



STIMULATING  
**PHYSICS**  
NETWORK

# DULWICH DAY OF CPD

**Dulwich College, SE21 7LD**  
**Saturday 15 October**  
**9.15am - 3.45pm**

**Experiments, workshops, masterclasses  
and more. All teachers of science,  
trainees and technicians welcome.**

**Book:** [www.talkphysics.org/dulwich](http://www.talkphysics.org/dulwich)

**Enquiries:** [j.foster3@herts.ac.uk](mailto:j.foster3@herts.ac.uk)

**Cost:** free

This popular day of physics CPD features a mix of practical workshops and congenial networking. Sessions are led by expert physics trainers from the Institute of Physics, the science department at Dulwich College and Isaac Physics.

Lunch and refreshments are provided.

Get directions to Dulwich College at:  
[www.dulwich.org.uk/college/contact/directions](http://www.dulwich.org.uk/college/contact/directions).

**IOP** Institute of Physics

# DULWICH DAY OF CPD

Dulwich College, SE21 7LD



## Teachers and Technicians

Please read about all the workshops before booking your sessions online. Workshops are run by IOP Physics Network Coordinators, SPN Teaching and Learning Coaches and other experienced presenters.

## Workshop Choices

Detail of each workshop are available overleaf. You can choose four workshops out of the sixteen available - Fun Physics and Isaac Physics workshops are repeated twice.

If you have any problems booking or questions about the day, email [j.foster3@herts.ac.uk](mailto:j.foster3@herts.ac.uk).

## Programme

09:15 - 09:45	Registration and Refreshments
09:45 - 09:55	Welcome - a brief introduction to SPN, and today's programme
10:00 - 11:10	Session 1 (Workshops 1A - 1D)
11:15 - 12:25	Session 2 (Workshops 2A - 2D)
12:25 -13:10	Lunch
13:15 - 14:25	Session 3 (Workshops 3A - 3D)
14:30 -15:40	Session 4 (Workshops 4A - 4D)
15:40	Evaluations and Farewells

Tweet about this event using #SPNdulwich.

## How to Apply

Visit [www.talkphysics.org/dulwich](http://www.talkphysics.org/dulwich) and enter your details in the form below the event details. You don't need to be a member of TalkPhysics in order to register, but event resources will be distributed through the site.

# talkphysics

Teach physics. Talk physics.

**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. Teachers (Technicians welcome).

**1B - Do Physics** – Steve Long (TLC)

Twenty Quick Experiments to Inspire and Encourage Curiosity (KS3)

**1C - Heat Transfer** - Sharron Mackenzie (TLC)

In this session we will consider practicals and demos we can use to address the concepts of conduction, convection and radiation. We will also look at how insulation can be used to slow the heating process and discuss the different properties materials have due to their specific heat capacities.

Teachers (Technicians welcome)

**1D - Energy** - 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.

Teachers and Technicians

## 2A – **Fun Physics** – Elizabeth 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. (KS3/4)

## 2B – **Isaac Physics** – Heather Peck (Hub Events Manager for Isaac Physics)

Isaac Physics aims to improve the problem solving skills of Physics A-level students. In this session, you will see how you can use Isaac Physics materials in your teaching. You'll also learn how to set (FREE) online homework assignments for your students and see their marks before you get into the next lesson!

## 2C – **Radioactivity: Getting A Feel For Radioactivity** – Gerard Hallows (TLC)

Is radioactivity dangerous? What do we need to be careful of, and how can we avoid communicating half-truths? How is radioactivity detected, and what practical activities can we offer students to enhance our teaching? This workshop will put the risks in context and let you try out practical equipment.

## 2D – **Energy Approaches and Energy Calculations** – Robert Birke (TLC)

There will be a recap on the new approach to energy involving 'stores & pathways' which has appeared in the latest version of the National Curriculum. We will then explore how we use energy ideas to solve problems – from the (almost) trivial (what is the efficiency of a toy?) to the most significant (how can we provide enough power to sustain the world). Energy is all about doing calculations, so some simple mathematics will be practised some at least in the context of experimental explorations. Mostly relevant to KS4.

### 3A – **Circuit-Training for Non-Specialist Physics Teachers** – Fermina Marche (Dulwich College)

What really is the difference between voltage and current? And what's it got to do with a packet of sweets, firemen's lorries or a bicycle chain? What simple circuit rule can you teach your year 9s that will mean they will be able to solve even A-level circuits problems? This session will cover several models and games to help with the concepts of GCSE electricity and two or three core practicals. Includes handouts and worksheets. For non-specialist Physics teachers. No gym equipment required.

### 3B – **Electromagnetism** – Steve Long (TLC)

In this session we will look at Electromagnets, the catapult field and motor effect, Electromagnetic induction and generators, Transformers, the use of Fleming's Rules, and some experiments.

### 3C - **Waves** - Sharron Mackenzie (TLC)

This workshop will look at interesting practicals and demos we can use to teach waves at KS3 and KS4. It will consider how we can show electromagnetic, sound and mechanical waves in a lab and it will give tips on how to teach *how to draw ray diagrams*.

Teachers and Technicians

### 3D – **Force and Motion** – Robert Birke (TLC)

Pupils often believe that forces are required simply to 'keep things moving'. The alternative conceptions which pupils have surrounding forces and their relation to motion will be addressed and a possible teaching route through to a more useful (and correct) understanding of forces and motion will be developed.

This workshop is aimed at non-specialist teachers of physics and will demonstrate and allow them to gain experience of practical activities, using some simple apparatus, which support effective teaching & learning of this topic

#### 4A – **Fun Physics** – Elizabeth 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. (KS3/4)

#### 4B – **Isaac Physics** – Heather Peck (Hub Events Manager for Isaac Physics)

Isaac Physics aims to improve the problem solving skills of Physics A-level students. In this session, you will see how you can use Isaac Physics materials in your teaching. You'll also learn how to set (FREE) online homework assignments for your students and see their marks before you get into the next lesson!

#### 4C – **Earth and Space: To Boldly Go...** – Gerard Hallows (TLC)

Space is an engaging topic. Many children are fascinated by it and eager to learn about it. It's also rife with misconceptions. This workshop will address some of those misconceptions and explore the many practical alternatives to project work that are possible in this topic.

#### 4D – **Optics** – Alan Baugh

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.

Teachers and Technicians.