

SPEED2018



Stimulating Physics East of England Day

Netherhall School, Cambridge, CB1 8NN

Saturday 6 October 2018

Programme

09:30 – 10:00	Registration
10:00 – 10:20	Welcome
10:20 – 11:20	Session 1 (Workshops A – OO)
11:25 – 12:25	Session 2 (Workshops A – OO)
12:30 – 13:30	Lunch
13:35 – 14:35	Session 3 (Workshops A – N)
14:40 – 15:40	Session 4 (Circus of Activities)
15:40 – 16:00	Plenary and raffle (tea and coffee available)
16:00	Close

Choosing your workshops

Please read about all the workshops before booking online.

Sessions 1 - 3

Choose three workshops out of the fifteen available.

Workshops A - N are one hour sessions and are available in all three sessions.

Workshop OO is a 2 hour session. If you choose this workshop, it will fill session 1 and session 2. Please make sure you book it for both sessions.

Workshops H, I, K, M, N and OO are especially suitable for technicians (but also suitable for teachers).

Workshops B, C, D, E, F, G, K and L will include lots of guidance/discussion for teachers (these are probably less appropriate for technicians).

Session 4

A circus of activities – everyone will get to see every activity in this session.

How to register

Book your place at talkphysics.org/events/speed2018

If you have any problems booking or questions about the day, email speedbookings@gmail.com

**Tweet about this event using
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Workshop		Overview
A	<p>Planetarium KS3 – KS5 Workshop Nigel Betts</p>	<p>This session will look at how to use a mobile planetarium in a school to provide an engaging and stimulating learning environment to help encourage interest in STEM subjects. The session will also look at how this unusual environment can be used in areas of Science other than Astronomy.</p> <p>Nigel Betts is a Physics Teacher at Mark Rutherford School, Bedford.</p>
B	<p>Unconscious Bias KS3 – KS5 Workshop Esther Mander</p>	<p>Unconscious bias impacts everything you see around you; it is a brain process that helps you function. Without it we wouldn't be able to move through our day or be effective members of society. There is a darker side to unconscious bias, and one whose effect we see in our schools, colleges and industry. To really understand it, we have to become aware our own bias. After this workshop you will understand what unconscious bias is, its impact in the classroom and strategies to help mitigate any negative impact. Please take the IAT gender focused test before taking part - https://implicit.harvard.edu/implicit/uk/takeatest.html</p> <p>Esther Mander is a Gender Balance Officer for the IOP's SPN programme.</p>
C	<p>Developing Resilience KS3 – KS5 Workshop Eleanor Wylie</p>	<p>Academically resilient students overachieve compared to peers and their circumstances, making the most of their abilities and opportunities. Academic resilience is affected by many things. After this workshop, you will understand a simple model of academic resilience, and have strategies to support your students that you can use in the classroom straightaway.</p> <p>Eleanor Wylie is a Teaching and Learning Coach working in Norfolk.</p>
D	<p>Wisdom from one of the Greatest Physics Teachers Ever KS4 – KS5 Workshop James de Winter</p>	<p>Paul Hewitt is former boxer, cartoonist and physics education hero. He has spent the last 30 years developing one of the best and most widely used physics courses in the US. This session will use his Conceptual Physics course as a guide to explore some of the best textbooks, questions and resources available for UK physics teachers. We'll look at hard questions, easy questions, interactive activities and physics education research. All of which will be a lot more fun and useful to your teaching lives than it may sound. Access to loads of free wonderfulness will be provided.</p> <p>James de Winter is PGCE Physics Tutor at the Faculty of Education in Cambridge and leads the national teacher fellow and research networks for the Ogden Trust.</p>

Workshop		Overview
E	Memorising and Rearranging Equations KS3 – KS4 Workshop Alan Denton	What can we do to help KS3 and KS4 students to remember the equations required by the physics GCSE, and to be comfortable in rearranging them? Alan Denton is a School-based Physics Coach and runs non-specialist TSST training courses throughout the region.
F	RAF100 KS3 – KS5 Workshop Taj Bhutta	Celebrating the Centenary of the RAF - together with the Historical Association, the IOP has produced the RAF100 schools project: a set of practical activities, linked to videos and historical contexts, with a competition and freebies too. Come along for a demo of the activities and support on how to run the sessions and engage students in the history. Activities include 3D viewing, flying gliders, airdrops of supplies, and codebreaking. <i>Ideal for technicians and teachers</i> Taj Bhutta is IOP School Support Manager.
G	Mentoring and Coaching Workshop Jessica Rowson	This session is for physics specialists looking to help support the teaching of physics across the department, whether informally, through staff room chat and answering ad hoc questions, or more formally, through delivering CPD sessions. We will be looking at some of the areas that science teachers without physics backgrounds struggle with and how we, as specialists, can help in an effective and sympathetic way. Jessica Rowson is regional manager of the IOP's Future Physics Leaders programme and a Physics Coach in the East Cambridgeshire and Fenland region.
H	GCSE Practicals KS4 Practical Workshop Roger Rande Tim Bold	All the practical investigations required for the current GCSE specifications. You will have time to try the experiments, discuss approaches, and source apparatus. Feel free to sign up to this workshop in more than one session if you want to explore all the practicals in detail. <i>Ideal for technicians and teachers</i> Roger Rande is a School-based Physics Coach at County Upper School, Bury St Edmunds. Tim Bold is a School-based Physics Coach at Arthur Mellows Village College, Peterborough.

Workshop		Overview
I	<p>A-level Practicals KS5 Practical Workshop Robert Birke Sharron MacKenzie</p>	<p>We will explore some of the practical aspects of A-level physics. We will give you the opportunity to get hands on with the equipment to try out some of the A-Level Core Practicals. There will be an time to share good practice and investigate different approaches to some of the traditional experiments.</p> <p style="text-align: center;"><i>Ideal for technicians and teachers</i></p> <p>Robert Birke is a Teaching and Learning Coach working in North-East London & Essex.</p> <p>Sharron MacKenzie is a Teaching and Learning Coach working in Kent, Lead PGCE Science Tutor at Canterbury Christ Church University and runs non-specialist TSST training courses in Medway.</p>
J	<p>Activities for Teaching Energy KS3 – KS4 Practical Workshop Simon Poliakoff</p>	<p>This session will introduce some discussion and practical teaching activities that you can use with KS3 or GCSE students to teach ideas about energy using energy stores and transfers. There will be a brief discussion of the changes in language and approach that have been embedded into the new GCSEs but the bulk of the session will focus on trying the teaching and learning activities.</p> <p>Simon Poliakoff a School-based Physics Coach at Dame Alice Owens School, Hertfordshire and runs non-specialist TSST training courses.</p>
K	<p>Forces Explaining Motion KS3 – KS4 Practical Workshop Liz Hutchins</p>	<p>In this session we will be looking at ways of representing forces leading to a clearer understanding of balanced and unbalanced forces and how unbalanced forces lead to acceleration. We will consider alternative conceptions and ways to overcome them. We will use a motion sensor to create distance vs time graphs, study velocity vs time graphs and look at ways of building student confidence and understanding of Newton's Laws of Motion. A hands-on approach will be encouraged throughout, using a range of short experiments. This session is suitable for teachers of all specialisms and for technicians and anyone wishing to refresh their knowledge of basic forces topics.</p> <p style="text-align: center;"><i>Ideal for technicians and teachers</i></p> <p>Liz Hutchins is a Teaching and Learning Coach working in Kent.</p>

Workshop		Overview
L	<p>Embedding Isaac Physics</p> <p>KS4 – KS5</p> <p>Workshop</p> <p>Ally Davies</p>	<p>This session will focus on reducing your workload by using Isaac’s Skills Mastery materials: you’ll do some questions, we’ll talk about how best to use them, and embed them in your teaching.</p> <p>Bring a scheme of work (any GCSE or A level topic that includes calculating!) to embed Isaac in it.</p> <p>This session will assume familiarity with setting Isaac assignments; if necessary, please book a place on an online introduction to teaching with Isaac - isaacphysics.org/events?types=teacher,virtual</p> <p>Ally Davies is Teacher Support Manager for Isaac Physics and Physics Network Coordinator for Cambridgeshire.</p>
M	<p>Why Doesn’t it Work – problem solving circuits</p> <p>KS3 – KS5</p> <p>Practical Workshop</p> <p>Stephen Long</p>	<p>Students, teachers and technicians sometimes struggle with electric circuit experiments. This session will help you understand what goes wrong and help you know how to avoid problems and fix troublesome circuits.</p> <p><i>Ideal for technicians and teachers</i></p> <p>Stephen Long is a Teaching and Learning Coach working in Essex, and Hertfordshire.</p>
N	<p>Introduction to Electromagnetism</p> <p>KS3 – KS5</p> <p>Practical Workshop</p> <p>Alan Baugh</p>	<p>Starting with the simplest experiments and demonstrations, we’ll try to lay the foundations for a better understanding of the processes that underlie motors, generators and transformers. This is a predominantly practical based session.</p> <p><i>Ideal for technicians and teachers</i></p> <p>Alan Baugh is a Teaching and Learning Coach and regional manager of the Stimulating Physics Network.</p>
OO	<p>Tour of Engineering Department</p> <p>KS3 – KS5</p> <p>Tour</p> <p><i>DOUBLE SESSION</i></p> <p>Maria Kettle</p>	<p>This activity will show off Engineering as a creative, exciting and well paid career. It will provide an opportunity to find out about the diversity of the profession, the different kinds of workers that are needed and the pros and cons of the different routes into this field. See some of our world class research facilities and find out how the Department of Engineering at the University of Cambridge supports teachers.</p> <p><i>Ideal for technicians and teachers</i></p> <p>Maria Kettle is Outreach Officer for the Department of Engineering, University of Cambridge.</p>