STIMULATING PHYSICS NETWORK

Supporting physics teaching and learning

Stimulating Physics | London

A FREE DAY OF CPD WORKSHOPS FOR TEACHERS AND TECHNICIANS

Thursday 29 March
9am – 4pm | Highgate School | London N6

A wonderful opportunity for teachers and technicians to take part in a wide variety of physics CPD. Run by the Stimulating Physics Network (SPN), this free day of workshops is open to all London schools free of charge.

During the day you can attend four workshops exploring a diverse range of physics topics, drawing on the skills of the SPN team as well the teachers and technicians from Highgate School.

Science LEARNING CENTRES

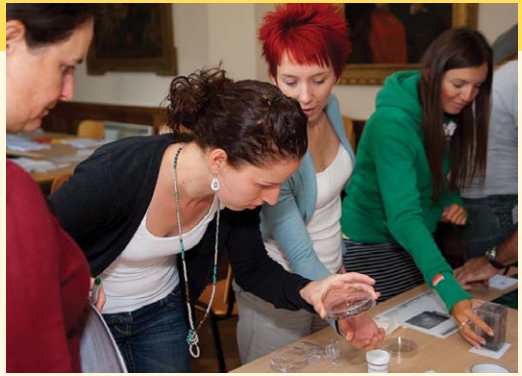
IOP Institute of Physics

The Stimulating Physics Network is a partnership between the Science Learning Centres and the Institute of Physics, funded by the Department for Education. This free event is run in collaboration with Highgate School.

PROGRAMME

9:00 - 9:30	Registration and refreshments			
9:30 - 10:00	**Welcome and introduction to the day**			
Session 1 10:00 - 11:00	**Earth in space (1A)**	**Teaching physics with a Games 2012 theme (1B)**	**Understanding forces (1C)**	**Teaching electricity without tears (1D)**
11:00 - 11:20	Break with refreshments			
Session 2 11:20 - 12:20	**Physics meets popular culture (2A)**	**Encouraging group work in physics lessons (2B)**	**Teaching energy (2C)**	**Teaching radioactivity (2D)**
12:20 - 1:10	Lunch			
Session 3 1:10 - 2:10	**Earth in space – (3A)** R	**Teaching physics with a Games 2012 theme (3B)** R	**Understanding forces (3C)** R	**Teaching electricity without tears (3D)** R
Session 4 2:15 - 3:45	**Cloud chamber make-and-take (4A)**	**Dragster launcher make-and-take (4B)**	**Favourite demos & class experiments (4C)**	**Light fantastic: teaching basic optics (4D)**
3:45 - 4:00	Tea and close			

R indicates a repeat workshop



WORKSHOP DETAILS

Session 1: 10.00am – 11.00am

1A Earth in space – Richard Grimmer
Students bring a natural curiosity to studies of space and our place in it, but many find their learning frustrated by inherent conceptual challenges. This workshop introduces the IOP Supporting Physics Teaching resources and shows how they can help you teach a range of space-related topics effectively.

1B * Teaching physics with a Games 2012 theme – Peter Campbell
Excitement about the forthcoming London Olympics has the potential to motivate pupils' engagement with many aspects of physics. The focus will be on pupil activities for KS3 & KS4 which promote understanding of electric circuits, the electromagnetic spectrum, forces and energy.

1C Understanding forces – Robert Birke
Pupils frequently struggle to accurately identify the forces acting on objects in everyday situations. 'Forces spectacles' will be used to identify forces and accurately draw forces diagrams. The workshop will also examine common misconceptions that pupils have about forces and motion.

1D * Teaching electricity without tears – Alan Baugh
Many teachers and technicians lack the confidence to resolve problems with student circuits quickly during practical lessons. This workshop provides strategies and tools to help you identify and correct faults in basic electric circuits, enabling more time to be spent on the main lesson objectives.

Session 2: 11.20am – 12.20pm

2A Physics meets popular culture – Peter Campbell
For better or worse, physics plays an explicit part in many film and TV hits. It has also inspired poetry, novels and songs. This workshop shows how cultural products such as these can be used in physics lessons to bring variety, show connections, generate discussion and develop critical thinking.

2B Encouraging group work in physics lessons – Phil Badley
Education research suggests that teachers can improve science learning by paying more attention to language development. One way to do this is by encouraging pupils to talk. This workshop offers a series of activities that can promote structured group work and discussion in physics lessons.

2C Teaching energy – Jon Clarke
Focusing on KS3, this workshop introduces ways of teaching energy that take account of both its quantitative nature and pupils' varying conceptual and mathematical capabilities. It describes simple hands-on resources, and powerful models and analogies that provide access to pupils.

2D * Teaching radioactivity – David Smith
Radioactive materials are often in the news. This workshop shows how to make key concepts accessible to KS4 pupils, using a selection of demonstration experiments. It also includes advice about safe handling of radioactive sources and suggests an effective teaching order, based on education research.

Session 3: 1.10pm – 2.10pm (Repeat of Session 1 workshops – see descriptions above)

Session 4: 2.15pm – 3.45pm

4A * Cloud chamber make-and-take & cosmic ray detectors – David Smith and Peter Campbell
Make your own large cloud chamber and use it to observe particle tracks. View some commercially available cloud chambers and find out where to obtain dry ice. With 2012 being the centenary of the discovery of cosmic rays, discover a school's project to detect cosmic rays.

4B * Dragster launcher make-and-take – Robert Birke and Richard Grimmer
Build your own dragster launcher to take away, and discuss how they can be used in physics lessons. Your pupils can investigate the features that influence the speed of their 'cars', and develop their understanding of concepts such as forces and pressure.

4C * Favourite demos & class experiments – Jon Clarke and Alan Baugh
Some practical demonstrations cost little, but can have great impact in physics lessons, whether it's "wow", or just a brilliantly clear illustration of an important concept. Amongst other things, you'll make your own loudspeaker from a few simple pieces of equipment and see a spinning tornado of flame.

4D Light Fantastic: teaching basic optics – Phil Badley
The main focus of the workshop will be reflection, with a circus of reflection-based activities, rays and ray diagrams, and finding the image. Refraction and colour will also be introduced, with information about where to find out more.

*particularly appropriate for technicians as well as teachers

BOOKING FORM

Thursday 29 March | 9am – 4pm | Highgate School | London N6

Delegate Details*

Title _____ First Name _____

Surname _____

Job Title _____

E-mail _____

School _____

School Postcode _____

Access / dietary special requirements _____

Booking authorised by _____

*If more than one person from your school is attending please complete a separate booking form for each person so that we can allocate the workshop choices correctly.

Workshop choices

Session 1 1st choice _____ 2nd choice _____

Session 2 1st choice _____ 2nd choice _____

Session 3 1st choice _____ 2nd choice _____

Session 4 1st choice _____ 2nd choice _____

Submit by email enquiries@london.slcs.ac.uk (Complete the form & email completed PDF)
Book online www.slcs.ac.uk/go/lon/lnc11379
Submit by post SPN Team, Science Learning Centre London, Institute of Education, 20 Bedford Way, London WC1H 0AL.

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