sserc

Annual report 2023

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Overview

Chair introduction

I was delighted to be asked, and then elected, to take on the role of Interim Chair of the SSERC Board of Directors and Trustees, a role that I will take seriously in the knowledge and witness of the incredible impact that the organisation plays in supporting STEM education in Scotland. On behalf of the Board, I would like to thank the out-going Chair, Alan Nimmo, for his contribution to the life and work of SSERC, both as a Director and subsequently Chair.

I look forward to working with the rest of the Board to continue to drive forward the changes that he and the new CEO envisaged for the organisation in 2017 when they established a strategic vision for the organisation to be achieved by 2030, underpinned by eight workstreams. Such has been the progress across all workstreams, the Board took the opportunity to further revise and review, the outcome of which is shown opposite.

The Board will continue to monitor the organisation's progress across all workstreams and provide constructive challenges when required to ensure that SSERC continues to deliver to meet the needs of the members and stakeholders it represents.

This Annual Report showcases and highlights the excellent work that SSERC does to support the STEM education community in Scotland. It may be a small organisation, but its reach is Scotland-wide, its scope of activity is diverse (and increasing), and its reputation for excellence is second to none. At this time of significant educational change, it is a privilege to Chair an organisation that can evidence impact and value for money whilst making a positive contribution to the education community. Of course, all of this could not be achieved without the support of a highly motivated, experienced and dedicated team at SSERC, the ongoing support of our members and the continued support of our main funders, who are identified later in this report.

Despite the current cost of living crisis, the organisation continues to offer its members fantastic value for money. The organisation's sterling reputation supports inward investment from other organisations, which helps to support the work we do, ultimately benefiting practitioners and learners in Scotland.

Alistair Wylie - Interim Chair of SSERC Board of Directors and Trustees

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Message from the CEO

The financial year 2022/2023 is one in which the pandemic played less of a significant role, to some extent replaced by the cost-of-living crisis that continues to impact the lives of businesses, families, and individuals.

The move to business activity post-pandemic allowed the organisation to refocus and replan priorities required to achieve the ambitions set out by the SSERC Board of Directors and Trustees (the Board) in the workstreams associated with its Vision for 2030 that 'SSERC is internationally recognised as a centre of excellence for STEM learning and support'.

There continues to be a wide range of views on the nature and purpose of practical work. SSERC recognises the educational value of practical work and believes it should constitute a significant proportion of a learner's time when undertaking a STEM-based curriculum.

We believe that practical work serves the following purposes:

- to motivate and engage learners:
- to teach the principles of STEM inquiry;
- to develop specialist skills, e.g. measurement, observation;
- to underpin the theory through practical skills;
- to develop other skills and attributes such as communication, teamwork, and creative thinking.

Practical work has undoubtedly been a casualty of the pandemic. SSERC continues to work with others to ensure that practical work remains crucial to STEM-based education in Scotland. The impact of the pandemic on learners has been well documented, and steps within the wider 'system' have been taken in response. Likewise, as an organisation, we have taken steps to support further those who might have been impacted, particularly newly qualified and early career teachers.

Guidance from 'others' during the pandemic that science and technology subjects were not 'practical' did mean that those dedicated professionals who had committed themselves to commence a career in STEM teaching were not able to undertake practical work with learners, and so perhaps undermined their self-confidence relating to delivering practical work to learners, post-pandemic. In response, we have prioritised professional learning support for newly qualified and early-career teachers so the loss of in-school experience does not disadvantage them and supports them to build resilience and creativity in their approach to delivering in-class practical activities.

When I came into the post as CEO, I indicated that SSERC would continue to support the school and college STEM technician profession.

The role of the school (STEM) technician in many Local Authorities and secondary schools has been poorly considered to date. This has impeded opportunities to offer essential practical work support for STEM teachers, including newly qualified and early-career teachers.

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Although the school technicians' expertise has been externally recognised by SSERC, the technician's profile and professionalism have been underrated and unacknowledged by others. This poor regard is frustrating and may also have prevented training and mutually beneficial progression of the role. An untapped pool of knowledge and skills exists that could be further utilised and developed to support practical work. SSERC will continue to support the professional development opportunities for this crucial sector of the STEM education community in Scotland and work with the profession to raise its profile further.

It would be naive to think that the cost-of-living crisis and the residual fallout of the pandemic would not continue to have an influence on the work of the organisation across its three core functions:

Professional Learning
The Advisory Service
STEM Engagement

However, I am proud of what the organisation achieved, as highlighted in the subsequent sections of this Annual Report. At a time when the education landscape is subject to significant review and change: the 'replacement' of SQA and Education Scotland and the recommendations of various reports, including the Hayward and Withers reviews; it is an honour to lead a proactive organisation that adapts to the changing environment and where its credibility within the STEM education landscape across the UK leads to effective partnerships and contracts that will ultimately benefit education practitioners and learners in Scotland.

Alastair MacGregor

Alastair MacGregor - Chief Executive Officer

Corporate activity

The SSERC Board of Directors and Trustees (the Board)

The Board primarily is responsible for the following:
- Determining the company's strategic objectives and policies.
- Monitoring progress towards achieving the objectives and policies.
- Appointing senior management.
- Accounting for the company's activities to relevant parties, e.g. members, grant funders.

It meets quarterly to carry out its functions. Information about the current Board can be found at SSERC.

Board committees represent an essential part of the corporate governance process and each has clear reporting procedures and scope. These are smaller groups of Directors/Trustees who advise the Board on a specific area of operations.

The Board has three sub-committees:
- Audit and Risk Management Committee – overview of corporate risks and audit processes.
- Nominations Committee - Board, CEO and Executive Director appointments.
- Staffing and Remuneration Committee – annual staffing review, remuneration of SMT.

Following engagement with members, the Board took the opportunity to amend the Articles of Association that govern the structure and operation of the organisation. **The main changes are:**
- A new classification of Directors:
  - Elected Directors (MPs, MSPs and Councillors)
  - Non-Elected Directors.
- Specific terms of office for each Director type (in essence, five years unless, for an Elected Director, there is for example, a by-election etc.).
- Detail re options for extending a Director's term of office.

During this reporting period, we welcomed five new Board members and said goodbye to four, including Cllr Alan Nimmo (Chair) and Clare Adamson MSP (Vice Chair); both served their time on the Board with enthusiasm and dedication. We were delighted that Alistair Wylie was nominated and elected as interim Chair of the Board. A position he will fill for a minimum of six Board meetings.

Our total staffing complement at the end of this reporting period was 37. For more information about our current team, go to SSERC.

Gregor Steel commenced his formal retirement from SSERC on the 1st of March, 2023, after 16 years of service. Whilst we wish him a great retirement, we are pleased to retain his services as our Radiological Protection Support Advisor.

As part of our commitment to equality, diversity and inclusion (EDI), we analyse our staffing complement and delegate participation in SSERC professional learning activities.

The reason for capturing this data is to give us a picture of the diversity of staff and delegates we serve and inform our policies and practices, thus influencing our culture. Our 2022/2023 delegate EDI data can be found at Equality, Diversity and Inclusion.

The SSERC portfolio of products and services continues to expand and develop. As well as managing UK contracts in Scotland (see the STEM Engagement section of this report), we have our own dedicated offerings:

Scottish STEM Placement Programme

Scottish STEM Placement Programme
Technician Education

Scottish STEM Placement Programme
Teacher Education

Scottish STEM Placement Programme
Learner Research

Education sserc Industry
PARTNERSHIPS

Leadership in STEM Education

Leadership in Technical Support

YOUNGSTEM leader led by sserc

STAC
Scottish Technicians' Advisory Council

sserc ONLINE LEARNING

sserc TV

Looking forward

Our newest Board member, Kaukab Stewart MSP, joined the Board in May 2023. We will be welcoming an additional five new members to the Board in June 2023.

Environmental sustainability

Given the geographic spread of Board members, meetings are usually conducted online, so reducing the need to travel, and all associated Board papers are issued digitally.

Professional Learning

Aim
To increase the breadth and impact of the professional learning offering.

Early Years and Primary incorporating Digital Skills and Computing Science

The Early Years and Primary team have provided professional learning courses for the following groups from April 2022–March 2023:

- Early Years Practitioners
- Nursery Teachers
- Primary School Teachers
- ASN Teachers (supporting early – second CfE levels)

Engagement from Early Years Practitioners and Primary Teachers throughout this year demonstrates the requirement for new STEM ideas and activities. The professional learning opportunities provided have supported educators to develop learners' critical thinking, curiosity, problem solving and creativity skills, in preparation for future academic and career success in an increasingly STEM-focused world.

Professional learning delivered:

- Primary Cluster Programme (PCP) 2022/2023
- Open SSERC Meets
- Courses supported by STEM Learning
- Early Level STEM Days

1755
Total numbers of training days

"The recent STEM questionnaire results have shown how PCP has truly made a difference in staff members' confidence in science. Through engaging training sessions, interactive workshops, and expert guidance, the programme has equipped us with valuable knowledge and skills, leading to a noticeable increase in our confidence levels. Personally, I have felt a significant boost in my own confidence and enthusiasm for scientific exploration. PCP has not only improved my professional growth but has also fostered a culture of continuous learning within our school and cluster."

"I have become so much more confident in my teaching of STEM but also in my leadership within my school. I am looking forward to continuing to lead STEM in my school next year and keep a close network with my cluster schools."

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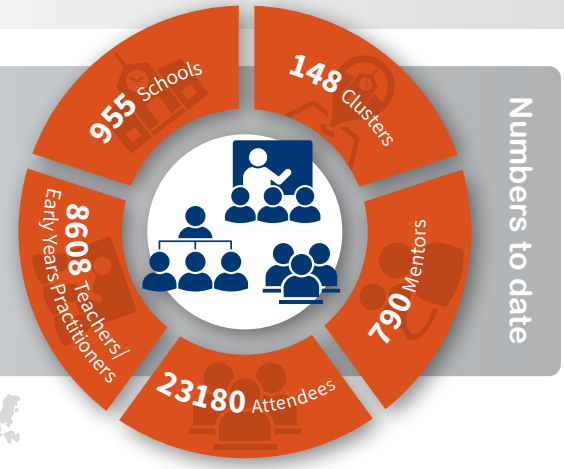
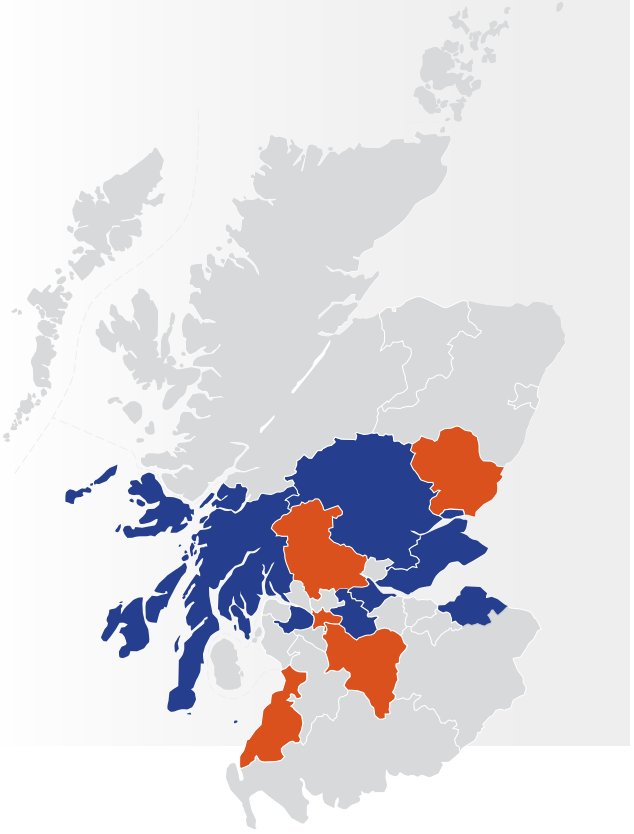
Primary Cluster Programme

PCP continues to focus on hands-on experiential professional learning, supporting Early Years Practitioners and Primary Teachers in selected authorities across the country, to improve knowledge, confidence, and expertise in the delivery of STEM.



LAs involved in the PCP

- LAs involved in the PCP 2022/2023
- PCP - new LAs beginning PCP 2023/2024



PCP has always been a blended professional learning opportunity, combining face-to-face residential activity at SSERC HQ and remote learning opportunities.

A proactive, flexible, and creative approach has allowed SSERC to continue to reach as many staff as possible with impactful professional learning opportunities, during another challenging year in our schools.

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SSERC Meets

A SSERC Meet is a live online remote twilight session providing STEM professional learning, at little or no cost to education settings funded by the Edina Trust and Scottish Government. Settings receive a resource kit to support the session, containing enough resources for multiple practitioners to take part in a range of practical STEM activities, as well as being provided access to other supportive online materials.

- **Zoom In, Zoom Out** – demonstrating the Explorify online resource, how to effectively use hand lenses, digital microscopes and other magnifiers to investigate the microscopic world and linking this to Science Enquiry questioning.
- **Teddy in the Park** – a storyline approach to a series of activities to help the characters solve problems. Investigating properties of materials as well as solving a crime.
- **Christmas STEM** – making STEM Christmas decorations while investigating chromatography, dissolving and evaporation to make crystal candy canes, understanding CO_2 to make bells in liquid.
- **Making Nature a Home** – looking at environmental sustainability as well as utilising playground and outdoor areas to build habitats to encourage more insects to this space.
- **Modelling the Solar System** – a SSERC Meet in partnership with the Royal Observatory of Edinburgh. Investigating meteors, the solar system and space. Making excellent links across CfE.
- **Deep Space Discovery** – a SSERC Meet in partnership with the Royal Observatory of Edinburgh. Demonstrating the Deep Space Diaries resource.

SSERC Meet figures 2022/2023

299
training days were delivered digitally via open interactive SSERC Meets.

27
different LAs covered through the open SSERC Meets.

210
schools supported with resources for up to 10 staff to take part in the live sessions.

797
delegates have attended these SSERC Meets.

"I think the opportunity to participate in professional development like this is amazing. Bringing science to life in the classroom in a clear and easy to follow step by step instructions. It has really supported building my confidence in this area of the curriculum, thank you very much for the opportunity, invaluable."

Open courses

- **Sustainable STEM** – investigating Learning for Sustainability, backyard biodiversity including worms, composting and encouraging wildlife, materials and recycling as well as ocean plastics and engineering a solution.
- **STEM Challenges for First and Second Level** – working through a series of engineering challenges across first and second levels linking these to world contexts and careers.
- **Early Level STEM days** – 2 separate days at SSERC covering a variety of activities and ideas for taking back to early years settings. Including woodworking and make-do, ice, water and sensory activities, unplugged computing science, outdoor learning and so much more.

Open Course figures 2022/2023

124
training days

22
different LAs attended

"I have thoroughly enjoyed being part of such a well-run programme. The most impactful CLPLs I have done."

Other activity

Great Science Share for Schools (GSSfS)
SSERC continue for the 3rd year as GSSfS regional champion, the only champion in Scotland. Each year this project has reached more settings pan Scotland and we are excited to engage with even more this year. https://www.greatscienceshare.org/ - home22

3,802 organisations and schools across 31 countries reaching 512,720 young people.

Engineering Educates

SSERC is the Engineering Educates Champion for Scotland, in partnership with SEERIH (University of Manchester). The Engineering Educates Farmvention Challenge promotes engineering through the context of farming across primary and secondary schools. Engineering Educates has allowed the Early Years and Primary team to work collaboratively with the STEM Ambassador team at SSERC to link STEM Ambassadors in engineering roles with schools. We have also worked with RHET to share Scottish farming resources and offer opportunities for schools to link with local farmers. https://www.engineeringeducates.org/

SIGN·UP

102
sign-ups from
79
educational settings
across Scotland

9
schools
(circa 200 learners)
attended a live online
celebration event

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Looking forward

- Continue to include LfS links within all our professional learning courses and workshops.
- Making Developing the Young Workforce (DYW) links within all our professional learning sessions and incorporating SSERC's STEM engagement team.
- Developing and launching context planners to go along with all SSERC Meets activity.
- Launching a new course 'Wearable Technology' linking computing science, design, history of textiles as well as highlighting a P7 to S1 transition IDL context.
- Developing workshop materials for the new Inspiring a Sustainable Approach to STEM course. This is a replacement for the current Primary Cluster Programme.

Environmental sustainability

- Replacement of single-use plastics and polystyrene for biodegradable alternatives (vegware cups, wooden spoons and sugar beat boxes).
- When single-use plastics are used, these are rinsed and re-used multiple times.
- All courses include activities that have very low (or zero) cost, utilising equipment generally available in early years settings and primary schools, e.g., recycled materials, cardboard, yoghurt pots and empty drinks cans.
- We show how the resources provided at all courses can be used in a variety of ways, thus promoting its multipurpose versatility and use.
- Moving away from Sellotape to paper tape whenever possible.
- Themes of LfS are incorporated into activity sessions, highlighting opportunities for outdoor learning.
- Resources and presentations shared digitally therefore reducing printer costs.

Leadership in STEM Education

In September 2022 the Early Years and Primary team at SSERC launched the newly developed Leadership in STEM Early Years and Primary Education course - representing a significant addition to our list of professional learning offers for educators in Scotland.

This course provides our delegates with the platform to build their knowledge, skills and professional abilities to develop experience as leaders of STEM in their respective settings.

Aligned to the GTCS standards for career-long professional learning and middle leadership means the content and learning is set at SCQF Level 11.

- ✓ Developing academic writing skills and engaging with publications at Masters Level.
- ✓ Exploring key current educational policies in STEM and measuring their impact.
- ✓ Carrying out self-evaluation and improvement activities in their centre.
- ✓ Developing and understanding management and leadership skills, theory and practice.
- ✓ Analysing their own leadership skills and potential through the views of themselves and others.
- ✓ Investigating the range of STEM engagement opportunities that exist in Scotland and how they can impact and enhance the learner journey.
- ✓ Completing a professional enquiry on a key area relevant to their setting.

with input from:

- GTCS
- Education Scotland
- Skills Development Scotland
- Strathclyde and Stirling Universities
- Experts and consultants in leadership and management strategies
- Organisations that support STEM education

"Excellent delivery and experience, hugely beneficial to all aspects of practice and leadership."

The four Primary teachers involved successfully completed the course to a high standard, being externally assessed by a partnered University.

Digital Skills and Computing Science

Digital Skills and Computing Science are essential in all early years and primary settings to equip learners with the tools they need to thrive in an increasingly digital world. Educators need to foster skills such as critical thinking, problem solving and creativity to enable all learners to become active participants in the digital age. SSERC has shown innovative ways to integrate digital skills and computing science early on in learners' journeys to help bridge the digital gap, ensuring equal opportunities for all learners, while empowering teachers with the skills to prepare their learners for future academic and career success.

The digital skills and computing science professional learning (PL) delivered this year has been attended by educators across 18 different local authorities.

PL courses delivered
VEX Go
Meet micro:bit V2
Introducing indi
Let's Play @ Computing Science

Each of the sessions, shown on the left, were duplicated multiple times over the course of the year being supported through funding from STEM Learning. This support means that the educators that attended the courses left with resources to replicate the sessions and activities back in their settings.

"It has made me confident in being able to deliver meaningful lessons in STEM subjects to the children that then achieve the curriculum outcomes.

I really enjoyed both sessions but the in person one the most. I loved hearing about indi and found the possibilities endless. I left with new skills and more confident. The course tutor was fantastic, not only knowledgeable but the course was delivered in a relaxed and humorous way."

Additional bespoke PL delivered

Glasgow Early years working group – request to deliver 2 full days of computing science training for the LA Early Years working group. One day in SSERC HQ and one day centrally in Glasgow.

Micro:bit champion sessions delivered to PCP mentors, primary school teachers, technicians and secondary school teachers.

PSDO Digital day – request from RAiSE National Education Officer to deliver a full day of computing science to all the Primary Science Development Officers (PSDO) at SSERC HQ.

Kinross Primary Digital Workshops – a full day organised through Perth & Kinross Digital Officers to work with all staff on computing science skills and demonstrating resources that support these skills.

Education Expo in partnership with Vex Robotics – sessions delivered on 2 consecutive days at the Expo event with VEX Robotics demonstrating the functionality and usability of their VEX Go resources.

Apple RTC (in partnership with Fife Digital education officer) - planned, developed and delivered 3 sessions on iPads 'Everyone Can Create Photo and Video'. These sessions were attended by teachers in the local area to SSERC HQ.

480 training days covered across all delivered.

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"This has had a huge impact for me because prior to this course I had no prior experience of computing science or coding. I now have more knowledge and skills that I can then share with colleagues and help others who do not feel confident in this to be able to deliver lessons to their classes. I now have an enhanced understanding of the resource and can use this to develop planning and assessment for teaching and learning. Participating in the PL also demonstrates the benefits of learning communities. The PL has given me the experience and knowledge to plan effectively for learners but also how to lead and support colleagues to do the same.

"This course has helped to deepen my knowledge and understanding around the Computing Science experiences and outcomes. A subject I once lacked confidence in delivering/supporting others in, I now feel much more equipped to advise and refer staff to appropriate resources to help."

Partnerships

Strategic partnerships with Sphero, VEX Robotics and Robotical have continued to grow over the past 12 months with plans to develop and deliver further courses in partnership with these organisations are being progressed for 2023-2024.

Sway resources accessed linked to PL

Let's Play @ CS	Meet micro:bit V2	VEX GO
Unplugged & Outdoor CS - 293 views	Let's Get Started - 184 views	Welcome to VEX GO - 184 views
Code & Go Mouse - 141 views	Keep It Simple - 84 views	Build It. Power It. Code It - 141 views
Botley 2.0 - 108 views	Get Creative - 81 views	The Next Level - 65 views

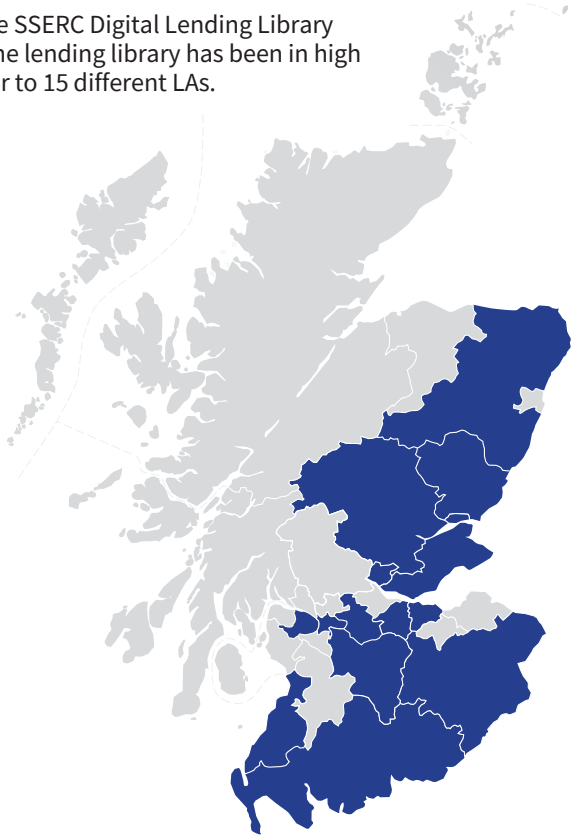
Digital Loan kit access

As the academic year ends, we have been looking at the SSERC Digital Lending Library and collating the evidence from our feedback forms. The lending library has been in high demand with 32 kits being sent out throughout the year to 15 different LAs.

Number of early years settings & schools supported and numbers of LA's

32
Schools

15
Local Authorities



"I am known to be a bit of a dinosaur with technology and was petrified at the thought of taking this on. However, I have absolutely loved it. I have grown in confidence; my lessons have improved, and I can now link areas across the curriculum through my STEM activities. I never thought I could share my knowledge on this subject with my colleagues!"

Looking forward

VEX123 – this new development will introduce delegates to the newest of the VEX resources for early and first CfE levels. The course content will involve the touch controls on the robot itself to gain knowledge and skills in sequencing, logic and problem solving. Progressing them onto coding cards before finishing on drag and drop coding.

Sphero BOLT – introductory course will provide the foundations for using Sphero Bolt in your setting, covering all the basic functions of the Bolt and how to embed Computing Science concepts and approaches into your teaching.

Make Do (incorporating micro:bit V2) – this course will incorporate engineering, computing science and digital skills. Providing the opportunity to create using the Make Do kit before then including sensors, sounds and lights.

Everyone Can Create Music (Apple Reginal Training Centre) – Looking at how educators can use the iPad to create music with their learners.

Everyone Can Code (Apple Reginal Training Centre) – showing simple ways that teachers and practitioners can use the iPad to teach simple coding to their learners.

Environmental sustainability

- All robotic devices use rechargeable batteries (when one is not integrated in the device) to reduce battery use and disposal.
- Cardboard boxes are used for shipping the loan resources out to schools, with the same box being used to return the equipment to SSERC.
- No print outs in workshop sessions, all presentations and resources are shared digitally through the Microsoft Team created for each course.

Secondary

Our professional learning offering supports education practitioners across the 3-18 STEM curriculum. Our focus continues to be on providing creative and innovative professional development opportunities that offer hands-on, experiential learning, which embeds essential health and safety considerations. As a GTCS-accredited organisation, we map our professional learning to the appropriate professional standards whilst taking cognisance of other key educational drivers, such as the Career Education Standards and Learning for Sustainability.

In the financial year 2022/2023, whilst we continued to offer professional learning to all education practitioners, we prioritised support for newly qualified teachers (NQTs) and early career teachers (ECTs) who, in relation to practical STEM based curricular experience, may have been negatively impacted by the pandemic.

From April 2022 - March 2023 the Secondary Education Team delivered

- **7314** hours of combined professional learning
- **1462.7** CPD units achieved
- **874** Delegates
- **724** Teachers
- **23** Technicians
- **119** NQTs
- **8** other delegates including STEM Ambassadors and CLD Staff

Biology

In 2022/2023, the Biology team delivered 222.9 CPD units (1114.5 hours), supporting practitioners through the following events:

- Practical techniques for recently qualified biologists
- Royal Society of Biology 25th Annual Teachers Meeting
- Biology Summer School (updated content for 2022/2023)
- Investigations for Advanced Higher Biology
- Techniques for Senior Phase Biology (new for 2022/2023)
- SSERC Meet (online) – YSLP in the Biology classroom (new for 2022/2023)
- SSERC Meet (online) – Bringing the Inside Out (new for 2022/2023)
- SSERC Meet (online) – Microscale Biology (new for 2022/2023)
- SSERC Meeting (online) – British Science Week – Interdisciplinary Learning (new for 2022/2023)
- ASE Conference 2022 (new for 2022/2023)
- Regional Improvement Collaborative Meeting (Highland Alliance) via Education Scotland to share practical work for specific courses and stages
- Environmental Science webinar via Education Scotland
- Glasgow City Council Faculty Head Meeting to support STEM

Delegates at Pittencrief Park during the Investigations for Advanced Higher Biology course, October 2022.

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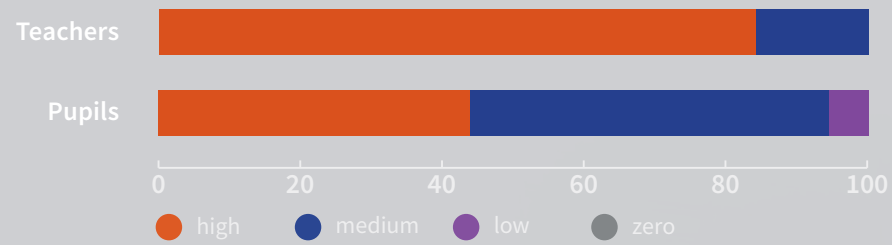
A wide range of downloadable resources have been developed to support practical activities across the Broad General Education and Senior Phases of Biology, incorporating themes of Learning for Sustainability, Outdoor Learning and Digital Technology. In addition, we have developed Microscale Biology approaches that support sustainable practice, and aspects of this work have been published in ASE "School Science Review in Practice" Journal. New web pages have been created to share these materials via the SSERC website. Ten new experiments have been developed over the year to support secondary Biology.

"I found every session over the three days to be extremely valuable to my professional development and confidence in delivering the AH course. The practical investigations were excellent as were the use of IT packages such as R and RasMol."

Delegate on the Investigations for Advanced Higher Biology course, October 2022

Rate the impact your PL has had to date on:



Looking forward

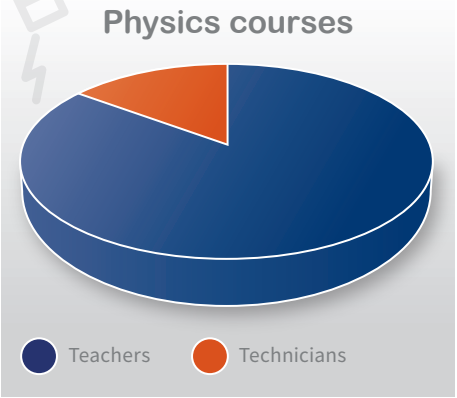
In line with the SSERC Vision 2030 work streams, the professional learning offer for 2023/2024 is expanding to include:

- Field Studies for Biologists, which incorporates ecology, outdoor learning and wider sustainability.
- Practical masterclass for early career biologists.
- Using *R* in the Biology Classroom.
- Four new SSERC Meets that reflect teacher voice and the educational landscape.
- New BGE courses.
- Investigations in Biology, incorporating ecology, outdoor learning and wider sustainability.

Physics

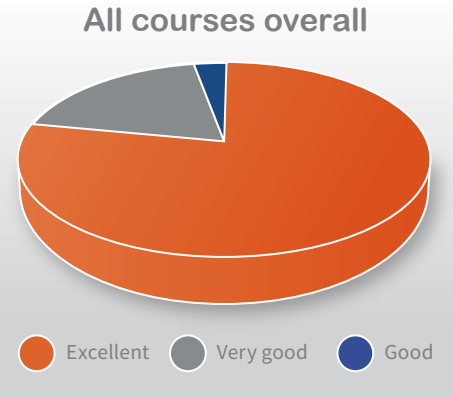
In 2022/2023, the Physics team delivered 141.7 CPD units (708.5 hours), supporting 121 teachers and 25 technicians through the following events:

- Institute of Physics (IOP)/SSERC Physics teachers summer school
- Working with radioactive sources (both face-to-face and online)
- Bespoke working with radioactive sources course for a Local Authority
- Support for practical activities in H and AH physics
- Pilot introduction to soldering course to support N5 Practical Electronics
- Twilight Plates for Education session in conjunction with St Andrews University
- BGE physics for non-specialist physics teachers



The following self-study courses were again run due to high demand:

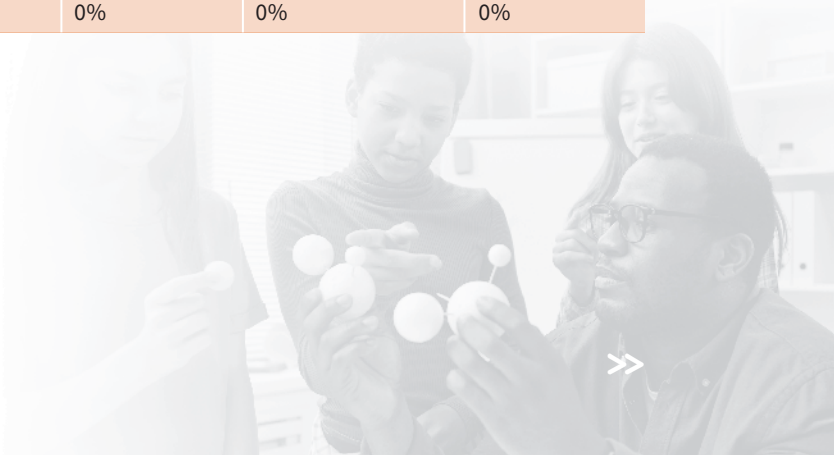
- Electrical safety
- Optical radiation
- Physics safety
- Tracker
- Mobile devices
- Satellites



Physics contributed to all four cohorts of the NQT course, the Lab Skills course, the Intro Physics for Technicians course, the technology probationers course and the technicians conference. Physics continues to support the design of innovative activities along with the primary team.

> *"Excellent course! I recommend it to all Science and subject teachers in Scotland. Trainers and staff were amazing!!"*
>
> *BGE Physics /Chemistry*

Courses were:	Well organised?	Relevant & useful?	Course LO's met?	Will PL practice? impact future	Of personal interest?
Agree strongly	86%	91%	86%	87%	80%
Agree	14%	8%	14%	13%	18%
Disagree	0%	1%	0%	0%	2%
Disagree strongly	0%	0%	0%	0%	0%



New courses
Post-course evaluation feedback from the newly developed support for practical activities in H/AH physics and BGE physics for non-specialists has been really good. Particularly encouraging were the comments in the six-month impact evaluation from the H/AH course, which state not only a positive impact on the teacher's professional learning but also the impact on schemes of work in departments and on learners' enjoyment and attainment.

6 months impact	Yourself	Learners	Colleagues	School	Overall
High	86%	71%	43%	43%	71%
Medium	14%	29%	57%	57%	29%

"The course has given a huge number of new practical activities that we have been able to fold into our current schemes of work. This has allowed personal CPD and development of materials that have been shared with the department and has led to in-house CPD sessions delivered by myself to staff that have led to new and better experiences for the pupils in the department."
H/AH

New resources
During this year physics has designed five new experiments for H/AH physics, designed 3D printed parts to enable an optics experiment to be carried out cheaply, developed two physics SHM data analysis techniques (one for excel and one for python) and produced a 130 page 'Lab Book' to support the new H/AH course.

Looking forward

In line with the SSERC Vision 2030 work streams, the professional learning offer for 2023/2024 is expanding to include:

- New BGE courses
- In May we will be delivering a two-day, bespoke, support for senior phase physics course for a Local Authority member.
- In conjunction with the University of Edinburgh's Data Education in Schools, we will be offering a one-day Introduction to Data Science at BGE and NPA levels
- Increased capacity on the H/AH Physics course due to very high demand
- Support for a variety of National Progression Awards and SCQF-level courses, including Practical Electronics and Engineering Science.
- Updated and redeveloped IOP/SSERC Physics Teachers Summer School for 2024.
- New "Sustainables" course, involving the physics of solar, wind, thermal and hydro for 2024/2025.

Chemistry

In 2022/2023, the Chemistry team have delivered 66 CPD units (330hours), supporting 121 teachers and 25 technicians through the following events:

NQT and ECTs in Chemistry continue to be supported by the team at SSERC. During the year 2022/2023 we ran the following courses:

For Teachers
- Microscale Chemistry Summer School
- Chemistry for Advanced Higher
- BGE Chemistry for non specialists

For Technicians
- Chemical Handling
- Introductory Chemistry - now converted to an online, self-study course and has been trialled by 12 users.
- Chemistry also contributed to the SSERC Technician Conference.

Additionally, chemistry contributed to:
- Probationers courses – 4 cohorts;
- N5 lab science course, and;
- Environmental science

"It has deeply enhanced my pedagogical thinking and approach to use of practical's in the curriculum."

"My confidence in leading the AH in practical work has increased exponentially."

Technology

In 2022/2023, the technology team delivered 116 CPD units (580hours), supporting 121 teachers and 25 technicians through the following events:

- Woodturning skills
- Centre Lathe skills
- Welding skills
- Hot and cold metal forming
- Technology probationers event

In addition to this the Technology team have also delivered a further 273 CPD units (1363 hours) under the technician's portfolio of professional learning. This was through the delivery of:

- Safe use of fixed workshop machinery
- Safe use of fixed workshop machinery – refresher course
- Maintenance of fixed workshop machinery

Centre lathe skills delegates, March 2023.

"I have become more confident in the delivery of the metalworking skills course at National 5 level. I also feel that I would be more confident in using welding techniques in other year group for design work."

"Impact is mainly on knowledge for delivery and acquisition of skills. I can now apply the skills and practice prior to delivering content to pupils. This was the BEST CPD I have ever attended."

Courses/recourses developed

Several resources have been developed to support the practical activities undertaken by delegates on our professional learning courses. These resources and activities aim to enhance the skills taught and competency gained.

- Our welding skills course has seen the development of new project tasks to build confidence, motivation and improve success.
- New introduction/starter tasks have been developed for our woodturning and center lathe courses to allow delegates to create a functional item in approximately one hour. Allowing us to get delegates creating faster, leading to more engagement, motivation and build on skills.
- The technology team also contributed to the technician conference, developing, and delivering workshop taster session in both wood and metal turning.
- A new health and safety training course specifically for teachers in the safe use of machinery has been developed. This 2-day training program includes competency-based training in the use of Bandsaws, Bandfacers, Pillar drills and mortice machines. Course are calendared to run end 2023 into 2024.

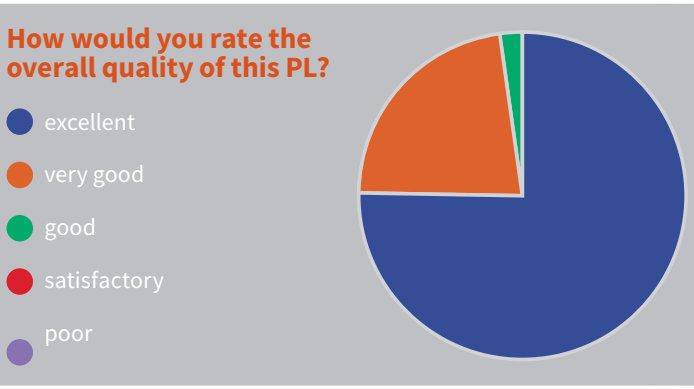
Technology NQT Residential

November 2022 saw the first Technology NQT residential being held at SSERC. This was developed through the previously run Scottish Universities Technology School. This event included 20 delegates spread across 16 Local Authorities. 4 practical based workshop sessions were developed to support NQTs to deliver safe, high-quality hands-on practical STEM learning within the workshop.

Tech probationer, woodwork basics, November 2022.

"I loved the whole course. The course gave me an insight into all aspects of design and technology and pushed the boundaries of what we can do as practitioners in the class."

How would you rate the overall quality of this PL?



Looking forward

In line with SSERC Vision 2030 work streams, the professional learning offering for Technology in 2023/2024 is expanding to include:

- Safe use training specific to teachers (to include competency training in a range of machinery)
- Develop new course in sand casting and linking new technologies (such as CNC routers, 3D printers) to create patterns.
- Develop makerspace course to support BGE, linking design, prototyping and include smart technologies.
- Develop online pre course study to support course practical – this is to initially support welding skills.
- Develop further support material for woodturning with practical information on tool selection, processes, and tool sharpening.

Environmental sustainability

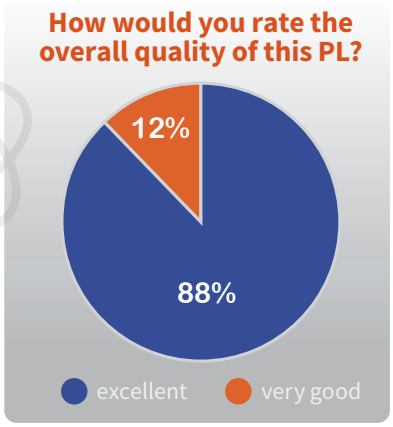
- Courses demonstrate how equipment can be used in a variety of ways, thus promoting its versatility and use.
- Machinery and equipment utilsed on woodturning and centre lathe courses are all refurbished giving them a new lease of life.
- Materials used in projects are obtainable though existing school's stocks or can be easily adapted to suit school's individual circumstances.
- All materials used are readily recyclable (i.e., steels, aluminum) and sourced responsibly.

Science

SSERC continues to offer professional learning support beyond the discrete Sciences and in 2022/2023 we delivered 330.8 CPD units (1654 hours), supporting practitioners through the following events, including:

- Environmental Science
- Laboratory Science
- Science for Secondary NQTs

The Environmental Science course was attended by biology, chemistry, physics and geography teachers and was supported by the SQA implementation manager for Environmental Science, a STEM ambassador from St Andrews University and from Ocean Winds. SSERC's new "Science NQTs Residential" course was delivered to four cohorts between October 2022 and January 2023, supporting 79 NQTs.



Delegates attending the Science Probationers Residential course, December 2022.

"All of the practical lab sessions were extremely useful. The course showed us activities that were easy to understand, easy to deliver in the school lab context and explicitly linked to specific key areas of the environmental science course."

Delegate on the Environmental Science course, September 2022

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Looking forward

In line with the SSERC Vision 2030 work streams, the professional learning offer for 2023/2024 is expanding to include:

- Support for assignments in N5/H Environmental Science.
- Practical input from the YSLP with the Science NQT Residential.

Leadership courses

sserc Leadership in STEM Education

In June 2022 SSERC launched its newly developed Leadership in STEM Education course - representing a significant addition to our list of professional learning offers for educators in Scotland.

A particular strength is that whilst many aspiring Principal Teachers or Faculty Heads work with us, it's not just designed for them. Some of our delegates simply want to build their knowledge, skills and professional abilities to develop experience as leaders of STEM in their respective centre.

Aligned to the GTCS standards for career-long professional learning and middle leadership means the content and learning is set at SCQF Level 11.

- ✓ Developing academic writing skills and engaging with publications at Masters Level.
- ✓ Exploring key current educational policies in STEM and measuring their impact.
- ✓ Carrying out self-evaluation and improvement activities in their centre.
- ✓ Developing and understanding management and leadership skills, theory and practice.
- ✓ Analysing their own leadership skills and potential through the views of themselves and others.
- ✓ Investigating the range of STEM engagement opportunities that exist in Scotland and how they can impact and enhance the learner journey.
- ✓ Completing a professional enquiry on a key area relevant to their setting.

with input from:

- GTCS
- Education Scotland
- Skills Development Scotland
- Strathclyde and Stirling Universities
- Experts and consultants in leadership and management strategies
- Organisations that support STEM education

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Professional Recognition Accreditation
In early 2023, we were delighted to secure Professional Accreditation for this course, meaning that delegates who successfully complete it can be recognised for the expertise they have rightly earned.

20
delegates

3200
collective hours of professional learning delivered

"The Leadership in STEM course has really helped me to gain confidence in taking on leadership tasks and roles within the school. The connections and discussions we have are inspiring and have shaped my thinking of how I would like a department to look and work when I move into a promoted post".

Mark Melrose – Ross High School

Looking forward

sserc Leadership in Technical Support

- SSERC already has Cohort 2 in place and the second year of the course is underway with many improvements and enhancements that the pilot has taught us.
- We are designing a Leadership in Technical Support professional learning course for the next financial year.

Advisory Service

Aim
To further develop and promote the Advisory Service.

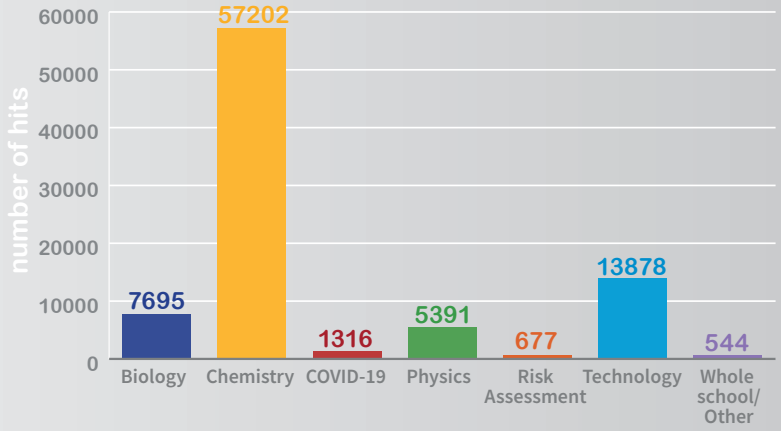
This was the year that we finally put the Coronavirus pandemic behind us, though SSERC remains vigilant. Over the year the SSERC Advisory Service has continued to consolidate and further expand both its provision and reach.

Key functions

- Specialist health and safety advice for schools and LAs.
- Unlimited access to specialist advisors in Primary Science, Biology, Chemistry, Digital Skills, Physics, Technology, Technician Services and health and safety.
- Guidance and compliance advice for radiological health and safety legislation through our Radiation Protection Adviser.
- Free management of health and safety courses for Curriculum Leaders.
- Other face-to-face and digital specialist health and safety courses, including radiological protection, which are heavily subsidised or free.
- Access to the SSERC website - curriculum support materials, health and safety advice and resources e.g. exemplar risk assessments for both specific subject and whole school activities.
- Recommendations on equipment and design of specialist accommodation.
- Free consultancy and technical information.
- Apparatus testing for safety, performance and conformity with standards.
- Free health and safety courses for Initial Teacher Education (ITE) students.

Health and safety web page 'hits' 2022-2023

The health and safety home page again got 21% of all the traffic to the website and 3 of the top 10 web pages on the whole site were health and safety related. Bearing in mind that unlike most of our content, these pages are viewable by members only, this is another strong performance.



SSERC Advisory personnel

Our Education Officer (Physics and RPA) is training to become a Radiation Protection Adviser (RPA), successfully achieved the AURPO/University of Strathclyde Certificate of Professional Development in Radiation Protection. The work completed for this will contribute towards the large portfolio of evidence she now has to produce to achieve RPA status. There have been no further changes in personnel and the group of NEBOSH-qualified staff have begun meeting regularly to drive forward progress in this area.

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SSERC Advisory Service

While most of our advice is accessed at will by members via the website, more complicated matters require a more personal approach by phone, email or the enquiry form on the website.

Over the past year, the Advisory Service has dealt with around 2,500 enquiries across a broad spectrum of both curricular and non-curricular areas.

HSE inspections

In autumn 2022 the Health and Safety Executive's Field Operations Division began a programme of inspections across England, Wales and Scotland to see how schools manage the safe use and storage of the radioactive sources used in science teaching. In addition to the normal service that is always available to schools we have provided a range of support as a result of these inspections, including dealing with many more enquiries, providing advice to schools specifically preparing for an inspection and assisting local authorities with their responses to improvement notices issued. We have also liaised with the HSE regarding these inspections and their feedback from them. Scottish schools who have been following SSERC advice have been found to be compliant, with many finding it a very positive experience. Schools which were found to be non-compliant were aware of our advice but had let things lapse. The HSE inspections are ongoing and we will continue to provide the information, advice and support schools need to ensure compliance.

Publications & advice

The Advisory Service continues to contribute to the various SSERC publications, especially the STEM Bulletin and the STEM School Technician Bulletin as well as having its own dedicated Advisory Service Bulletin. These can all be accessed at: Publications - SSERC.

Recent articles have included guidance on: the hazards of glass, chemicals in Early Years and Primary, preparation for HSE inspections of Radioactive sources, mercury thermometers, working with soil and mud, and dissection.

The Risk Assessments for Art and Design are now complete and available for download from the website.

Advisory related courses

A range of health and safety courses were delivered to ITE students in Aberdeen, Napier, Edinburgh, Stirling and Highlands and Islands Universities. This has further developed our strong working relationships with ITE institutions in Scotland to support the safe delivery of practical STEM learning by educators at the gateway of the profession. A typical comment was

"It was useful to find out how to follow risk assessments for lessons as it helps to make me think about each step of an experiment and to see if it's really safe for the pupils to carry out."

There was also a live, 3-part remote H&S course run in November for teachers and technicians. And a face to face one for staff at Robert Gordons School in Aberdeen. A typical comment was

"I found the risk assessment section most helpful - there is lots of chatter about risk assessments but it has helped me feel more confident with these."

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In-house health and safety

SSERC has continued working with Croner (our external HR and safety partner), mainly via their BrightSafe health and safety management system, to help us with aspects of in-house health and safety. With their assistance we have continued to review and develop our practices and documentation, in particular, implementing a more formalised programme of staff development in health and safety. We now have monthly health and safety updates for Staff after our regular Monday Staff meeting. As well as an annual inspection from Croner.

Looking forward

We will continue to support our members with advice relating to all aspects of safety in schools and colleges and provide guidance to ensure that practical based STEM activities can once again become a core part of the curriculum at all stages. We will further expand our self-study professional learning offerings and examine what additional support we can provide to other practical-based curriculum areas.

We are currently implementing a thorough review of the numerous risk assessments relating to general school premises and activities: everything from ski trips to litter picks to sports days and general classroom health and safety.

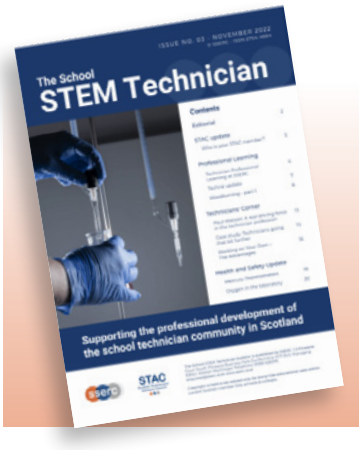
School technicians

Aim
To raise the professional status of school technicians and promote the role they play in the education community in Scotland.

We continue to support the invaluable work that school and college technicians do as an important part of the Scottish Government's STEM strategy. We provide practical face to face training as well as twilight online training sessions.

Professional Learning

Technicians have attended face to face training events in high numbers. 1179.9 CPD units have been successfully completed one or more of our 12 SCQF certified courses, with a further 195 delegates having successfully completed one of the courses at a SSERC Accredited Centre.



The School STEM Technician bulletin

We have just recently published our 4th edition of The School STEM Technician bulletin, which is specifically produced for technicians. We have had a lot of articles submitted by technicians for the technician's corner section of the bulletin which allow technicians to let others know what they are doing. We have a range of other digital publications all of which can be located at: Publications - SSERC.

Techné

We continue to facilitate the use of Techné as a professional virtual communication platform for technicians to ask questions and as a gathering point for technician resources. 86 Members are now in the group.

You can access Techné by using the link that follows:
Techne

STAC

SSERC continues to support the work of the Scottish Technicians' Advisory Council (STAC) which was formed to represent the Scottish School Technician professional community and advise SSERC on matters relating to:

- Professional development needs of school technicians
- Qualification frameworks to support the professional development of school technicians
- Technician based projects and activities.

STAC
Scottish Technicians' Advisory Council

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STEM Technician Training Day

In March we ran the SSERC STEM Technician Training Day in association with ASE. 60 technicians from across the country arrived at SSERC for a day of STEM related training. Sessions including soldering, microscale chemistry, wood and metal turning were on offer which were all filled to their maximum capacity.

New courses

We continue to investigate new courses for the school technician with the following courses currently under development.

- Senior Phase Chemistry for Technicians.
- Technicians Skills: Soldering
- Technician Skills: Basic Glasswork
- Technician Skills: Electronics

"Thank you for everything and to everyone at SSERC. I think it is a fantastic place full of enthusiastic staff and I am looking forward to coming on another course in the future."

A new Safe Use of Fixed Classroom Machinery course which covers the use of the Bandsaw, Pillar Drill, Belt facer and Mortice machine has been credit and levelled with SQA which brings the total number of credit and levelled courses SSERC has to offer technicians to 12.

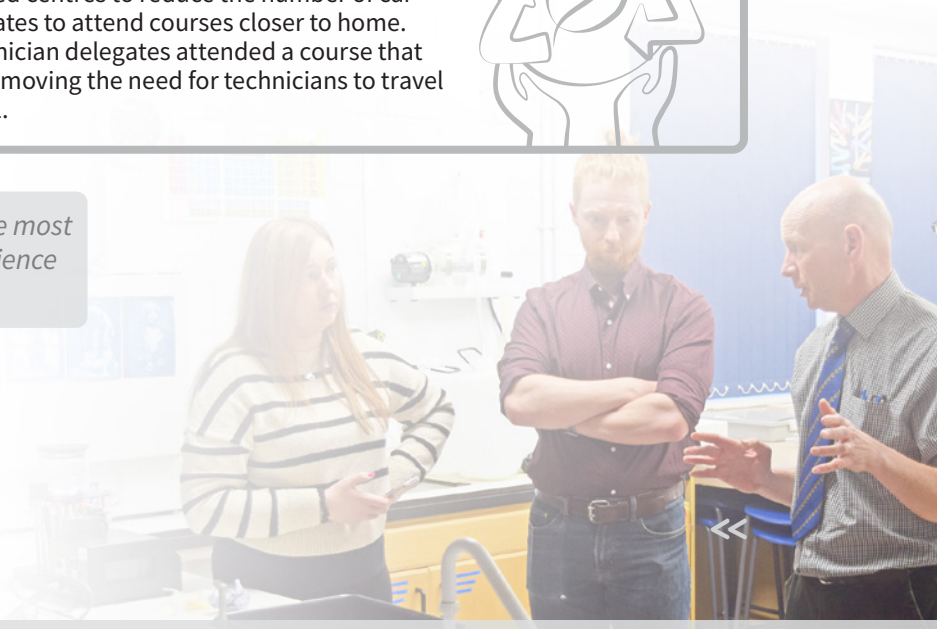
Looking forward

We are currently working closely with members of STAC to produce a Leadership in Technical Support course. When complete the course will be credit and levelled through the SQA and added to the yearly diet of technician course on offer. We have already setup a writing group and validation group made up from members of STAC. Progress is ongoing. We will continue to work with other partners organisation to raise the profile and importance of this profession that supports so many aspect of STEM and whole school and college activity.

Environmental sustainability

Environmental sustainability is always an important factor to consider when doing anything these days and SSERC Technician courses are no different. We strive to have more courses run at accredited centres to reduce the number of car journeys taken daily and allow delegates to attend courses closer to home. In the last year nearly 50% of all technician delegates attended a course that took place at an accredited centre, removing the need for technicians to travel to SSERC in Dunfermline to attend PL.

"I found the practical sessions to be most useful as it got me hands-on experience and the staff were very helpful."



Outreach work

Aim
To increase capacity and capability to offer a greater volume and range of professional learning via SSERC accredited centres and the use of digital communication and technology.

We continue to offer a creative, innovative and growing portfolio of products and services in a manner to increase participation and geographic reach.

SSERC continues to utilise the Accredited Centre programme which was designed to enable external bodies and organisations to deliver a range of SSERC developed (SCQF) Credit and Levelled professional learning courses.

sserc accreditedcentre

The program has 12 SSERC SCQF Credit and Levelled professional learning courses to choose from including refresher courses for Safe use of Fixed Workshop Machinery and Safety in Microbiology for Schools. All of our courses are specifically designed to support Scottish School and College Technician professionals and are also of value to Design and Technology and Science educators.

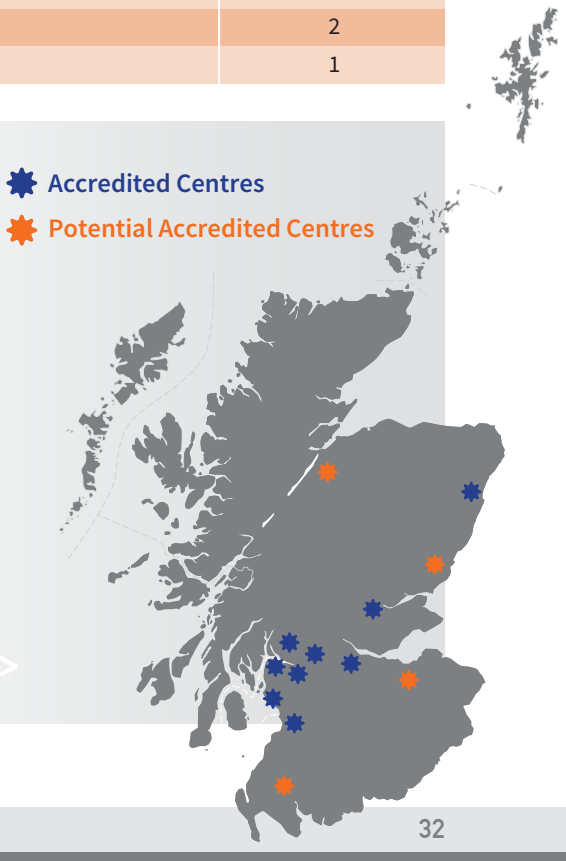
Course title	Credit points
1) Safe Use of Fixed Workshop Machinery SCQF Level 5	2
2) Safe Use of Fixed Workshop Machinery Refresher SCQF Level 5	2
3) Maintenance of Fixed Workshop Machinery SCQF Level 6	3
4) Safe Use of Fixed Classroom Machinery SCQF Level 5	2
5) Safety in Microbiology for Schools SCQF Level 6	3
6) Safety in Microbiology for Schools Refresher	-
7) Electrical Safety and PAT SCQF Level 6	2
8) Introductory Physics SCQF Level 5	2
9) Intermediate Physics SCQF Level 5	2
10) Chemical Handling SCQF Level 5	2
11) 3D Printing and Laser Cutting SCQF Level 5	2
12) Datalogging SCQF Level 5	1

We support participation in the SSERC accredited Centre programme for multiple reasons. Firstly, removing the geographical obstacles to attending professional learning and from an environmental standpoint as it reduces the need to travel to Dunfermline to attend training.

There are 9 accredited centres operating across the country from Aberdeen to South Ayrshire, with 4 potential new centres showing an interest.

The number of delegates completing a SSERC SCQF Credit and Levelled professional learning courses at a SSERC Accredited Centre.

For more information on our SSERC Accredited Centre programme, visit SSERC Accredited Centre Programme - SSERC. >>

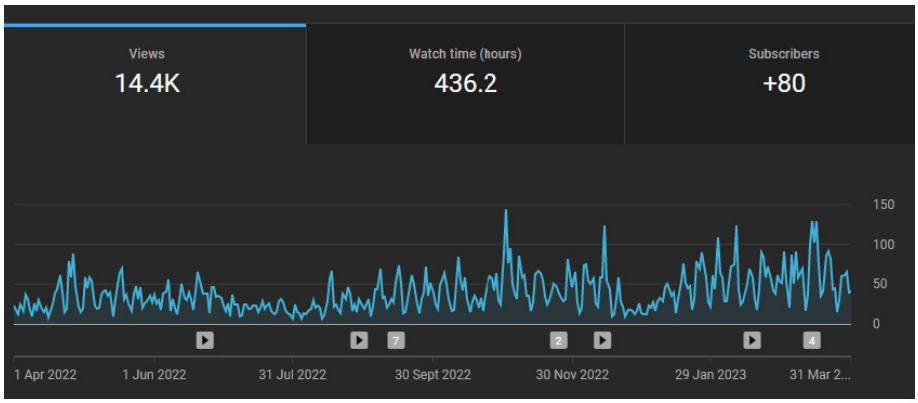


Outreach digital

We continue to use SSERC TV as our main digital channel for our video content. As well as SSERC TV we also have SSERC Chemistry and Young STEM Leader YouTube Channels.

An overview of SSERC TV access in this reporting period is provided below:

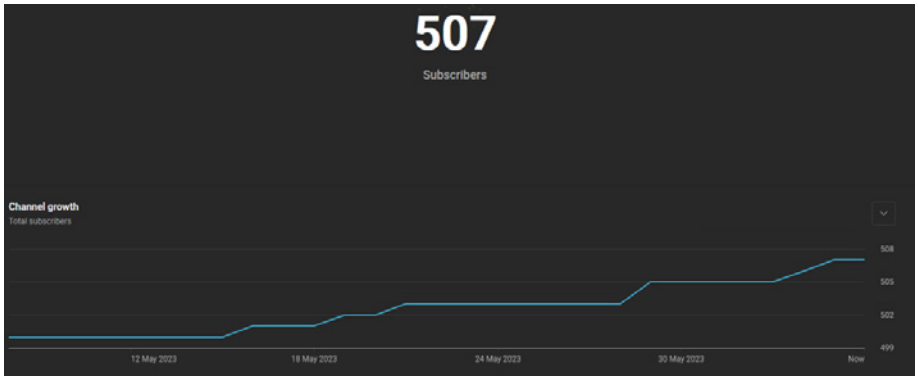
Viewing figures



The most viewed videos

Content	Impressions	Impressions click-through rate	Views	Average view duration	Watch time (hours)
Total	**135,890**	**4.9%**	**14,354**	**1:49**	**436.1**
Secret Message	12,097	7.5%	1,327 9.2%	1:54	42.1 9.7%
Immobilised Algae	5,814	10.4%	989 6.9%	1:30	24.7 5.7%
Micro Technique 9 Vital stain S cerevisae	6,129	8.3%	645 4.5%	1:38	17.7 4.1%
Balancing butterfly	2,354	9.9%	643 4.5%	1:30	16.1 3.7%
Immobilised Yeast	4,107	8.2%	602 4.2%	1:49	18.3 4.2%
Secret Message Using Water	1,695	5.0%	460 3.2%	1:15	9.7 2.2%
Micro Technique 11 E coli smear	8,604	3.8%	439 3.1%	1:57	14.3 3.3%
Chromatography with Skittles	1,228	4.5%	383 2.7%	1:11	7.6 1.7%
Radon balloon decay curve expt	926	9.3%	341 2.4%	1:16	7.2 1.7%
What does SSERC do?	646	2.2%	312 2.2%	0:35	3.0 0.7%

SSERC TV Growth



As an organisation, we are aware of the many pressures that many education practitioners face when wishing to undertake quality professional learning opportunities; release, travel, childcare and time are some factors. In response, we have increased the range and diversity of online self-study courses available and are actively moving these across to our SSERC Online Learning platform.

SSERC Official is the main corporate social media platform used to communicate with our stakeholders and promote the positive impact of our portfolio of products and services to user groups, supported by sub accounts as shown above.

The SSERC website

We took the opportunity to refresh the website's home page further, to facilitate easier viewing of its rich content, much of which is in the form of documents (Word, PowerPoint, pdf etc.) for download.

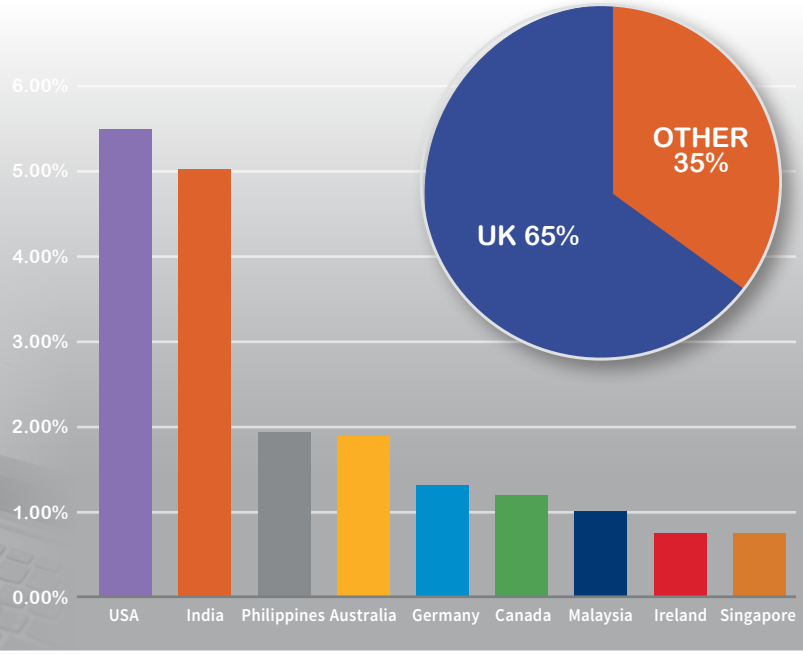
Over the year 2022/2023, our resources were downloaded over 250,000 times!

Members

Over this period, 614 new accounts were approved, a slight increase over last year.

	Overall	UK	Scotland
Users	91,761	60,149 (66%)	29,922 (48%)
Session	143,905	108,214	69,536
Pageviews	439,425	392,816	313,607
Pages per session	3.05	3.63	4.51
Session duration	02:53	03:32	04:36

The UK makes up 65% of our users. The next highest are listed in the graph in the right. The health and safety content of the SSERC website is accessible only to members; however our teaching resources are open access and so unsurprisingly, we have people all over the world accessing our website: from 185 other countries!



Looking forward

In financial year 2023/2024 we will:

- Further expand the number of SSERC Accredited Centres and increase the range of SSERC courses they can offer.
- Continue the conversion of self-study courses onto our Online Learning platform.
- Plan for a new SSERC website that integrates with all our digital offerings.
- Further develop SSERC TV.

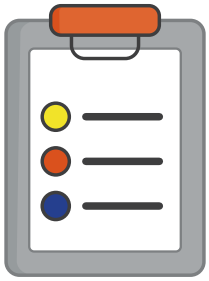
Evaluation activity

Aim
To use evaluation data to influence the direction of all SSERC workstreams and publish using various channels, e.g. website, academic journals, social media.

As an organisation we have a robust set of processes that allow us to collect and use data, using both qualitative and quantitative methods, to measure and understand the effectiveness and impact of our initiatives or programmes.

The SSERC evaluation process

SSERC continues to monitor the effectiveness of our evaluation process for delegates who take part in our professional learning offers. A more streamlined evaluation process is now in place which is linked to the National Model for Professional Learning and the GTCS Standards for Career-Long Professional Learning. With bi-annual review meetings among the SSERC Education Managers and SMT, we are confident that our approach is generating the right type of data which allows delegates to give us feedback on our performance as a PL provider, whilst measuring the impact of their learning back at their respective centres with their colleagues and, most importantly, their learners.



Step 1

Pre-course evaluation to understand the aims and objectives of the delegate.

Step 2

Post-course evaluation to collect feedback on our own performance in PL delivery and for the delegate to begin planning for positive impact back at their centre.

Step 3

Measuring impact evaluation to investigate the impact the PL course has had on themselves, colleagues and learners in their centre over a subsequent period of time.

What our delegates say:

"Pupils have benefitted from the introduction of more practical activities into the course, increasing engagement and subsequently improving attainment."

"Learners have found my lessons more engaging and have enjoyed the increased practical work. I have found that I am able to adapt my lessons to suit the needs of all the learners."

"While reflecting on whether barriers to learning are present, and if so how the lesson can be delivered in an inclusive manner, I now reflect on how turning can be delivered in a workshop in a manner which optimises effective teaching and learning."

"The professional learning has given me the confidence and resources to teach computing science within the class. It has made these outcomes more achievable and will help with CLPL across the whole staff. It has encouraged pupils to engage with technologies, help them debug, create and solve problems, engage meaningfully with each other, develop their sense of resilience, growth mindset and meta-skills."

"It has also been invaluable to network with other teachers and share resources and ideas."

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GTCS Professional Learning Award: Leadership in STEM Education

To add to our status as a Professional Learning Awarded Organisation with the General Teaching Council for Scotland, SSERC has successfully gained Professional Recognition Accreditation for its newly developed Leadership in STEM Education course. This means that delegates who complete this course will be further recognised for the enhanced, significant, sustained and reflective professional enquiry they have undertaken and the development of their professional learning in a particular area.

Leadership in STEM Education

Professional Learning gtc SCOTLAND 2021-2026 AWARDED ORGANISATION

Professional Recognition gtc SCOTLAND 2023-2028 ACCREDITED PROGRAMME

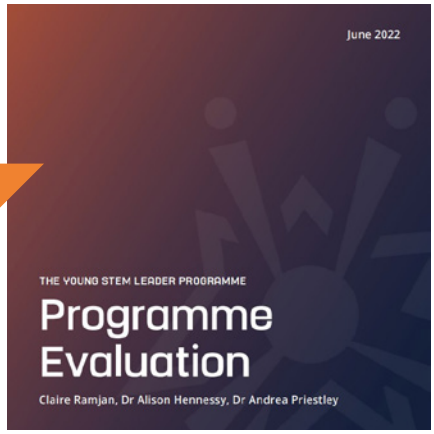
"Rich partnership working underpins the programme based on long-standing engagement and relationships. There is confidence and credibility in this work which was for example clearly evidenced in the way practitioner enquiry is supported by the university partnership".

GTCS 2023

External evaluation

The Young STEM Leader Programme was evaluated by Stirling University in June 2022. The report can be accessed at YSLP-Evaluation-Report-June-2022-1.pdf (sserc.org.uk).

"Providing opportunities for elaboration (where young people are given the opportunity to 'try-on' possible identities, potentially through interaction with role models or supported exploration) was a key strength of the programme. YSLs were able to enact STEM roles and determine the aspects of these that were desirable (or otherwise) for their 'future selves."



Academic articles published:

The following articles, written by members of the SSERC team, were published in the financial year covered by this report:

MacGregor, A. (2022) 'IFSTs commitment to equality, diversity and inclusion' *Food Science and Technology*, 36(3), pp. 16. Available at Food Science & Technology - September 2022 (wileyjournalebooks.com), accessed June 2023.

MacGregor, A., Bowie, H., Arkley, S. (2022) 'Why not become a STEM Ambassador' *Food Science and Technology*, 36(3), pp. 60-61. Available at Food Science & Technology - September 2022 (wileyjournalebooks.com), accessed June 2023.

MacGregor, A. (2022) 'Commitment to equality, diversity and inclusion' *Food Science and Technology*, 36(4), pp. 11-12. Available at Food Science & Technology - December (wileyjournalebooks.com), accessed June 2023.

McRobbie, A. (2022) Practical ideas: Microscale biology – a qualitative enzyme assay to explore inhibition *'School Science Review'*, 104(386), pp.14-16. Available at Practical ideas: Microscale biology – a qualitative enzyme assay to explore inhibition (www.ase.org.uk), accessed June 2023.

Manches, A., Mitchell, E. (2023) 'Embodied Learning for early and primary science: Key implications from the Move2Learn project', *Journal of Emergent Science*, Issue 24, pp.23-32. Available at Layout 1 (ase.org.uk), accessed June 2023.

MacGregor, A., Allison, S. (2022) 'Inspiring the Next Generation of Food Professionals' Food Science and Technology 36(2), pp 56-59. Available at https://www.wileyjournalebooks.com/FSAT/2022/June/#p=56, accessed June 2023.

Looking forward

SSERC has worked with The University of Stirling to recruit a PhD student who will join us in the next academic year to carry out advanced research and evaluation into the impact of the Young STEM Leader Programme and how it is challenging the stereotypes and misconceptions in STEM, whilst increasing access and participation for young people in Scotland.

STEM Engagement

Aim
To increase the breadth and impact of the STEM engagement offering.

SSERC offers a wide range of STEM engagement and enrichment programmes to further increase access to, and participation in STEM, well beyond the classroom setting. Our STEM engagement portfolio supports individual educators and their institutions, young people, and partners in industry to collaborate to create learning activities and opportunities in STEM for children, young people and adults in Scotland.

Young STEM Leader Programme (YSLP)

The Young STEM Leader Programme (YSLP) is an award open to all young people in Scotland to inspire, lead and mentor their peers through the creation and delivery of STEM activities, events and interactions within their schools, communities or youth groups.

The free programme is delivered in schools, colleges and community groups across Scotland, with over 15,000 young people engaging since the programme's launched in 2019. For more information on the YSLP visit www.youngstemleader.scot.

Programme participation

There has been growth in the number of learners participating in – and achieving certificates for – the programme. You can see a map of Young STEM Leader delivering centres here.

Estimated **60,000** hours of STEM leadership activity as a result of YSLP

Over **3000** SCQF points earned by Young STEM Leaders

Over **15,000** young people have taken part in the programme

2022/2023	
Award level	**Certificates**
YSL2	1413
YSL3	364
YSL4NF	120
YSL4F	82
YSL5	87
YSL6	232
Total	2298

April 2022 - March 2023

- **885** Delivering Centres (159 new)
- **469** Primary schools
- **290** Secondary schools
- **34** Youth groups
- **92** other Delivering Centres*
- **15000+** Young STEM Leaders
- **2700** trained Tutor Asssors (866 new this year)

* e.g. local authorities and partners

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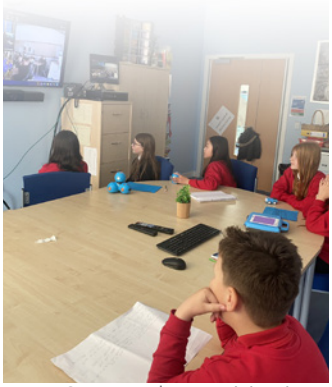
#YoungSTEMLeaderWeek 2022

The third annual **#YoungSTEMLeaderWeek** took place in October/November 2022 to celebrate the impact of the programme across all delivering centres. The theme of this year's event was *The Future of STEM* with a different focus for each day, such as the future of energy, the future of space and STEM careers of the future. A number of activities were planned for the week, including:

- Tutor Assessor Meet-ups. Networking and professional development events for Tutor Assessors at venues across Scotland. Hosted by the Associate Regional Trainers and Verifiers, over 100 Tutor Assessors attended across 6 events in Fife, Dundee, Glasgow, Inverness, North Lanarkshire and West Lothian.
- Daily challenges related to the four elements of the programme: Discover, Create, Inspire and Lead hosted on a bespoke web page.
- Programme of training events for Young STEM Leaders, including talks from STEM Ambassadors, Dynamic Earth and other partners, attended by over 1000 young people.
- A social media campaign driving participation and uptake in the YSLP.



Young STEM Leaders participating .

Learners and Tutor Assessors sharing their experiences as part of the Tutor Assessor Meet Ups for Young STEM Leader Week.

ARTAVs

The team of Associate Regional Trainers and Verifiers (ARTAVs) support our quality assurance processes and deliver high quality YSLP professional learning. The development of the ARTAV role allows for training and support to be delivered at a centre or individual level, increasing the flexibility and accessibility of the programme to new centres or educators.

Training

This year the YSLP and ARTAV teams collectively delivered **89 professional learning sessions to 1116 delegates** from schools and community groups across Scotland. Over 850 new educators joined the programme after completing training sessions, and others were supported to continue YSLP by attending Kickstart Refresher Sessions, Information Sessions or Tutor Assessor Connections.

To get in touch with your local trainer, visit www.youngstemleader.scot/the-team.

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ARTAV allocation.

The YSLP and ARTAV teams.

Partnerships and auto-awards

The YSLP team engage with numerous STEM challenge and award providers to align the outcomes and criteria of YSLP to those of partner programmes. This provides the opportunity for young people completing other STEM programmes to gain additional recognition through an automatic Young STEM Leader award.

This year, around 30% of awards were achieved through participation in a partner programme, serving as an effective way to recognise the achievements of young people and promote the benefits of YSLP awards.

Further, around 100 learners took part in the YSL4, YSL5 and YSL6 awards that were offered and delivered by SSERC staff via the DYW Live platform on eSgoil – the national eLearning platform.

IBioIC

EDT

Industrial Cadets

F1 in Schools UNITED KINGDOM

DofE THE DUKE OF EDINBURGH'S AWARD

DYW Live e-sgoil Skills | Employability | Pathways

AERO SPACE KINROSS

THE BOYS' BRIGADE >the adventure begins here

>>

Quality assurance

As part of the programme's ongoing quality assurance, external verification (EV) activity is carried out at certification stage. A centre is selected for EV if they meet one of the selection criteria (first year delivering a YSLP level, over 200 YSLs in cohort, previous "Not Accepted" result) or on a random basis. EV involves a SSERC verifier reviewing a centre's YSLP evidence and internal verification documentation.

External Verification was carried out 66 times
45 centres received an **Accepted** result
20 centres received an **Accepted with Recommendations** result
4 centres received a **Not Accepted** result

All centres that received Not Accepted results were supported by the YSLP and ARTAV teams to complete any required actions to allow the Young STEM Leaders to be certificated.

A new award at SCQF Level 7

After an initial consultation with existing Tutor Assessors, it was realised that there is a demand for an SCQF Level 7 version of the Young STEM Leader Programme. With support of Ocean Winds and the SCQF Partnership, the Young STEM Leader Team has been working in partnership to develop a new Qualification in STEM Leadership at SCQF Level 7. This new award is designed for colleges, senior phase learners and community settings with a specific focus on Learning for Sustainability and the UN Sustainable Development Goals.

A small writing group was formed consisting of existing Tutor Assessors and representatives from colleges, SQA and Zero Waste Scotland to produce an initial award framework, outlining the six learning outcomes that STEM Leaders will achieve as part of a project-based qualification.

Over twenty centres have been recruited to take part in a limited award pilot starting in September 2023.

YSLP Beyond Scotland

The STEM Leaders programme in England is gaining momentum across the secondary education sector and community sector. Now in it's second year, The Leadership Skills Foundation has delivered numerous information and support webinars to provide context as to why leadership skill development through STEM is vital for young people today, to empower them to drive their future and become change-makers within their community.

Ellie Peacock (Deputy Head of Science Academy at The Mountbatten School) stated, when asked recently how she thinks the programme has prepared her learners for the next steps in education or future employment:

> *"They have developed skills which will play a key role in future personal development. Many have been keen to support STEM clubs and events on a more regular basis and have spoken really positively of their experience."*

> *"We wanted our students to leave school with skills and qualifications alongside the standard GCSE's we offer, the content and qualification on offer ticked the boxes for us."*

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Participation in The Leadership Skills Foundation's STEM Leaders Award

	Number of Learners	Number of Centres
2021/2022	338	16
2022/2023	193 (new)	13 (new)

Leadership Skills Foundation

Total number of learners

467

STEM Leaders

Looking forward

The programme will continue to grow and expand within the next academic year – with the aim to inspire and engage with more educators and learners across Scotland. In particular, the roll-out of the new SCQF Level 7 qualification will enable more learners in the college and apprenticeship sectors to take part in high-quality STEM engagement within their setting.

Environmental sustainability

The Young STEM Leader Programme is committed to promoting Learning for Sustainability (LfS) approaches in every level of the programme, and there are lots of excellent examples of young people leading engaging learning activities with a sustainability focus. This will continue to take prominence as we support centres with the new Level 7 qualification which has a particular LfS focus.

STEM Ambassadors in Scotland

Introduction and overview

Following on from the successful STEM Ambassador hub merge in 2021 the STEM Ambassadors in Scotland (SAIS) team has continued to go from strength to strength. In 2022 the STEM Ambassador Programme in the UK celebrated its 20th anniversary.

April 2022 - March 2023

1364 new STEM Ambassadors registered on the database

1440 STEM Ambassadors participating in volunteering activity

25763 volunteer hours were completed

40% of primary schools engaged with the programme

85% of secondary schools engaged with the programme

2689 PVG's applications processed (new and renewals)

Targeted Intervention Projects

Tayside STEM Loan Resource Project

STEM Learning provided the STEM Ambassador Hub with ring-fenced funding to deliver high impact projects aimed at mobilising STEM Ambassadors within a targeted area.

The first project completed September 2022 and engaged with STEM Ambassadors and primary school teachers in Dundee to co-design a set of activities linked to the curriculum and industry. The activities were linked with STEM kits from the SAIS Resource Lending Library. In addition, STEM Ambassadors were provided with training on using the kits within the school alongside Young STEM Leaders. Included within the project were focus groups with P4 and P7 learners in the participating schools to understand their attitudes to STEM before and after participation in the project.

Participation in the project resulted in increased confidence for STEM Ambassadors and teachers, as well as an increased understanding of STEM and STEM careers for learners. The project resulted in over 60 hours of high impact activities.

You can read the full case study here.

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Upskill and Engage

The Upskill and Engage project commenced in 2022 and will complete September 2023. The aim of the project is to increase the ability and confidence of STEM Ambassadors to engage with Early and First Level learners in primary schools. The project has produced a suite of four STEM activities focused on STEM skills for ambassadors to deliver in schools, in addition to a Feedback Toolkit aimed at providing simple games and activities ambassadors can use to evaluate understanding and gather feedback from learners. STEM Ambassadors and teachers involved in the project have received curriculum training provided by the University of Dundee as well as engagement training. 50 STEM Ambassadors and 50 primary schools have been recruited from across Scotland to participate in the programme.

Summer Library Activities

During the summer holidays the SAIS team continued to provide opportunities for STEM Ambassadors to engage with young people through a successful partnership with East Renfrewshire and Fife Library services for the Summer Reading Challenge which had a STEM focus. Between June – August STEM Ambassadors delivered over 40 STEM sessions in libraries throughout East Renfrewshire and Fife. The team also used it as an opportunity to engage with new STEM Ambassadors and delivered three activity sessions that ambassadors could attend for training.

20th Anniversary Celebrations

To celebrate the 20th Anniversary of the STEM Ambassador Programme the team organised three in-person networking celebration events in Inverness, Dunfermline and Glasgow as an opportunity to meet and engage with ambassadors in those areas. In addition to this the team celebrated the milestone by running a social media campaign asking STEM Ambassadors to share a photos and information about what they were doing 20 years ago compared to now.

Training

Training continues to be an integral part of the SAIS offering. Between April 2022 and March 2023 the team delivered or supported over 70 sessions to support STEM Ambassadors, teachers and partners to engage with the programme and develop skills. We engaged with the Scottish Mentoring Network to provide STEM Ambassadors the opportunity to complete Mentoring Skills training which included online self-led learning and interactive live online sessions. Over 40 STEM Ambassadors had completed this training as of March 2023 with more cohorts planned for the future. The feedback from the training has highlighted its value with 100% of attendees reporting a significant increase in their knowledge and confidence to participate in mentoring activities.

Online events

Throughout the year, including during key events such as British Science Week, Maths Week Scotland and Book Week Scotland the SAIS team hosted live online sessions for learners in primary and secondary schools. These have included:

- Book readings in partnership with The3Engineers and their Adventures of Scout book series.
- 10 maths related sessions for Maths Week Scotland.
- 5 STEM Story Sessions for STEM Ambassadors in Scotland Week where ambassadors delivered live book readings, connecting their own STEM careers to children's books.
- Careers talks in partnership with DYW Live.
- STEM Ambassador sessions for Young STEM Leader Week.

Over 1,000 learners have attended these sessions.

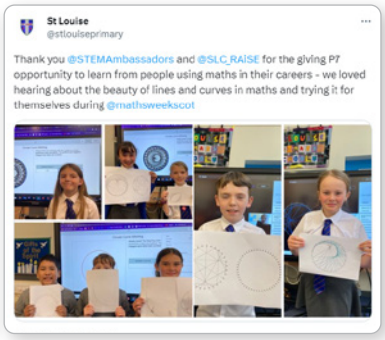


Photo:RDNE Stock project | www.pexels.com

Employers

The SAIS Hub have continued to collaborate with and support employers and organisations from across the UK. Highlights have included a STEM Ambassador training day at Volvo Motherwell and the launch of a new partnership with ScotlandIS and TechSheCan to connect tech industry professionals with computing teachers.

Looking forward

The focus will be to complete the Upskill and Engage project and publish the associated case study. The team will continue to support STEM Ambassadors, teachers and employers to engage with the project and deliver high-quality engagements. The team are working to prepare for the new PVG legislation and the implementation of new processes for all STEM Ambassadors. Finally, the team are looking ahead to new STEM Ambassador Hub contracts with new targeted intervention projects to support even more STEM Ambassadors and learners.

Partnership working

Education Industry Partnerships

PARTNERSHIPS

At SSERC, we work in partnership with individuals and organisations who are committed to support STEM learning experiences in Scottish education. Our Education Industry Partnerships (EIPs) are a growing list of programmes and initiatives that represent an increasingly diverse range of settings and specialisms, all with the shared value to develop and deliver inspirational and engaging STEM learning opportunities for educators and their learners.

Taking part in an Education Industry Partnership with SSERC gives organisations the opportunity to innovate, creating fresh and impactful engagements in STEM. It gives everyone involved the collaborative and creative space and time to ensure corporate social responsibilities are delivered with the greatest possible effects and outcomes.

Leidos STEM Challenge

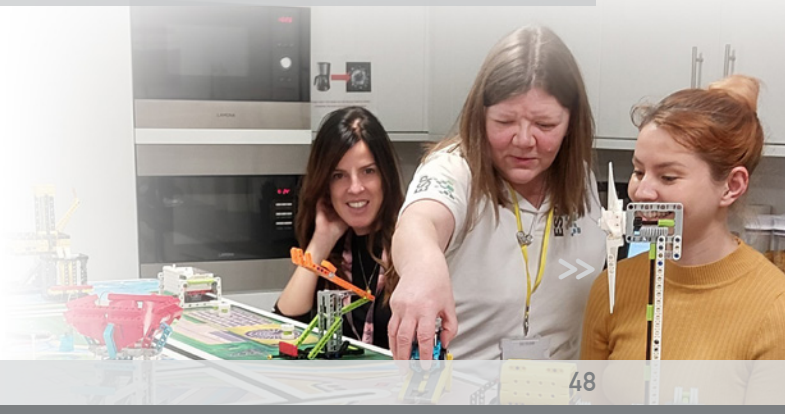
Building on the huge success of the first year of this EIP, SSERC has continued into year 2 with Leidos Innovations UK. We have partnered with six secondary schools in Glasgow and the West, offering a series of careers-based professional learning opportunities for staff and STEM challenges for their learners. Throughout the process, the growing STEM Ambassador Team at Leidos has supported and mentored the staff and learners. This EIP celebrated and showcased it's achievements at the year 2 showcase at Leidos HQ in The Glasgow Skypark Building.

Ocean Winds

The Education Industry Partnership between Ocean Winds and SSERC continued in 2022/2023 with the aim of aligning with OW's Skills Strategy for STEM and enhancing STEM learning and engagement to raise the general awareness of Ocean Winds and the offshore wind industry across Scotland.

Key successes include:

- ✓ 12 active STEM Ambassadors, delivering over 90 volunteering hours of activity
- ✓ Over 1500 young people engaged with OW STEM Ambassadors at career events
- ✓ Over 1500 young people engaged in classroom activities with wind turbine kits provided by OW
- ✓ 10 schools provided with kits to participate in IET First Lego League
- ✓ Part funded Grampian Regional Final for IET First Lego League at NesCol in Fraserburgh
- ✓ 500 young people worldwide participated in TechFest's STEMNext essay competition, sponsored by OW
- ✓ 9 videos showcasing different roles in OW created for schools to utilise
- ✓ Professional learning workshops for Teachers of Physics and Environmental Science
- ✓ OW funded the development of the new STEM Leader Award, YSL7 which is aimed at young people in the senior phase of secondary school.



Neptune Energy

As with our other EIPs, the success of year one has led to a continuation of our partnership working to support even more educators and learners. Year 2 of the Neptune Energy Challenge saw teams of pupils from Mackie and Peterhead Academies working with Neptune STEM Ambassadors to design a repurposed fossil fuel power station for new clean energy outputs.

Enthuse Partnerships

ENTHUSE Partnerships empower schools, colleges and employers to share practice and work collaboratively with the aim to achieve:

- ✓ Increased attainment in STEM subjects: narrowing the gap for disadvantaged students.
- ✓ Increased interest in STEM careers: more students interested in working in STEM industries.
- ✓ Increased understanding of STEM careers: more students aware of the qualifications and routes to progress in STEM.

BP Dyce and Bucksburn Aberdeen Partnership

Our programme of maths and numeracy professional learning across the Dyce and Bucksburn clusters, along with Stoneywood Primary, reached its conclusion at the end of academic year 2021/2022. The team involved were also proud to be named joint winners of Scotland's Enthuse Partnership of the Year 2022.

BP will now upscale its support of Enthuse partnerships in Scotland as SSERC prepares to launch the BP Super Enthuse partnership to support even more schools, educators and learners in northeast Scotland.

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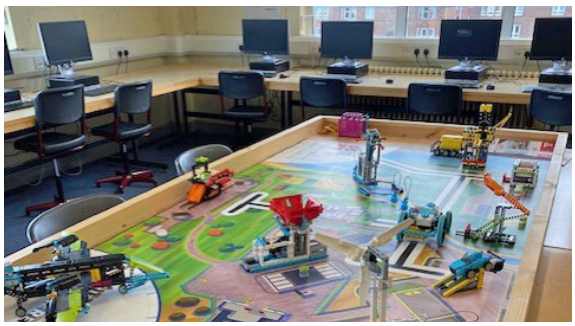
Jacobs Glasgow and West

SSERC has now completed this hugely successful partnership with Jacobs, their large team of STEM Ambassadors and partnership secondary schools in Glasgow and the West. A legacy event took place at Shawlands Academy to celebrate the impact made and the team involved were also proud to be named joint winners of Scotland's Enthuse Partnership of the Year 2022.



Aramco Northeast

This partnership has now officially launched with the first in a series of professional learning events taking place at Aberdeen Science Centre in late 2022. Educators and young people in the Aberdeenshire and wider north east will develop their skills and knowledge in curricular areas such as physics, construction, engineering and digital technologies.

Dundee Spectris

This partnership has now officially launched with the first in a series of professional learning events taking place at Dundee Science Centre in late 2022. Educators and young people in the Tayside region will develop their skills and knowledge in curricular areas such as physics, construction, engineering and digital technologies.

Intergen
The M in STEM
Supported by Intergen Rocksavage, SSERC and a team of schools have teamed up to create a professional learning offer for teachers of maths and science. The aim of this course is to identify ways - via a shared appreciation and understanding of mathematical techniques - to enhance learning for young people and ultimately contribute to raising attainment in STEM subjects via numeracy.

Looking forward

In the summer of 2023, after extensive planning work, SSERC will launch two further Enthuse Partnerships:

APAX
Supported by the Apax Foundation, a large number of educators and their learners will benefit from a series of professional learning events linked to digital technologies and the use of Vex robotics products.

Amazon
Supported by the Amazon, a large number of educators and their learners will benefit from a series of professional learning events linked to digital technologies and the use of Vex robotics products. There will also be a bespoke PL offer for secondary teachers of computing science which will be hosted by the digital team at West Lothian College.

The Nuffield Research Placement Programme

The Nuffield Research Placements (NRP) Programme gives S5 learners from disadvantaged backgrounds (or those who will be the first in their family to go to university) the opportunity to take part in a two-week STEM research placement within a university or industry research group during their summer holidays. Becoming the new lead for the programme in October 2021, SSERC enabled 90 young people to participate in a wide range of placements across Scotland during summer 2022, encompassing subjects such as biomedical sciences, psychology and aerospace engineering. Learners engaged with researchers to undertake a research project, collecting and analysing data and then created a report and poster which they showcased at the Nuffield Celebration Event in September. Friends and family were invited to this event, hosted by the University of Glasgow in their new Advanced Research Centre, to view the posters displayed and hear from young people about their placement experiences.

Nuffield Research Placements

In October 2022, 12 learners from the Nuffield Research Placement Programme were selected to attend an event at the V&A in Dundee on behalf of UKRI - "Together with UKRI: Transforming Tomorrow Together" where they showcased their posters to academics from universities across Scotland. The NRP Programme is managed by our National Partnerships Manager and STEM Programmes Coordinator.

The programme for Summer 2023 placements opened in late 2022, with 25% more applications received than the previous year.

"I have completed my first scientific report making me more confident to do so in university or the future."

"I enjoyed the independence within the lab that I was allowed, as this was different to anything I have experienced before."

"I got to meet people who are in the kinds of careers I aspire to and who could answer my more technical, scientific questions that teachers at school sometimes don't have the time to answer."

Looking forward

90 placements will be provided across Scotland in Summer 2023, with 85% of learners receiving a bursary to aid with their participation. The Celebration Event will take place at the University of Glasgow on 19th September 2023.

ESERO Space Champion

SSERC is proud to be one of two champions in Scotland for the European Space Education Research Office (ESERO). Working with the Royal Observatory in Edinburgh, SSERC supports ESERO and STEM Learning in their mission to create professional learning opportunities for educators and learning experiences for young people in the context of space.

We are working with member organisations of Space Scotland to grow the number of STEM Ambassadors in who are based in a space-related setting. For the second year running, SSERC has delivered on its target to deliver over 200,000 space inspirations for young people in Scotland.

STEM Clubs Quality Mark

SSERC now has the responsibility for assessing STEM Clubs Quality Mark applications for Scotland. Coordinated by STEM Learning at a national scale, the SCQM enables recognition for high quality learning and teaching within extra-curricular STEM clubs. There are three award levels available at bronze (for any club), silver (for a club older than 12 months) and gold (for a club older than 24 months).

SSERC has completed four STEM Clubs Quality mark assessments this year, all of which were accepted for Bronze level.

SSERC and STEM Learning Teaching and Inspiration Awards 2022

Celebrating the impact of positive role models in STEM

In May 2022, SSERC, working in partnership with STEM Learning, celebrated and acknowledged the impact and incredible contribution that positive role models make in education across Scotland. Congratulations to you all!

STEM Inspiration Awards

The STEM Inspiration Awards celebrate the individuals and employers who offer their time and expertise to support young people exploring a STEM career.

STEM Learning Teaching Awards

The STEM Learning Teaching Awards, supported by the ENTHUSE Charitable Trust, recognise the very best in STEM teaching.

"SSERC and STEM Learning would like to thank you for joining us to acknowledge these positive and inspirational role models and how they ultimately help shape the education for learners who they work with on a daily basis."

Dr Heather Reid - Awards Host and STEM Ambassador

Outstanding contribution to STEM Ambassador Programme

INSPIRATION AWARDS 2022

Mark Harris

Patricia Munoz de Escalona

Kenneth Mollison

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Outstanding STEM Ambassadors

Winners
Anne Okafor - Cruden Group and
Lorna Bennet - ORE Catapult

Highly commended
Emma Wilson - University of Edinburgh and Ashleigh Kitchener - APEM

Anne Okafor

Lorna Bennet


Emma Wilson

Outstanding contribution to widening participation, diversity and inclusion


Bethany Welsh

Winner
Bethany Welsh - Balfour Beatty

Highly commended
Dr Jane Essex - Strathclyde University

Outstanding STEM club

Winner
Katie Gold and the STEM Club of Inverkeithing High School

Katie Gold (left?)

Inspirational STEM employer

Fiona Keady (left)


Sam Greer

Winner
Leidos UK and Fiona Keady

Highly commended
SSE and Sam Greer

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Enthuse Partnership of the year

Joint winners Bucksburn and Dyce Academies and BP
Joint winners Glasgow and West Partnership and Jacobs

TEACHING AWARDS 2022


Jayne Mays


Abbie Beecroft

Outstanding Contribution to Diversity and Inclusion (supported by BP)

Winner
Jayne Mays - Fintry Primary School

Highly commended
Abbie Beecroft - Arbroath High School

Excellence in School and College Leadership in STEM

Winner
Sophie Poole - King's Park Secondary School

Highly commended
Jodie Hendry - St Andrews RC Secondary School


Sophie Poole


Jodie Hendry

TEACHING AWARDS 2022


Jacklyn Purdon


Lynsey Grubb

Excellence in STEM teaching (Primary)

Winner
Jacklyn Purdon - Ravenswood Primary School

Highly commended
Lynsey Grubb - Sidlaw View Primary School

TEACHING AWARDS 2022

Excellence in STEM teaching (Secondary)

Winner
Jodie Hendry - St Andrews RC Secondary School

Highly commended
Florence Donaldson - Merchiston Castle School


Jodie Hendry


Florence Donaldson

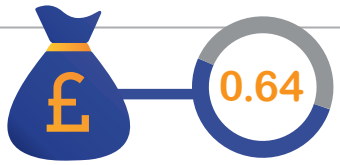
Business development activity

Aim
To increase income streams from non-traditional sources to allow for increased capability and activity.

We are grateful for those who continue to recognise the significant contribution that we make to the STEM education landscape in Scotland through continued membership and funding. We continue to look at way in which we can further invest in the development of products and services that will ultimately benefit practitioners and learners in Scotland.

Support for STEM Education

Every £1 given by the Scottish Government earns an extra £0.64 from other funders.

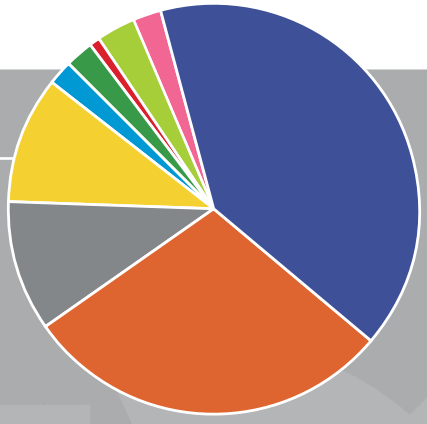


Our funders

- 32 Scottish Local Authorities
- The Scottish Government
- STEM Learning
- Primary Science Teaching Trust
- Edina Trust
- Institute of Physics
- Other Member Organisations

Income 2022/2023

	£'000s	%
Scottish Government grants	1037	40
Membership subscriptions*	763	29
Wider STEM Engagement**	263	10
STEM Learning Income supporting professional learning***	273	10
PSTT	65	2
SSERC courses	53	2
Edina Trust	32	1
SSERC Accreditation Programme	10	0
Education/industry partnerships	68	3
Other income	48	2
Total income	**£2,612**	**100**



* Local Authorities, collleges and independent schools.
** This includes courses where schools received Enthuse subsidies towards the cost.
*** This includes STEM Ambassadors in Scotland and the STEM Enrichment Partnership.

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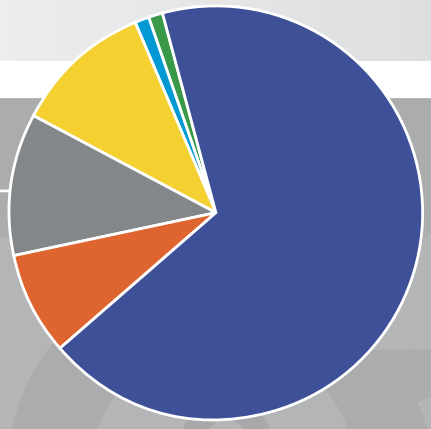
Expenditure*

2022/2023

	£'000s	%
Staff	1710	68
Property costs	204	8
Supplies and services	284	11
Other operating and administration costs	289	11
Governance costs	23	1
Grants distributed	22	1
Total expenditure	**£2,532**	**100**



* Expenditure before pension scheme interest, current service costs and actuarial remeasurements.

Other activity

Rental hire

SSERC seeks to maximise the use of our facilities in Dunfermline by hiring our training rooms for conferences and courses. There is also the opportunity to hire office space on a long- or short-term basis. The Rock Trust continues to rent office space from SSERC.

Digital Garden

We were delighted that Provost Leishman agreed to formally open the SSERC digital garden – a collaborative programme between SSERC and King's Road Primary School, Rosyth. SSERC staff and staff and learners from King's Road took an area of wasteland from SSERC HQ and turned it into a digital garden. The learners worked with SSERC staff to design, build and then plant fruits, flowers and vegetable seeds.

The (then) Chair of the SSERC Board (Alan Nimmo) and the SSERC CEO (Alastair MacGregor) were present for the opening. What is a digital garden? It's a standard allotment type garden, but with digital devices monitoring water moisture levels, greenhouse digitally controlled watering and ventilation systems, QR codes identifying plants. We even have a movement monitored camera that captures wildlife movement that can be accessed by the school.

Looking forward

System developments

The project to develop a new CRM system is near completion, with implementation due in Autumn 2023. This will make SSERC more responsive to our delegates and funders.

We are looking to expand our corporate social responsibility activity into developing a further garden area within SSERC HQ that will be designed and maintained by a local primary school in the vicinity of SSERC HQ.

Environmental sustainability

SSERC installed LED lighting in two of our Dunfermline buildings during the year. Reading for the first six months after installation suggests a saving of 20% on electricity usage during the winter.

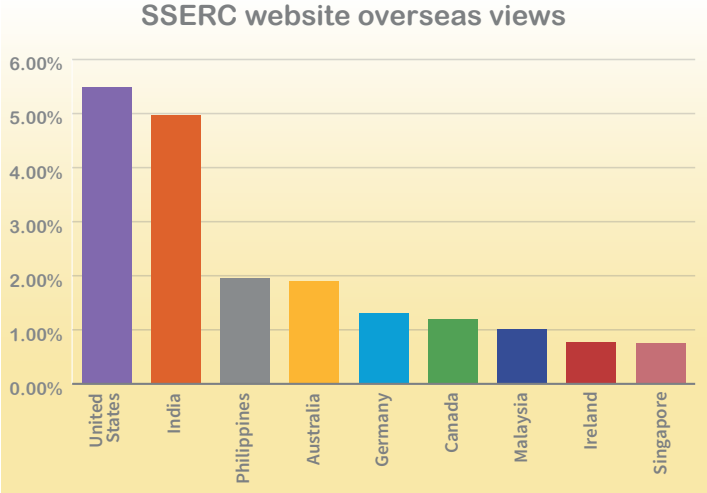
International activity

Aim
To participate in a range of international activity linked to SSERC's three core functions.

This is the newest Vision 2030 workstream, and as such international activity is very much in its infancy at SSERC and is confined mainly to the online world. That said, we visited a glassblowing school in Paris to network with professionals involved in scientific glassblowing and repair, and our Head of Advisory Service will address the Irish Chemistry Teachers meeting in October and run some online H&S training for Irish teachers.

The website

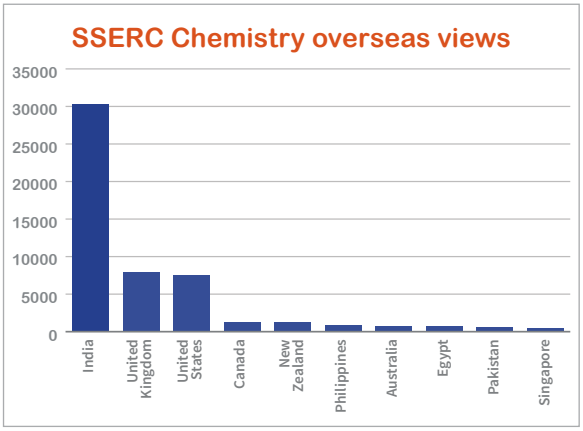
Nearly 35% of the hits on the SSERC website are from out with the UK, with the USA and India in pole position with around 5% of our views each. No other countries have over 2% of the pageviews, but the spread is impressive – people from 185 countries accessed the SSERC website last year.

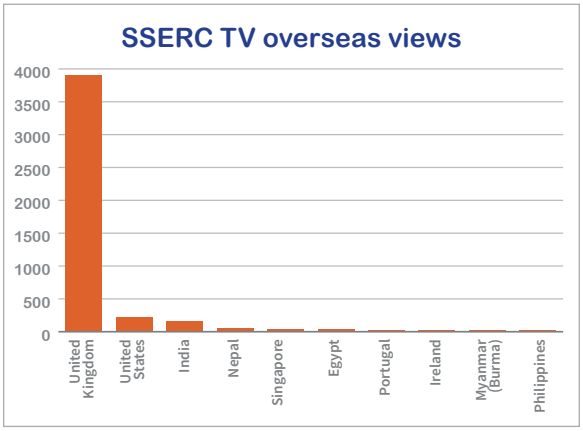


YouTube

Much of our contact with those overseas has been via our YouTube channels.

SSERCChemistry in particular seems very international – the UK only makes up 8.35 of our views compared to 26.2% for SSERC TV. Though both show a rather cosmopolitan viewership.





Looking forward

As we move into the next financial year, we will be exploring further opportunities to broaden our reach outside Scotland including via the Young STEM Leader Programme, academic publications and realising international opportunities through the SSERC website, SSERC TV and SSERC Online Learning.

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