



Stimulating Physics Network CPD Day at Highgate School:-

A day of free KS3/4 Physics CPD open to all secondary Science teachers and technicians, both physics specialists and non-specialists.

Supporting the Teaching and Learning of Physics

Saturday 25th March 2017, 9:00 am to 4:00 pm

Time	Programme			
9:00 – 9:30	Registration and refreshments			
9:30 – 9:40	Welcome, SPN news and information about the day			
Workshop 1 9.40 – 10.50 (70 mins)	1A IMPROVING GENDER BALANCE (ALL KS) Jon Clarke (TLC)	1B Core Physics Practicals (KS4) Sharron Mackenzie (TLC)	1C TEACHING ENERGY (KS3) Alan Baugh (TLC)	1D RADIOACTIVITY (KS4) Gerard Hallows (TLC)
10.50 – 11:00	Changeover time			
Workshop 2 11.00 – 12.10 (70 mins)	2A Energy – Pathways and Power (KS4) Liz Hutchins (TLC)	2B ELECTROMAGNETIC INDUCTION (KS4) Steve Long (TLC)	2C FORCES (KS3) Robert Birke (TLC)	2D Electric Circuits (KS3) Eleanor Wylie (TLC)
12:10 – 13:15	Lunch			
Workshop 3 13.15 – 14.25 (70 mins)	3A ASTROPHYSICS (KS4) Jon Clarke (TLC)	3B Core Physics Practicals (KS4) Sharron Mackenzie (TLC)	3C FORCES (KS3) Robert Birke (TLC)	3D Electric Circuits (KS3) Eleanor Wylie (TLC)
14.35-14.45	Changeover time			
Workshop 4 14.35 – 15.45 (70 mins)	4A ENGAGING PHYSICS (KS3) Liz Hutchins (TLC)	4B OPTICS (KS3/4) Alan Baugh (TLC)	4C DO PHYSICS (KS3) Steve long (TLC)	4D Waves and Sound (KS3/4) Gerard Hallows (TLC)
15.45 – 16.00	Plenary and Evaluations – Refreshments available			

Directions - HIGHGATE SENIOR SCHOOL, North Road, London N6 4AY - <http://www.highgateschool.org.uk/contact>

Registration –

THE WORKSHOPS (Choose ONE from each session)

Session 1

1A IMPROVING GENDER BALANCE Jon Clarke (TLC)

Exploring issues and some ideas for action to help 'Improve the Gender Balance', including my own experiences improving equality at an inner-city, mixed comprehensive.

For: Teachers (Technicians welcome)

1B Core Physics Practicals (KS4) Sharron Mackenzie (TLC) *THIS WORKSHOP IS REPEATED IN SESSION 3*

A chance to see and try these practicals and discuss alternative ways of achieving the same outcomes.

FOR: Teachers and technicians

1C TEACHING ENERGY (KS3) Alan Baugh (TLC)

Making sense of the approach to teaching Energy in the new KS3 curriculum: Energy as a value, not a substance, Start and End Points, A simple teaching modelling activity.

For: Teachers and Technicians

1D RADIOACTIVITY Gerard Hallows (TLC)

This workshop is primarily directed at those with less experience at handling radioactive sources and teaching the topic. There will be hands-on opportunities to handle sources and carry out a number of the basic demonstrations involving range, absorption and deflection of radiation.

Actual and simulated 'half-life' activities will also be included. Safe procedures and routines will be addressed.

This will be set in the context of the historical and underpinning science background.

For: Teachers and Technicians

Session 2

2A ENGAGING PHYSICS (KS3/4) Liz Hutchins (TLC)

This session provides an opportunity to look at some ways to make physics more engaging using a selection of toys, demonstrations and the IOP Marvin and Milo Cartoons

For: Teachers and Technicians

2B DO PHYSICS (KS3) Steve Long (TLC)

Twenty quick experiments to inspire and encourage curiosity

For: Teachers and Technicians

2C FORCES (KS3) Robert Birke (TLC) *THIS WORKSHOP IS REPEATED IN SESSION 3*

Brush up on free body diagrams and Newton's 3rd Law - one of the most common misconceptions in physics! Lots of examples and some hands-on activities.

For: Teachers and Technicians

2D Electric Circuits (KS3) Eleanor Wylie (TLC) *THIS WORKSHOP IS REPEATED IN SESSION 3*

This session will take you through the basic theory and practice of simple KS3 electric circuits. Alternative ways of modelling such circuits will be explored and their relative merits discussed.

For: Teachers and Technicians

Session 3

3A ASTROPHYSICS (KS4) Jon Clarke (TLC)

We will focus on the teaching of two challenging concepts at KS4 – the Big Bang and the life cycle of stars. It includes an introduction to IOP's free DVD Teaching Astronomy and Space (11-16) and suggestions of accessible teaching activities.

For: Teachers mainly but Technicians welcome

3B Core Physics Practicals (KS4) Sharron Mackenzie (TLC) *THIS WORKSHOP IS A REPEAT OF SESSION 1B*

A chance to see and try these practicals and discuss alternative ways of achieving the same outcomes.

FOR: Teachers and technicians

3C FORCES (KS3) Robert Birke (TLC) *THIS WORKSHOP IS A REPEAT OF SESSION 2C*

Brush up on free body diagrams and Newton's 3rd Law - one of the most common misconceptions in physics! Lots of examples and some hands-on activities.

For: Teachers and Technicians

3D Electric Circuits (KS3) Eleanor Wylie (TLC) *THIS WORKSHOP IS A REPEAT OF SESSION 2D*

This session will take you through the basic theory and practice of simple KS3 electric circuits. Alternative ways of modelling such circuits will be explored and their relative merits discussed.

For: Teachers and Technicians

Session 4

4A Energy – Pathways and Power (KS4) Liz Hutchins (TLC)

For those who have attended previous KS3 Energy sessions, or are already familiar with those ideas. Here we will develop the ideas around energy transfer mechanisms and the rate at which they transfer the energy.

For: Primarily for Teachers. Technicians welcome.

4B OPTICS (KS4) Alan Baugh (TLC)

A quick look at using lenses, mainly convex, in practical applications such as cameras and telescopes. We'll clarify the terminology and spend most of the time 'hands on' with suggested class activities.

For: Teachers and Technicians.

4C ELECTROMAGNETIC INDUCTION (KS4/5) Steve Long (TLC)

This workshop will focus on demonstrations and the underlying theory which build up an approach to, an understanding of the relationship between magnetism and electricity both at Key Stage 4 and beyond.

The use of modern Neodymium magnets makes some of these phenomena rather less fiddly.

For: Teachers and Technicians

4D Waves and Sound (KS3/4) Gerard Hallows (TLC)

This session looks at the relationships between sound sources, such as musical instruments, the sounds we hear and how the waves are represented in diagrams and on apparatus such as oscilloscopes. Particular emphasis will be given to representing longitudinal waves in diagrams.

For: Teachers and Technicians

ALAN BAUGH - Alan taught for 32 years in North London schools and has been a Teaching and Learning Coach with the SPN for six years.

ROBERT BIRKE - Robert is a Teaching and Learning Coach (TLC) within the Stimulating Physics Network (SPN) working in North-East London & Essex and is also an Early Career teacher mentor within the project. In addition he coaches on the Capital Physics project which is supporting Post-16 physics teaching & learning in London Schools.

ELEANOR WYLIE

JON CLARKE – Jon has been working as a TLC for 6 years, alongside teaching in an Inner London mixed comprehensive school. He was previously a research scientist (measuring time!) then a KS5 lecturer.

LIZ HUTCHINS – Liz has been working on the SPN project for 6 years and currently supports Physics teaching as a TLC, mentor and Link School Advisor. She spent 6 years working in industrial R&D, then taught KS3, 4 and 5 in schools in Kent for 17 years.

STEVE LONG - Steve works as a Teaching and Learning Coach (TLC) for the Institute of Physics. He also supports early career teachers. Steve previously taught Physics in Hertfordshire and was an Advanced Skills Teacher (AST).

SHARRON MACKENZIE - After teaching KS3, 4 and 5 for 18 years in a variety of schools across London and Kent, Sharron now spends her days as a Teaching and Learning Coach for the SPN project, working with science departments to develop staff confidence and student motivation in Physics.

GERARD HALLOWS