



## Summer term...

Welcome back. This is an exciting time for teachers and ASE as we have our face-to-face conference on practical work in science, at Kinross High School, on **Saturday 11<sup>th</sup> June**. You will be able to attend sessions on inclusion in science; sustainability; practicals in biology, chemistry and physics; diversity; outdoor science, and much more. See the link or QR code, below, for further details.

The conference is in partnership with SSERC and we have a keynote speaker, Bruce Robertson – Rector of Berwickshire High School, who will be presenting *Power up your Pedagogy*. In recent years, Bruce has been in high demand as a consultant and conference presenter. He works closely with primary and secondary schools, keeping teaching and learning improvement at the centre of everything he does.

An electronic version of the programme handbook will be published on our new *ASE Scotland webpage*. The webpage will have a suite of resources catered at BGE and senior level; updated events in Scotland, and more.

For this term, there are more face-to-face events: SSERC is co-ordinating the *Nuffield Research Placement Programme* for S5 students, during the summer. *West of Scotland Meeting for Teachers of Chemistry* is hosting the second part of the 22<sup>nd</sup> annual meeting on **Friday 13<sup>th</sup> May**. On **Thursday 26<sup>th</sup> May**, IOP Scotland is presenting *Physics Teachers' Stirling Meeting*. The theme is energy and sustainability. The deadline for signing up to the Stirling Meeting is Wednesday 18<sup>th</sup> May.

In the newsletter, there is also a list of IOP and RSC videos, online courses and reports with videos on IOP Limit Less campaign. There are more ASE and SSERC events listed at the back of the newsletter.

Finally, if you have not signed up to ASE Scotland's conference, then scan the QR code or click on the link below. We look forward to seeing you at our face-to-face conference.

ASE Scotland Committee

Further details and the link to tickets can be found on the ASE Scotland Conference 2022 webpage at [www.ase.org.uk/events/ase-scotland-conference-2022](http://www.ase.org.uk/events/ase-scotland-conference-2022)



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# Scottish Annual Conference Programme

## 08:45 - 09:35 Registration, Exhibition and Welcome

### 09:35 Keynote: Power up your Pedagogy, Bruce Robertson, Berwickshire High School

#### 10:10 to 11:10

**Biology:** Taste, Laura-Alexandra Smith, Royal Society of Chemistry

**Chemistry:** Inclusion in Practical Work, Jane Essex, University of Strathclyde

**Physics:** Rocket Rodeo, Brian Redman, Institute of Physics

**General:** Freedom to Investigate, Jennie Hargreaves, Lockerbie Academy

**Primary 1:** Biodiversity and interdependence - using your outdoor space, Dr Susan Burr, PSQM

**Primary 2:** Lego Colorimetry, Nkki Penman, The High School of Glasgow

#### 11:10 to 11:40 Refreshments and Exhibition

#### 11:40 to 12:40

**Biology:** Practical biology for Advanced Higher - experiments to support key concepts, Jennifer Kennedy, Kinross High School

**Chemistry:** Practical Carousel - using different approaches to practicals, Stephen Hendry, RSC

**Physics:** Practical Ideas for Teaching Electrostatistics, Tim Browett, Institute of Physics

**General:** How do Scientists Think?, Stuart Farmer, Institute of Physics

**Primary 1:** Developing a "Can Do" Science Cluster, Lauren McKecknie, Larbert High School

**Primary 2:** Marvelous Magnets, Brian Redman, Institute of Physics

#### 12:40 to 13:50 Lunch and Exhibition

#### 13:50 to 14:50

**Biology:** Go Bananas for Colorimetry, Annie McRobbie, SSERC

**Chemistry:** Pupil voice in sustainability matters: debunking fake news, Laura-Alexandra Smith, RSC

**Physics:** Preparing for Practical Electronics, Colin Oates, Kinross High School

**General:** Secondary Spotlight, Martha Gavan and Yashka Smith, TechFest

**Primary 1:** Jack and the beanstalk meets practical science investigations using recycled materials, Diane Molyneaux, Primary Science Specialist

**Primary 2:** Primary Spotlight, Laura Peden, Lucy Payne and Tracey Ellicot

#### 14:50 to 15:05 Tea Break

#### 15:05 to 16:05

**Biology:** Fresh Air Fridays and Windy Wednesdays, Sandra Buchan, Kemnay Academy

**Chemistry:** Mission Impossible, Peter Johnson, Kitchen Chemistry

**Physics:** Enhancing practical investigations with mobile devices, Martyn Crawshaw, Millburn Academy

**General:** STEM Academy, Ashifa Naseer, Larbert High School

**Primary 1:** Diversity in STEM education: escaping the primary classroom, John Cochrane, SSERC

**Primary 2:** Outdoor STEM: tried and tested activities, Elaine Arbuckle, Mearns Primary School  
**15:45** A Fossil Hunter's Tale - impact on primary teachers and their pupils, Mari-Clare Mitchell, Mearns Primary School

# IOP Stirling Physics Teachers Meeting 2022

Stirling Court Hotel

Thursday 26 May 2022

Energy and Sustainability

Stuart Farmer

Stuart is IOP Education Manager  
Scotland

Register at: <http://www.stirlingmeeting.org/registration>

Deadline- 18 May 2022



## Programme

09:15-10:00	<b>Registration, Refreshments, and Exhibition</b>
10:00-10:10	<b>Welcome:</b> Laura Thomas, <i>Chair of IOP Scotland</i>
10:10-10:40	<b>Fusion: power for the future</b> Declan Diver, <i>University of Glasgow</i>
10:40-11:10	<b>Careers in the Physics Classroom</b> Carol Davenport, <i>NUSTEM</i>
11:10-11:30	<b>Refreshments and Exhibition</b>
11:30-12:30	<b>The Physics of Climate Change</b> Allan Reid/Andrew Bailey, <i>IOP Scotland</i>
12:30-14:00	<b>Lunch and Exhibition</b>
14:00-14:30	<b>Heat pumps – the future of home heating</b> Jonathan Prescott, <i>Mitsubishi Electric (Living Environmental Systems Division)</i>
14:30-15:30	<b>Building the energy system of the future – one innovation at a time</b> Neil Kermode, <i>European Marine Energy Centre (EMEC) Ltd</i>
15:30-16:00	<b>Refreshments and Exhibition</b>

### **Fusion: power for the future**

*Declan Diver, University of Glasgow*

The UK STEP initiative: Spherical Tokamak for Energy Production will be the world's first prototype fusion power station, the natural evolution of the UK domestic fusion programme based on the unique device MAST-U; global progress on fusion owes much to the success of JET and the anticipated performance of its successor, ITER. At the time of writing, there is a real prospect that STEP will be located in Scotland. We will explore briefly the concept of a plasma and its extraordinary properties and applications (in medicine, biology, surface processing etc) before reviewing magnetic fusion progress to date, in anticipation of the first operational plasma in ITER and the outcome of the STEP siting process.

### **Careers in the Physics Classroom**

*Carol Davenport, NUSTEM, Northumbria University*

This workshop outlines the benefits for students of putting careers in your classroom and explores straightforward ways to include career ideas to enrich and support the teaching of curriculum content.

### **The Physics of Climate Change**

*Andrew Bailey and Allan Reid, Institute of Physics Scotland*

This talk, which includes several practical demonstrations of simple experiments on topics such as expansion, specific heat capacity and absorption of infrared, shows how some basic physics can help pupils' understanding of climate change.

### **Heat pumps – the future of home heating**

*Jonathan Prescott, Mitsubishi Electric (Living Environmental Systems Division)*

How heat pumps in residential settings can mitigate climate change and fuel poverty.

### **Building the energy system of the future one innovation at a time**

*Neil Kermod, Managing Director, European Marine Energy Centre (EMEC) Ltd*

EMEC is the world's leading test facility for wave and tidal energy converters and since 2005 has overseen the deployment of more marine energy technologies in the seas around Orkney than has been deployed at any other site in the world. EMEC is now also pioneering the development of a hydrogen economy in Orkney.

### **Exhibitions include:**

SSERC, Instruments Direct Services Ltd, djb microtech Ltd, Visions in Education, Bright Red Publishing, Andreson Scientific, WF Education Group (Timstar), JJM Electronics, IOP

# IOP CPD Videos

If you are not able to attend in person professional learning events, then it is possible to watch IOP CPD videos on a wide range of topics at a time and place of your choice.

Domains CPD videos – winner Teach Secondary Awards 2021 – best CPD resource

<https://spark.iop.org/iop-domains-physics-cpd-programme>



Details of future IOP online and in person professional learning events are available at TalkPhysics Events

<https://www.talkphysics.org/events/>



CPD videos for early career physics teachers (but suitable for others too)

<https://spark.iop.org/early-career-teaching-cpd-videos>



IOP Scotland Physics Coach online CLPL session recordings – a wide range of sessions relevant to the Scottish curriculum

<https://www.talkphysics.org/groups/iop-scotland-online-clpl/forum/topic/iop-scotland-online-clpl-links-to-session-recordings/>



# IOP Limit Less campaign – support young people to change the world

Support young people to change the world

<https://www.iop.org/strategy/limit-less>



Sign our petition to support young people to change the world

<https://campaign.iop.org/page/87075/petition/1>



Limit Less Report

<https://www.iop.org/sites/default/files/2020-11/IOP-Limit-Less-report-2020-Nov.pdf>



Teaching without limits - watch the video

<https://www.iop.org/strategy/limit-less/nurseries-schools/teaching-without-limits>



Teaching without limits - download the report

<https://www.iop.org/sites/default/files/2021-10/Limit-Less-Teaching-without-limits-Early-years-and-primary-schools-UK-Ireland.pdf>



<https://www.iop.org/sites/default/files/2021-10/Limit-Less-Teaching-without-limits-Secondary-schools-in-Scotland.pdf>



# The Learned Society on Scottish STEM Education (LSG)

Dr Susan Burr

The Learned Societies Group, which ASE is represented on 7<sup>th</sup> April by Tess Watson and Susie Burr, meets to discuss issues that are relevant to Science Education in Scotland. Recently the group has been involved in providing a response to Professor Ken Muir's consultation, the report ***Putting Learners at the Centre: towards a future vision for Scottish Education*** was published in March 2022

The LSG at its last meeting, in April, discussed Professor Muir's report into the proposed replacement of SQA, the reform of Education Scotland and the Scottish Government's response. The group discussed the next steps in engaging with the reform agenda both proactively and reactively.

Other work includes:

- working with the RSE education group looking at the future of examinations
- developing a response to the outcomes and performance of the STEM Education and Training Strategy and to identify areas for further improvement. A meeting is due to be held on 11<sup>th</sup> May.
- discussion of the proposal by PSTT to develop a primary science enhancement award for ITE.

We also had a presentation from Professor Niamh Nic Daéid - Chair of the RSE post covid-19 Futures commission's data, evidence and science working group - to consider working with Education Scotland to develop a new science programme similar to Canada's *Lets Talk Science*. This programme aims to enhance the ability of young people to access and engage with evidence and data.

Stuart Farmer also reported on Subject Matters programme. This work aims to support subject specific professional learning: see the report in previous newsletter.

As a result of these discussions and the proposed changes to Scottish Education, a number of projects were suggested for possible follow up:

- \* Status of practical science
- \* Progression pathways through FE
- \* Scientific practice and ethics in schools
- \* STEM training for primary school teachers in ITE.

Our next meeting is 28th June.

**April – July: Teacher CLPL Sessions (live)**

 Link - <https://edu.rsc.org/events/april-july-teacher-support-sessions-live/4015383.article>

See timetable below:


**Education**  
 Inspiring your teaching and learning

**Teacher support sessions**

	Short version 12:30–1pm	Full interactive version 4–5pm
How to implement evidence-based practice in your classroom	Thurs 28 April	Tues 26 April
Atoms, elements and compounds	Tues 3 May	Thurs 5 May
Burning questions – teaching fuels for pre-16	Thurs 12 May	Tues 10 May
Smartphone Spectroscopy	Tues 17 May	Thurs 19 May
How to make a big difference with microscale chemistry	Thurs 26 May	Tues 24 May
Electrolysis: Tackling a tricky topic	Tues 7 June	Thurs 9 June
Menacing Moles and Scary Standard Form	Thurs 16 June	Tues 14 June
Future fashions – the chemistry of clothing	Tues 21 June	Thurs 23 June
Online Simulations	Thurs 30 June	Tues 28 June
ASN/SEND/AEN – Supporting all learners with practicals	Tues 5 July	Thurs 7 July

**Online professional development for teachers**

Our courses are designed to give you an in-depth understanding of key concepts in teaching chemistry. Each course can be completed at your own pace, giving you time to try out new strategies and activities in your classroom before progressing further.

We've made all online on-demand PD courses free until 31 August 2022, inclusive.


 Link - <https://edu.rsc.org/teacher-pd/on-demand-online-courses>
**RSC Excellence in Education prizes 2022 – nominations open on 6 April 2022**

Our Excellence in Education Prizes celebrate educators in primary, secondary, further education and higher education – including, teachers, technicians and more. These prizes recognise a wide range of skills – from curriculum design to effective teaching, and from personal development to working culture. There are specific prizes for teams and for those in the early stages of their career.

 Link - <https://www.rsc.org/prizes-funding/prizes/>




**22<sup>nd</sup> ANNUAL WEST OF SCOTLAND MEETING FOR Teachers of Chemistry**  
**Fri. 13 th May 2022 University of Strathclyde**

The West of Scotland Meeting for Teachers of Chemistry, chaired by Dr Patrick Thomson and hosted at the University of Strathclyde each year provides professional updates with direct relevance to the chemistry curriculum and explores current research areas to ensure teachers are kept up to date.

In 2022, the theoretical component of the meeting ran online on Wednesday 13th January 2022, mainly a discussion about resuming practical work. A recording of that meeting is available on our website or by visiting this link. The remaining portion of the 22nd annual meeting, in-person practical CLPL, will run on Friday 13th May 2022.

For over ten years, our meeting has included a hands-on practical session and this year we have expanded this to fill both morning and afternoon sessions, showcasing several of our most popular Advanced Higher practical experiments. You will have the opportunity to gain a day of hands-on experience by running through each of our experiments in our state-of-the-art teaching lab.

Throughout the entire day, you will have the opportunity to tour our buildings and speak to university teaching and research staff about our activities, and how your pupils could get involved.

**Programme**

09:00-10:00      Registration and Refreshments

Chair: Dr Patrick Thomson

**MORNING SESSION**

Into The Lab: Advanced Higher Practical investigations

Lunch (& departmental tours)

**AFTERNOON SESSION**

Into The Lab: Advanced Higher Practical investigations

14:30 Close



## Access and Registration

The venue for this meeting is the Department of Pure and Applied Chemistry in the Thomas Graham Building at the University of Strathclyde. Registration will be in the foyer of this building.

The accessible entrance is through the east entrance on Cathedral Street (to the left of the main entrance).

There is no parking available at the venue, therefore public transport is recommended. Queen Street railway station and Buchanan Street bus station are a five minute walk from the venue.

There are a number of public car parks in the area; the two closest are the NCP on Montrose Street and the Buchanan Galleries.

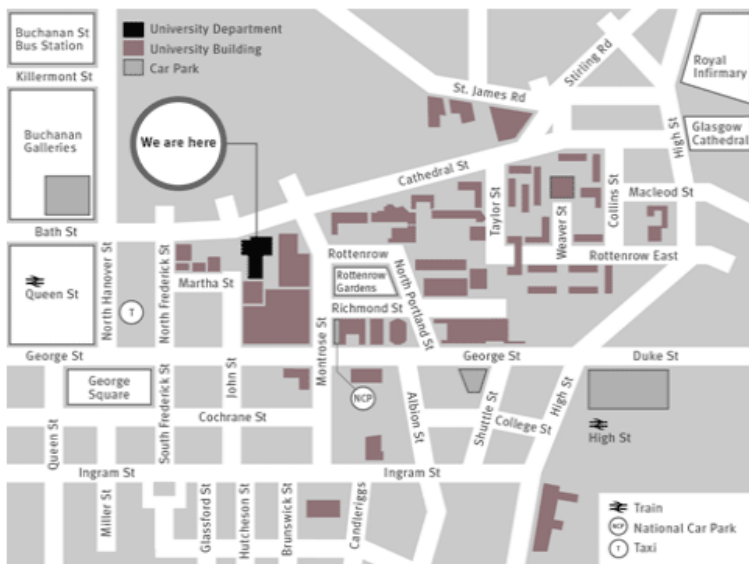
A fee of £20 covers lab expenses, and also includes lunch and morning refreshments.

To register, visit our online shop portal at:

<https://tinyurl.com/woschem22>



If you are unable to use this shop to register, please contact the team by email at [chemistry-teacherscpd@strath.ac.uk](mailto:chemistry-teacherscpd@strath.ac.uk)



### Department of Pure And Applied Chemistry

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<https://www.strath.ac.uk/science/chemistry/teachers/woschem/>

## SSERC Leading the way - Nuffield Placement Programme

Euan Mitchell

SSERC co-ordinates the Nuffield Research Placement Programme in Scotland and is delighted that placements for 2022 will be face to face, after 2 years of online. S5 students will undertake research projects in Universities and Industry across Scotland during the summer and then produce a report and poster to document their experience.

The [Evaluation of the 2021 Nuffield Research Placements Cycle](#) report has now been released.



Students who took part in last year's cycle found the experience really valuable, with 98% finding that their experience had supported their higher education or job applications and 93% saying they would recommend it to other students. *"I was a real researcher carrying out valuable research. I was able to do so many new things and widen my knowledge of topics I had previous knowledge of."* Find out more about the report [here](#).

If you are interested in student placements, or an educational institute or employer looking to host a placement, please get in touch – [nuffieldresearchplacements@sserc.scot](mailto:nuffieldresearchplacements@sserc.scot)



## Professional learning at SSERC.

### [Secondary Science](#)



Last few places available for the [Chemistry Microscale Summer school](#) and [Biology Summer school](#). These courses are ENTHUSE funded and as such bursaries are provided back to schools from STEM Learning upon completion of the course. Follow the professional learning link to book your place. If you are interested in these events after the closing date has passed, then please get in touch at [enquiries@sserc.scot](mailto:enquiries@sserc.scot) using the course title as the subject line.

### [Early Years and Primary](#)



The Early Years and Primary professional learning calendar will be populated with a huge variety of courses by Friday 6<sup>th</sup> May. Follow this link to book your places on our SSERC Meets (that come at no cost to the school), ENTHUSE funded courses and day courses. For more information get in touch [primary@sserc.scot](mailto:primary@sserc.scot)

### [Digital](#)

Our Digital Skills and Computing Science professional learning will be updated by the 6<sup>th</sup> May for the coming new academic year. Follow the link and book your places on our ENTHUSE funded courses, day courses and so much more.

Remember all local authorities pay an annual membership to SSERC and as such all our services are free for you to access. Make sure you have [registered](#) yourself on our website to gain access to our bulletins, health and safety guidance, professional learning opportunities and so much more.



# Professional Learning Calendar

The SSERC professional learning calendar is open for application and can be found here for all educators from early years practitioners.  
<https://www.sserc.org.uk/professional-learning/calendar/>



Below is a list of workshops for technicians and educators for the rest of 2022.

- 11<sup>th</sup> – 12<sup>th</sup> May:** Introductory Physics
- 19<sup>th</sup> May:** SSERC Meet – Practical Probationers
- 25<sup>th</sup> – 27<sup>th</sup> May:** IOP Scotland/SSERC Physics Teachers' Summer School
- 26<sup>th</sup> May:** Royal Society of Biology Annual Teachers' Meeting
- 1<sup>st</sup> June:** Science for Secondary Probationers Cohort 2 Day 2
- 8<sup>th</sup> – 9<sup>th</sup> June:** Intermediate Physics
- 21<sup>st</sup> June:** Biology Summer School
- 25<sup>th</sup> August:** Working with Radioactive Sources
- 31<sup>st</sup> August:** Physics Blended Professional Learning
- 6<sup>th</sup> September:** Chemical Handling
- 7<sup>th</sup> September:** Physics Blended Professional Learning
- 8<sup>th</sup> September:** SSERC Meet – YSL in the Science Classroom
- 14<sup>th</sup> September:** Physics Blended Professional Learning
- 15<sup>th</sup> September:** Support for Practical Activities in Advanced Higher Physics
- 20<sup>th</sup> September:** Environmental Science
- 21<sup>st</sup> September:** Physics Blended Professional Learning
- 28<sup>th</sup> September:** Physics Blended Professional Learning
- 4<sup>th</sup> October:** Science for Secondary Probationers Cohort 1
- 25<sup>th</sup> – 27<sup>th</sup> October:** Investigations for Advanced Higher Biology
- 2<sup>nd</sup> – 3<sup>rd</sup> November:** Introductory Physics
- 8<sup>th</sup> – 10<sup>th</sup> November:** Safety in Microbiology for Schools
- 10<sup>th</sup> – 11<sup>th</sup> November:** Technology Probationers Residential
- 23<sup>rd</sup> November:** Laboratory Science National 5
- 2<sup>nd</sup> December:** Science for Secondary Probationers Cohort 2
- 9<sup>th</sup> December:** Physics Blended Professional Learning
- 10<sup>th</sup> December:** Physics Blended Professional Learning
- 13<sup>th</sup> December:** Science for Secondary Probationers Cohort 3

# Professional Learning

## **ASE: Practical Chemistry for Technicians Online**

05 May 2022

<https://www.ase.org.uk/events/ase-practical-chemistry-technicians-online-0>



## **ASE: Practical Biology for Technicians Online**

12 May 2022

<https://www.ase.org.uk/events/ase-practical-biology-technicians-online-2>



## **ASE: Practical Physics for Technicians Online**

19 May 2022

<https://www.ase.org.uk/events/ase-practical-physics-technicians-online-0>



## **ITT Core Content Framework - messages for Science Educators**

19 May 2022

<https://www.ase.org.uk/events/itt-core-content-framework-messages-science-educators>



## **ASE Scotland Conference 2022**

11 June 2022

<https://www.ase.org.uk/events/ase-scotland-conference-2022>



## **ASE Futures Conference 2022**

07 July 2022 - 08 July 2022

<https://www.ase.org.uk/events/ase-futures-conference-2022>



## **ASE Annual Conference 2023 at Sheffield Hallam University**

05 January 2023 - 07 January 2023

<https://www.ase.org.uk/events/ase-annual-conference-2023-sheffield-hallam-university>



## Membership <https://www.ase.org.uk/membership>

From organising local events to influencing national policy, the ASE works for teachers and educators like you to help develop your skills, your career and your professional recognition. A selection of the many benefits you'll enjoy as an ASE member include:

- *Access to thousands of curated teaching and CPD resources*
- *Subscriptions to influential, sector-leading journals and publications*
- *Inclusive public liability insurance cover up to the value of £10m*
- *Numerous CPD opportunities - both face-to-face at events and, now, in the online arena*
- *Professional registration opportunities to enhance your education credentials*
- *Opportunities to have your say and help shape the science education sector through our advocacy work*

You can find a more complete description of the benefits of joining the ASE - broken down into categories: **Primary Membership**; **Secondary and Colleges Membership**, and **Trainee and Early Career Membership**.



## Professional Registration

The ASE is licensed by the Science Council to manage professional awards, which recognise excellence for practitioners in science education:

- **RSci** (Registered Scientist Award), which benefits all those concerned with science teaching as a profession;



<https://www.ase.org.uk/rsci>

- **RSciTech** (Registered Science Technician Award), which benefits all those concerned with science education, and



<https://www.ase.org.uk/rscitech>

- **CSciTech** (Chartered Science Teacher Award), which benefits all those concerned with science teaching as a profession.



<https://www.ase.org.uk/cscitech>

These can be awarded to eligible members. If you are not yet a member of ASE, you can click on the above QR code, that applies to you, in the membership section.