space with a 3D flash animation that lets you navigate your way through the solar system.

To make your own journey through space visit: physics.org/explore

UK Space Conference 2011

As part of this national conference, ESERO-UK, the education arm of the European Space Agency, is organising a dedicated education day on 5 July. Come along to enjoy a plethora of exciting space-related workshops, including a lecture from Dr. Lucie Green; a solar researcher based at the Mullard Space Science Laboratory at UCL. The day will also give you the chance to discuss the role of space in education and gain important contacts of space education providers in your region.

To book your free place visit: esero.org.uk/events/uk-space-conference



Getting on Track with Physics

One of the main areas of need we have discovered in schools is the need for more information about the careers open to students that take-up physics. To try to tackle this shortage, the IOP offers a growing collection of careers material, all freely accessible to schools. There is a selection of print that you can request free from the education team, just email: education@iop.org.

This material includes:

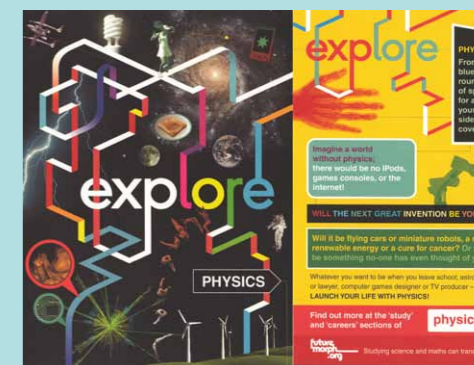
- **Explore Physics:** a taster leaflet on where physics can take you
- **Expand:** a leaflet exploring what careers options there are through physics
- **Experience Physics at University:** a guide for students considering studying physics at university
- **Exploring Physics, Uncovering Choice:** materials for your staff to run a workshop in-school to give teachers an increased knowledge of physics-based career

The IOP has also created a wide range of online resources to give you and your students an idea of where physics could take them. You can read interviews with physicists on their working life, discover details of any career events in your region and access all the career materials produced by the IOP.

For the IOP resources visit: iop.org/careers

National STEM Centre eLibrary

The eLibrary at the National STEM Centre is rapidly expanding with publications from academics, organisations, industry and teachers. You can now find in their eLibrary many careers-focused resources to which the IOP has contributed. To explore the career materials visit: tinyurl.com/stemlibrary



Funding for Physics

IOP & STFC School Grants Scheme – Next Deadlines

Grants of up to £500 available for events, visits or small-scale projects linked to the teaching or promotion of physics. Any school teaching 5-18 can apply. For more information: visit iop.org/about/grants and select 'School Grants Scheme' or email: schoolgrants@iop.org

Apply online before the following deadlines:

- 1st June 2011 – For projects in Autumn term 2011
- 1st November 2011 – For projects in Spring Term 2012

talkphysics.org

Discussions, questions, ideas and inspiration continue to thrive on talkphysics.org, our free online community for teachers of physics. Continuing the space focus from this newsletter, one discussion threw up lots of suggested links to worksheets and resources on constellations for a teacher who was going to take a group of primary students stargazing.

Another teacher asked for recommendations for a demonstration to show how different metals can be better conductors for a lesson she was going to be observed teaching with her bottom set of boys. Her request received 20 helpful responses.

In the Teaching Physics 16-19 group within talkphysics.org, the advice ranges from how to help A level students improve their written explanations in exams to how an NQT, working with very poor physics resources, can develop her own OCR B Physics 'end of topic' tests.

For student teachers who have not yet graduated to NQT there is the Learning to Teach Physics group; where jobs vacancies are advertised along with vital advice on how to get the job.



➔ If you have any experience you would like to share or any queries you would like help with, then join talkphysics.org to get the enthusiastic support of other physics teachers and the IOP in-house team.

► Get in touch

To get connected with the Stimulating Physics Network contact your regional External Liaison Officer. They will be able to give you details of events and courses happening across your region. If you want a workshop on a particular

day then you could create a cluster group with two or three other schools and look to organise a session with a Physics Network Co-ordinator for a day and time that suits you. Contact your External Liaison Officer to find out more.

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To keep up to date with what workshops and events are being planned for your area visit: stimulatingphysics.org/regions and select the page for your region.

Although the listings are split into regions there are no boundaries to our support, so if, for example, you work in London but find it easier to get to one of the East of England events then just contact the relevant PNC or ELO and book yourself a place.

Physics Update

The Institute of Physics is hosting a series of three-day residential courses for physics specialists. Each event features an exciting programme of talks and workshops with special guest speakers.

Summer Physics Update

University of Bristol 8-10 July 2011

After Dr Neil Downie's hands-on sessions "Vacuum Bazookas & Vortex Transistors", participants will be able to indulge in an evening wine-tasting session on "The Science of Taste & Flavour" with Prof Peter Barham. Other highlights include "The Physics of Volcanic Eruptions" with Prof Steve Sparks and "Physics of Bores and Catastrophes and Holonomy" with Prof John Hannay.



For more details on any of the Physics Update courses or to book a place visit: iop.org/update or contact Manchi Chung, email: manchi.chung@iop.org.