sserc

Annual report 2022

Images: Unless otherwise stated, all images contained within this report have been captured by SSERC staff or a SSERC-appointed photographer. The front cover image was captured by: Kerri Haynes, Chris Lloyd, and Hayley Sherrard; all part of the SSERC team.

Contents

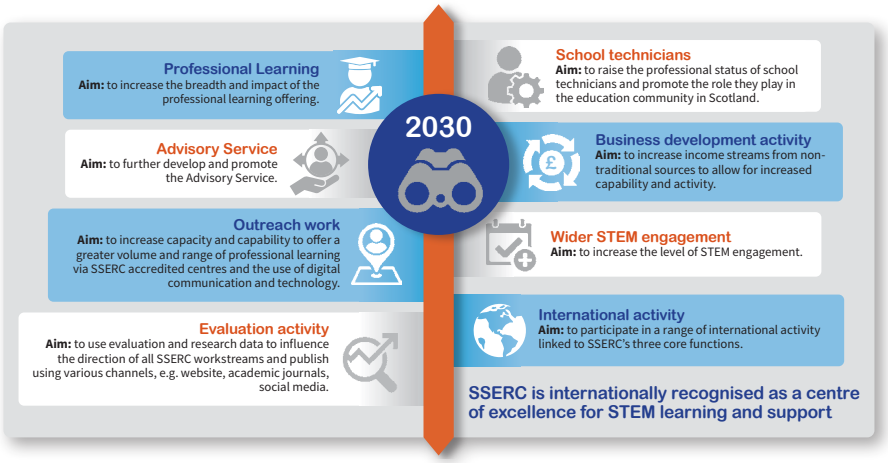
Overview

Message from the Chair of the SSERC Board of Directors and Trustees

The SSERC Board of Directors and Trustees (the Board) is impressed by the significant progress that the organisation has made, particularly given the pandemic's impact which has been the backdrop to both this and the previous annual report.

I became Chair of the Board some four years ago, not long after we appointed our new CEO. In that time, the organisation's transformation has been phenomenal in terms of internal changes and improvements and the range of products and services offered to the education community in Scotland and beyond. Transformational change of this type can only be achieved when you have a committed and dedicated team of staff, able and willing to respond to the changes expected by the CEO under the direction of the Board. I thank both the SSERC team and my fellow Board members for their continued efforts to ensure that SSERC retains its status as a highly regarded and influential organisation within the STEM education and training community in Scotland.

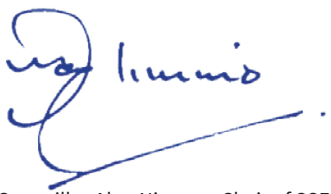
Of course, the challenge is not to lose momentum; we need to ensure that SSERC offer continues to meet the needs of our stakeholders and partners, and with this in mind, the Board took the opportunity to review the organisation's workstreams associated with Vision 2030 and which form the basis for the structure of this annual report.



I look forward to reporting progress made toward achieving this vision in subsequent annual reports and, in particular, our new workstream:

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

Partnership working has undoubtedly been one of the other vital components that has contributed to the organisation's success. On behalf of the Board, I thank our member Local Authorities (LAs), our grant funders, the organisations that have invested in SSERC financially to support Scottish STEM Education and all the other partner bodies that have contributed to the ongoing success of SSERC.



Councillor Alan Nimmo - Chair of SSERC Board of Directors and Trustees

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Message from the CEO

This annual report covers a period in which the COVID-19 pandemic continued to significantly impact Scotland's education landscape. While we had planned for activity post-pandemic, the reality of the situation was that it continued to influence the whole of this reporting period – particularly relating to professional learning (PL) activity. I am proud that the organisation again proved to be resilient while at the same time developing creative and innovative approaches across all three core functions of the organisation: professional learning, the advisory service, and wider STEM engagement.

There are many successes that are highlighted in this annual report, but there are three stand out achievements which merit a specific mention as well as the awarding of a range of new contracts that allowed for an expansion of our portfolio of STEM-related products and services.

In November 2021, we were formally awarded the **GTCS Professional Learning Award for Organisations** following a written submission and GTCS panel interview. We were pleased that the panel identified several areas of commendation, including:

> *"Massive, ambitious, creative approaches to professional learning are supported by SSERC's vision 2030. This has been shaped by practitioners, and there is synergy between the different workstreams, with professional learning actively placed to increase the breadth and impact of the learning on offer."*

> *"The submission shared exciting and innovative offers of professional learning to meet the needs of everyone who works with children and young people of all ages, from childminders to Community Learning and Development practitioners."*

We are immensely proud of this Award which demonstrates the organisation's collective commitment to ensuring the provision of quality professional learning to the STEM teaching community in Scotland.

The newly formed STEM Ambassador in Scotland Hub at SSERC was awarded **Investing in Volunteers Accreditation** by Volunteer Scotland in November 2021. Investing in Volunteers is the UK quality standard for good practice in volunteer management and recognises organisations making outstanding contributions within the voluntary sector. This recognition affirms our commitment to providing a positive and supportive volunteer experience for STEM Ambassadors. Our volunteers are crucial to bringing STEM subjects to life through real-life experiences, and it is vital that they enjoy a fulfilling and rewarding experience in return. We are immensely proud of this achievement, and it is a testament to the hard work, professionalism and enthusiasm of the STEM Ambassador in Scotland Hub team.

When I came into the CEO post, one of my first commitments was to support the role of the school technician in Scotland, and I restate this commitment again. In December 2021 we released our newest digital publication, 'The School STEM Technician', which we hope will become the 'go-to 'publication for the school technician professional in Scotland.

Despite the uncertainty and turmoil caused by the pandemic during this reporting period, the organisation was able to expand the range of products and services to support STEM Education and Training in Scotland, including the establishment of a single STEM Ambassador in Scotland Hub based at SSERC, an expansion of the number of Scottish based ENTHUSE partnerships: the further development of our SSERC Education Industry Partnerships (EIPs), and assuming responsibility for the Nuffield Research Placement and European Space Education Research Office (ESERO) programmes in Scotland.

I am honoured to lead an organisation that commits to **inspire, enthuse, and support STEM educators for the benefit of all learners [1]** and which, on an ongoing basis, embeds our stated core values that underpin our success.

Alastair MacGregor

Alastair MacGregor - Chief Executive Officer

[1] Mission, Vision & Values - SSERC

Corporate activity

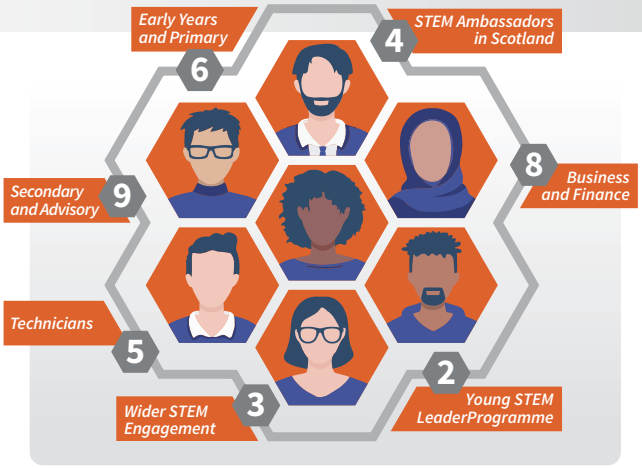
The SSERC Board

The SSERC Board of Directors and Trustees meet quarterly. The Board does not participate in day-to-day decision-making; instead, it sets overall policy, based on the company's mission and vision, and exercises an oversight function, reviewing the actions of its officers and executives. There are currently 15 Board Members representing a range of bodies and organisations that have an interest in STEM education and training. We welcomed Karen Tucker as our newest Board Member in this reporting period. To find out more about the Board go to SSERC.

The Board took the opportunity to review the 8 workstreams associated with Vision 2030. There has been significant progress across all workstreams; so much so, that two workstreams were merged and a new workstream added to reflect the international aspect of the SSERC Vision statement. The remainder of this annual report will report on progress against each workstream.

Workstream	Aim
Professional Learning	To increase the breadth and impact of the professional learning offering.
Advisory Service	To further develop and promote the Advisory Service.
Outreach work	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.
Evaluation activity	To use evaluation data to influence the direction of all SSERC workstreams and publish using various channels, e.g. website, academic journals, social media.
School technicians	To raise the professional status of school technicians and promote the role they play in the education community in Scotland.
Business development activity	To increase income streams from non-traditional sources to allow for increased capability and activity.
Wider STEM Engagement	To increase the level of STEM engagement.
International activity	To participate in a range of international activity linked to SSERC's three core functions.

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



KICKSTART® SCHEME

During this financial year, we supported the Foundation Apprenticeship programme by providing a placement to a learner from Larbert High School/Forth Valley College. Our staffing complement was enhanced by the UK Government Kickstart scheme which provided opportunities for two young people on Universal Credit to work at SSERC and further develop their professional and employability skills. Both young people have been retained as members of the SSERC team moving into the financial year 2022/2023.

As part of our commitment to equality, diversity and inclusion we undertake analysis of our staffing complement and also delegate participation in SSERC professional learning activities.

By delving into the data we hold, we can develop a better understanding of how different groups are affected by our policies, processes, decisions, products and services and by doing so, identify and take action to address any potential discrimination, harassment, and/or unconscious/conscious bias. Our 2021/2022 delegate equality, diversity and inclusion data can be found at SSERC-Equality-data-May-22.pdf (netdna-ssl.com).

SSERC Honorary Fellowship Award

In Scotland, we have individuals who have made an exceptional contribution to STEM education and training in Scotland throughout their careers and who also demonstrate the values associated with SSERC. To recognise such individuals, the SSERC Board introduced the SSERC Honorary Fellowship Award, details of which can be accessed here. The inaugural Fellowship Award was made to Paul Beaumont for his long and distinguished career within STEM education and training which spans some 40 years, underpinned by values which are at the heart of all SSERC activity: respect, integrity, innovation, passion and excellence.

Clare Adamson MSP, Vice-Chair of the SSERC Board of Directors and Trustees, Alastair MacGregor, SSERC Chief Executive Officer and Paul Beaumont, SSERC Honorary Fellow.

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 2021 – March 2022:

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

Despite the continued impact of COVID-19 throughout 2021/2022, we have delivered a full year of professional learning. This included supporting 13 Local Authorities through the Primary Cluster Programme (PCP).

The appetite and desire from Early Years settings and Primary Schools to drive STEM forward has been very encouraging, with many using STEM as an engaging context for learning through interdisciplinary activity.

Professional learning delivered:

- Primary Cluster Programme Year 1 and Year 2
- Open SSERC Meets
- ENTHUSE Courses (supported by STEM Learning)
- SSERC Online Learning self-study course.

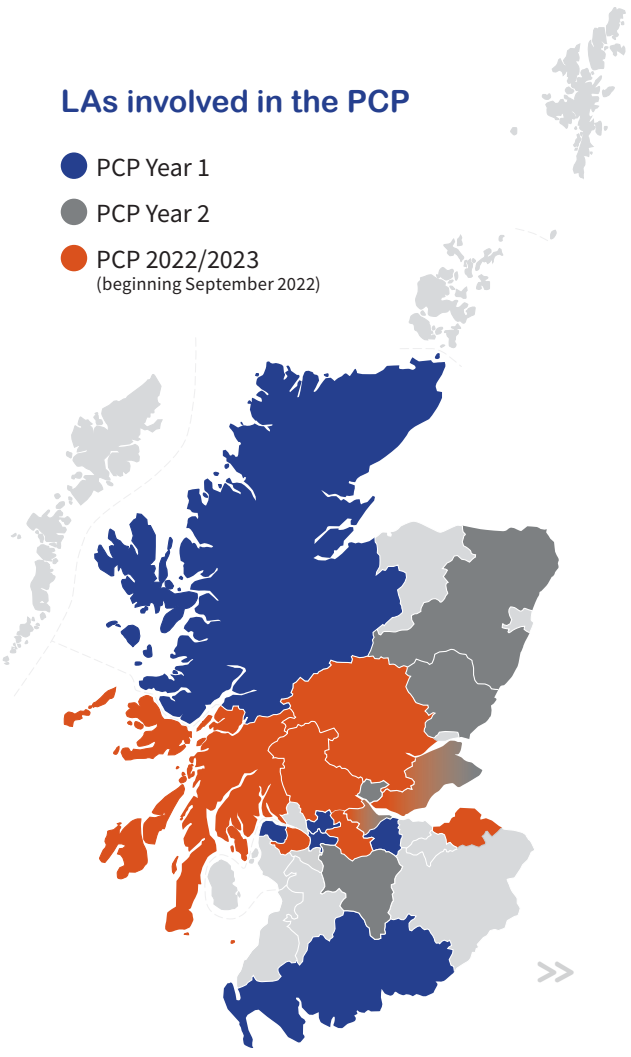
1921 training days delivered; this is 25% over agreed target of 1536.

Primary Cluster Programme

Since its pilot, PCP continues to be focussed on hands on experiential professional learning to support Early Years Practitioners and Primary School Teachers in raising confidence and expertise in the delivery of STEM.

Numbers to date

LAs involved in the PCP



PCP has always been a blended PL opportunity, combining face-to-face residential and remote learning experiences. The pressures on staffing in schools meant that we had to be proactive, flexible, and creative with the delivery and reconfiguration of PCP, and all other planned PL. Using SSERC Meets, whereby resources were sent out for mentors and staff in schools to engage with the PL offered, allowed engaging STEM activities to be delivered in classrooms across the country amidst curriculum recovery planning.

"Great ideas for practical, motivating and, most importantly, achievable activities."

Open courses and SSERC Meets

Our range of SSERC Meets continue to be popular with delegates. Across the year we offered and delivered the following:

- Teddy in the Park
- Science Inquiry Finding and Association and Fair Testing
- Pneumatics and Hydraulics
- Mystery Messages
- Zoom in, Zoom out
- Marvellous Magnets
- Sensory Science
- Sowing the Seeds of STEM
- Maths Week Scotland – in partnership with STEM Ambassadors in Scotland.

SSERC Meet figures 2021/2022

210
training days were delivered digitally via open interactive SSERC Meets reaching some

37800
delegates

360
resource boxes allowing 10 staff members in each school to take part in our sessions

26
different LAs covered through the open SSERC Meets

"SSERC PL has allowed colleagues to engage and motivate pupils through practical STEM lessons. My colleagues have reported increased confidence in their teaching of STEM lessons. Pupils have been very engaged in the lessons provided and have been keen to take the learning further. I have developed good relationships with cluster colleagues and aim to maintain and build on our shared experience so far."

New professional learning developments for 2022/2023

- SSERC Meet in partnership with The Royal Observatory, Edinburgh on Space and the James Webb Space Telescope.
- SSERC Meet in partnership with Red Rock Power on renewable energy.
- Investigating the Human Body – ENTHUSE funded.
- Sustainable STEM – ENTHUSE funded.
- Leadership in STEM for Early Years and Primary Teachers, credit and levelled at SCQF 11 – part ENTHUSE funded.

Digital Skills

The past 2 years have forced all educators to embrace the digital world, with more creative ways of using these digital tools to engage all learners. SSERC demonstrate innovative ways to use Computing Science and Digital resources as an engaging context for learning through Interdisciplinary Learning.

The professional learning delivered this year has reached 18 different local authorities and various education settings within each of these authorities.

Delivery and activity

This year, the Digital Skills and Computing Science professional learning delivery has focussed on Early Years and Primary settings.

From April 2021 - March 2022, through planned PL, SSERC engaged with:	
Early Years Practitioners (including Nursery Teachers)	30
Primary Teachers	130
ASN Teachers (supporting early – second CfE levels)	5

The appetite and desire from Early Years Practitioners and Primary School Teachers to upskill their Computing Science knowledge has been very positive.

Most professional learning delivered this year has been done remotely via Microsoft Teams, with a few sessions delivered latterly being back to face-to-face:	
Let's Play @ Computing Science	30
Meet micro:bit V2	25
VEX GO – STEM Learning ENTHUSE bursaries	20
VEX GO – Digital Xtra funding (supporting schools in Perth & Kinross, South Ayrshire and Dumfries & Galloway)	20
VEX Code VR	20
Enhancing PCP with the inclusion of micro:bit sessions	35 (face-to-face)
Super STEM – micro:bit workshop	15 (face-to-face)

"Best course I have ever done. Lots of work, but worth every minute of it! The entirety has helped me understand Micro:bits and also how this can be used effectively to cover Computer Science Outcomes and Experiences."

Additional bespoke professional learning has been delivered to support educators in different local authorities through other funding streams:	
Unplugged Computing Science - Stirling	10
Cyber Resilience in Internet Safety (CRIS) - Renfrewshire	25
Cyber Resilience in Internet Safety (CRIS) - Self-study course	59
Micro:bit sessions – Glasgow	15
Unplugged Computing Science - Stirling	10

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Partnerships

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

SWAY resources accessed linked to professional learning

Let's Play @ Computing Science		Meet micro:bit V2		VEX GO	
Unplugged & Outdoor CS	218 views	Let's Get Started	130 views	Get Ready for VEX GO	134 views
Code & Go Mouse	108 views	Keep It Simple	70 views	Welcome to VEX GO	157 views
Botley 2.0	83 views	Get Creative	68 views	Build it. Power it. Code it	91 views
				The Next Level	45 views

These numbers continue to increase weekly as the SWAY content is accessed and used.

"The SWAYS have been invaluable. Bursting with really easy to access content, ideas, activities and challenges. The questions to be reflected upon were clearly shown along with the assignments to hand in when tasks are done - a great idea. It's evident that hundreds of hours of work have gone into producing this project. Useful, practical and fun activities with extension tasks to challenge. The live sessions were great too. Super to hear and work with others from across Scotland. Thank you!"

"This PL has enhanced my understanding of computer science, how to use this within the classroom and the benefit that could have for our learners. I am now more aware of the place computer science has in the curriculum and it's importance for our learners as they more through learning, life and work."

Secondary

The secondary professional learning team offers a broad selection of courses to a wide range of educators.

From April 2021 - March 2022 the Secondary Education Team delivered

- **4000** hours of combined professional learning
- **856** Delegates
- **834** CPD units achieved
- **556** Teachers
- **176** Technicians
- **119** Student teachers
- **5** other delegates including STEM Ambassadors and CLD Staff

Biology

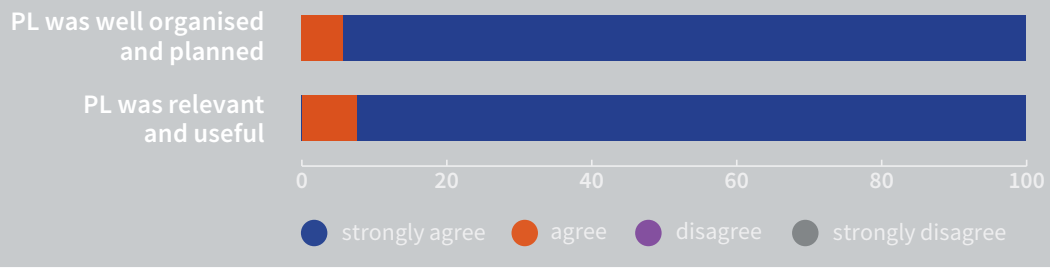
The Biology PL offer at SSERC has grown significantly, with a newly appointed Education Manager and a range of new offers in development. In 2021/2022 Biology practitioners have been supported via the following events and offers:

- British Science Week
- National Biology Week
- Practical Techniques for Recently Qualified Biologists
- Royal Society of Biology 25th Annual Teachers Meeting
- SSERC Meet – Digital Technologies
- SSERC Meet – Outdoor Learning
- Supporting Advanced Higher Biology
- Taking Biology Further with STEM Ambassadors

"My confidence in delivering and implementing practical work has really improved, and this will help to deliver exciting and engaging lessons. I have also been able to share the resources I gained with colleagues and technicians and therefore help contribute to my department and whole school."

Delegate on Recently Qualified Biologists Course

Statements



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Chemistry

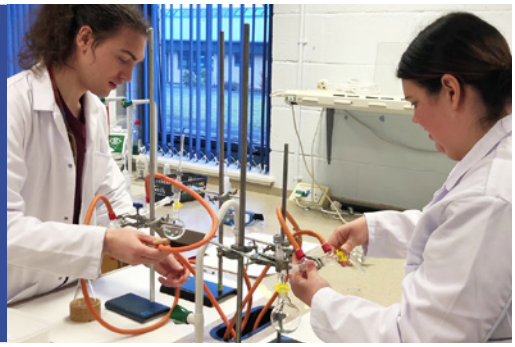
Chemistry practitioners continue to be supported by the team at SSERC with our most significant PL delivery in 2021/2022 being aimed at the senior phase practical learning areas of the curriculum.

Chemistry for Advanced Higher
The course was very well received, some typical comments being:

"Great course, I feel much more confident teaching practical skills."

"Huge impact - very positive. I feel in a much better position to deliver the AH course. Much more confident."

16
Delegates attended for 2 days



Physics

The Physics PL offer at SSERC continues to support practitioners via a range of events, offers and activities, these are delivered in person or via remote and blended methods. In 2021/2022 there were several Physics opportunities for our delegates:

- BeeSpiV
- Conductive Plastic
- Electrical Safety
- Introductory Physics
- Mobile Devices
- Optical Radiation
- Physics Blended Learning
- Physics Safety
- Working With Radioactive Sources
- SSERC Institute of Physics Summer School
- Tracker

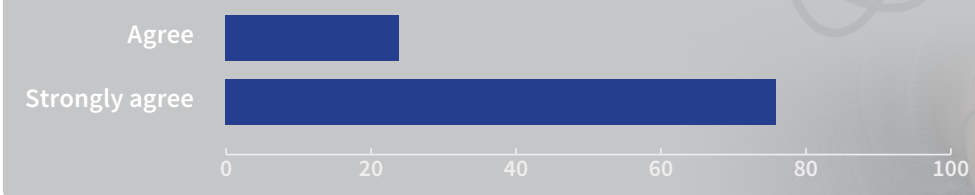
"I was so impressed by the resources available, venue for learning, and the very knowledgeable staff at SSERC while attending the Intro to Physics course. You are doing a fantastic job!"

Science

As well as direct support for the discrete Sciences, SSERC offers wider and more general PL for educators, including probationers and technicians. In 2021/2022, our offers included:

- Environmental Science
- Laboratory Science
- Science for Secondary Probationers

The PL will have impact on my future practice



"I thoroughly enjoyed this course! It was an excellent opportunity to meet colleagues and discuss our ideas and share experiences. I would highly recommend this course to another probationer. Thank you!"

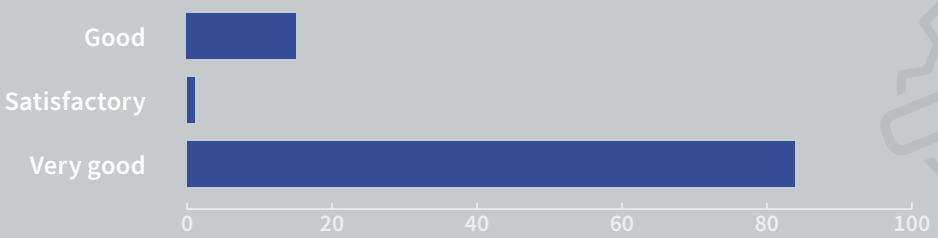
Technology

The Technology Team at SSERC has a broad and varied PL offer to teachers and technicians who have a role in Technology or Design Engineering subjects. There are competency-based health and safety offers as well as more creative curricular development offers:

- Centre Lathe Turning
- Hot and Cold Metal Forming
- Technology Makerspace
- Welding Skills
- Wood Turning

"Great course with knowledgeable and friendly instructors, would highly recommend to anyone."

How would you rate the overall quality of this PL



Health and safety

A range of courses in health and safety have been delivered to Initial Teacher Education (ITE) students in Aberdeen, Napier, Edinburgh, 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.

Looking forward

As academic year 2022/2023 commences, SSERC as an organisation will deliver a significantly increased number of professional learning events supported by STEM Learning and other partner organisations. We will see a 25 percent increase in the number of ENTHUSE funded courses. The volume of courses available is not the only increase, however, the secondary team will be launching a range of new courses:

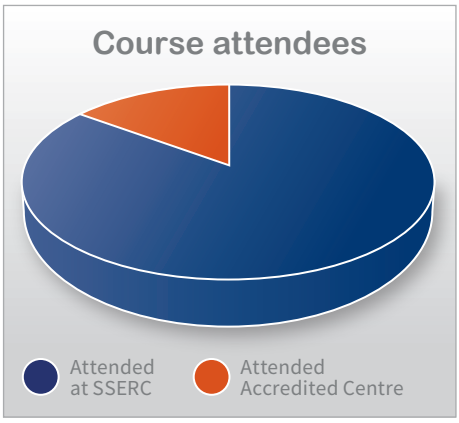
Course title	Details	Spaces available
Biology SSERC Meets	A series of 5 online twilight courses for Biology Teachers with supporting content from invited guest experts in the subject.	20 spaces per session.
Investigations for Advanced Higher Biology	A 3-day face-to-face course supporting teachers to deliver high quality practical learning.	16 spaces per session.
BGE Biology/Chemistry/ Physics for non-specialists	A 2-day face-to-face course targeted at Biology/ Chemistry/Physics Teachers to support their delivery of BGE science content outwith their specialism.	There will be 3 cohorts with 16 spaces in each.
Techniques for Senior Phase Biologists	A 2-day face-to-face course supporting teachers to deliver high quality practical learning across the certificate levels of Biology, focussing on SCQF Levels 4-6.	16 spaces per session.
Using R in the STEM classroom	A 1-day face-to-face course training teachers to use R (a computing programming software) with likely uptake among teachers of AH Biology and H Applications of Mathematics.	12 spaces per session.
Microscale SSERC Meets	A series of online twilight courses for Chemistry Teachers to support the delivery of engaging practical work in the classroom.	20 spaces per session.
Higher and Advanced Higher Physics	A 2-day face-to-face course supporting teachers to deliver high quality practical learning across the certificate levels of Physics, focussing on SCQF Levels 4-6.	12 spaces per session.
Science Probationers Residential	A 2-day residential course to support NQTs in the delivery of safe, high quality, hands-on practical STEM learning in the Science classroom.	There will be 5 cohorts with 30 spaces in each.
Technical Probationers Residential	A 2-day residential course to support NQTs in the delivery of safe, high quality, hands-on practical STEM learning in the Technology workshop.	12 spaces per session.

School technicians

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

We proudly support the work of school technicians across the country as an integral part of the Scottish Government's STEM Strategy for Education and Training. We provide face-to-face practical training as well as online training sessions.

With the COVID-19 restrictions finally leaving us, technicians have come back to attend face-to-face events in good numbers. 216 delegates have successfully completed one or more of the 12 certificated courses we offer, with a further 38 delegates having successfully completed one of the courses at a SSERC Accredited Centre.



SSERC Bulletins

At SSERC we are rightly proud of our two main digital publications which continue to have a significant readership with the education community in Scotland (and beyond).

In December 2021 we published our newest digital publication 'The School STEM Technician', a triannual publication dedicated to supporting school technicians' professional development and encouraging professional discussion and debate.

We have a range of other digital publications, all of which can be located at: Publications - SSERC.

Techné

Techné is a revamped virtual support community for Technicians across Scotland, promoting the sharing of knowledge and skills. The predecessor forum was identified as being 'clunky' and 'difficult to access and navigate'. Techné is now the forum for accessing Technician resources, technician SSERC TV content, STAC minutes as well as acting as a forum for professional discussion and dialogue. You can access Techné by using the link that follows: Techné (google.com).

SSERC TV for Technicians

4 out of the top 10 videos viewed on SSERC TV were for technicians.

			Average view duration	
Total	**12,196**		**1:54**	**27.0%**
Immobilised Algae	962	7.9%	1:28	51.1%
Balancing butterfly	919	7.5%	1:26	45.9%
Immobilised Yeast	768	6.3%	1:43	41.7%
Micro Technique 9 Vital stain S cerevisae	583	4.8%	1:46	47.2%
Investigating Forces with Rocket Mouse	357	2.9%	1:35	28.4%
What does SSERC do?	305	2.5%	0:41	36.6%
Radon balloon decay curve expt	273	2.2%	1:03	33.2%
Science Inquiry in Primary Science	250	2.1%	1:54	25.5%
Balloon Zip Wire	243	2.0%	1:09	35.8%
Secret Message	229	1.9%	2:01	28.7%

3 out of the top 10 Playlists viewed on SSERC TV were technician based.

Traffic source > Playlists	Impressions	Impressions click-through rate	Views ↓	Average view duration	Watch time (hours)
Total	**15,293**	**5.6%**	**1,246**	**1:49**	**37.8**
Microbiological Techniques	5,143	5.8%	435 34.9%	0:58	7.1 18.8%
Primary	3,997	2.1%	149 12.0%	1:55	4.8 12.6%
Understanding Electricity SSERC Meet	1,470	8.2%	141 11.3%	1:28	3.5 9.2%
Physics Videos for Technicians	880	7.3%	91 7.3%	2:54	4.4 11.7%
Sounds Good	718	9.8%	87 7.0%	1:27	2.1 5.6%
Secondary Biology	441	8.4%	75 6.0%	1:07	1.4 3.7%
Secondary Technology	225	16.4%	49 3.9%	9:09	7.5 19.8%
Can You Feel The Force SSERC Meet	261	12.3%	42 3.4%	1:29	1.0 2.8%
Introductory Physics	288	10.8%	35 2.8%	2:11	1.3 3.4%
Pneumatics and Hydraulics SSERC Meet	283	7.4%	27 2.2%	1:06	0.5 1.3%

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

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.

In 2019 SSERC established an Accredited Centre programme designed to enable external bodies and organisations to deliver a range of SSERC developed Scottish Credit and Qualification Framework (SCQF) Credit and Levelled professional learning courses.

sserc accreditedcentre

12 SSERC SCQF Credit and Levelled professional learning courses are now available to be delivered by SSERC Accredited Centres. These courses are specifically designed to support Scottish Schools Technician professionals but have proved to be of value also to Scottish Design and Technology and Science Teachers. We continue to support and encourage participation in the SSERC Accredited Centre programme. There are currently 8 Accredited Centres operating across the country with 4 potential new centres having requested application forms.

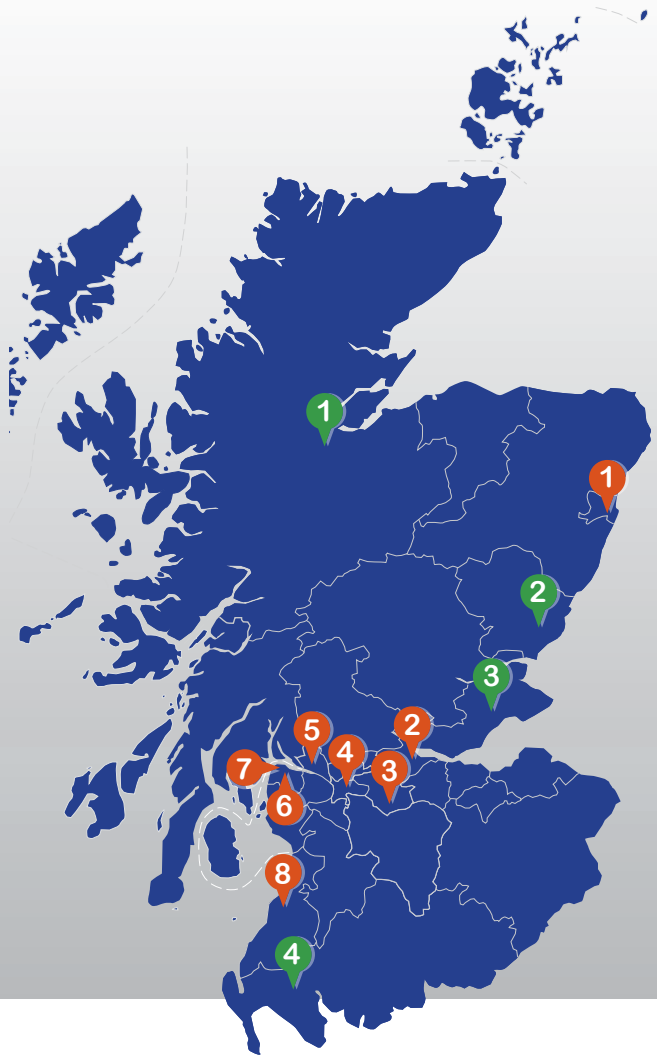
This year Accredited Centres completed a total of 159 CPD units (785 training hours) offering quality professional learning at a local venue so minimising the need to travel and reduce carbon emissions. For more information on our SSERC Accredited Centre programme, visit SSERC Accredited Centre Programme - SSERC.

Accredited Centres

1) North East Scotland College
2) Forth Valley College
3) North Lanarkshire Council
4) Glasgow TSS
5) West Dunbartonshire Council
6) Inverclyde Council
7) West College Scotland
8) South Ayrshire Council

Potential Centres

1) Highland Council
2) Angus Council
3) Fife Council
4) Dumfries and Galloway Council

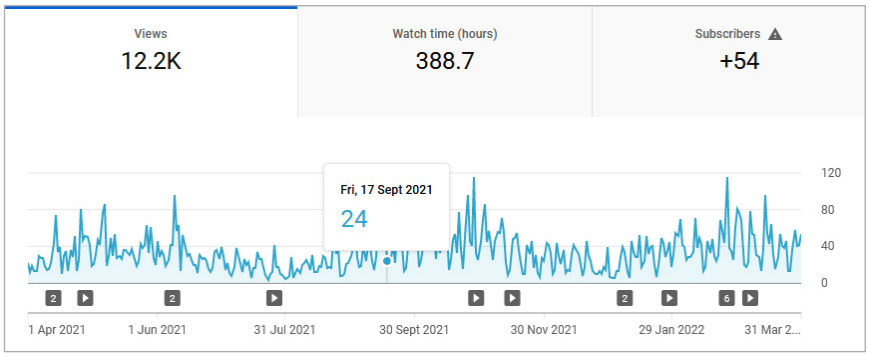


Outreach digital

SSERC TV, the main vehicle for our digital resources, is the organisation's YouTube channel and this was heavily used during the pandemic. SSERC TV can be accessed at SSERC TV - YouTube. In the financial year 2021/2022 SSERC TV content, views and subscribers continued to grow.

SSERC TV analytics

12,196 views



Top 10 videos

	Video	Average view duration	Views
1	Immobilised Algae 31 Mar 2020	1:28 (51.1%)	962
2	Balancing butterfly 26 May 2020	1:26 (45.9%)	919
3	Immobilised Yeast 31 Mar 2020	1:43 (41.7%)	768
4	Micro Technique 9 Vital stain S cerevisae 8 Apr 2020	1:46 (47.2%)	583
5	Investigating Forces with Rocket Mouse 5 May 2020	1:35 (28.4%)	357
6	What does SSERC do? 1 May 2020	0:41 (36.6%)	305
7	Radon balloon decay curve expt 18 Mar 2019	1:03 (33.2%)	273
8	Science Inquiry in Primary Science 25 Mar 2020	1:54 (25.5%)	250
9	Balloon Zip Wire 21 Apr 2020	1:09 (35.8%)	243
10	Secret Message 16 Feb 2021	2:01 (28.7%)	229

Most popular videos

Video	Impressions	Impressions click-through rate	Views ↓	Average view duration	Watch time (hours)
Total	**100,044**	**4.8%**	**12,196**	**1:54**	**388.7**
Immobilised Algae	6,013	9.0%	962 7.9%	1:28	23.5 6.1%
Balancing butterfly	3,359	9.2%	919 7.5%	1:26	22.0 5.7%
Immobilised Yeast	6,031	8.1%	768 6.3%	1:43	22.0 5.7%
Micro Technique 9 Vital stain S cerevisae	5,709	7.7%	583 4.8%	1:46	17.2 4.4%
Investigating Forces with Rocket Mouse	2,571	3.4%	357 2.9%	1:35	9.5 2.4%
What does SSERC do?	513	2.1%	305 2.5%	0:41	3.5 0.9%
Radon balloon decay curve expt	414	4.4%	273 2.2%	1:03	4.8 1.2%
Science Inquiry in Primary Science	2,634	5.0%	250 2.1%	1:54	7.9 2.0%
Balloon Zip Wire	1,885	3.6%	243 2.0%	1:09	4.7 1.2%
Secret Message	2,342	6.8%	229 1.9%	2:01	7.7 2.0%
Eye Dissection	1,278	5.6%	182 1.5%	2:41	8.2 2.1%
Avoch primary P5	1,756	5.4%	170 1.4%	1:26	4.1 1.0%
After Image Illusion	2,317	3.3%	149 1.2%	2:13	5.5 1.4%
Micro Techniques Microbiological Spill	909	3.3%	148 1.2%	2:49	7.0 1.8%
Creating a Game with Sploder	908	5.4%	146 1.2%	0:56	2.3 0.6%

Geographical spread of audience

Geography	Views ↓	Average view duration	Watch time (hours)
Total	**12,196**	**1:54**	**388.7**
United Kingdom	2,662 21.8%	1:54	84.8 21.8%
Australia	67 0.6%	1:43	1.9 0.5%
India	58 0.5%	1:26	1.4 0.4%
United States	35 0.3%	1:45	1.0 0.3%
Ecuador	21 0.2%	0:31	0.2 0.1%
Mexico	18 0.2%	1:25	0.4 0.1%
South Africa	17 0.1%	0:35	0.2 0.0%
Singapore	12 0.1%	1:45	0.4 0.1%
South Korea	11 0.1%	0:43	0.1 0.0%
Iraq	10 0.1%	1:11	0.2 0.1%

Channel views by gender

Viewer gender ↓	Views	Average view duration	Average per-centage viewed	Watch time (hours)
Female	60.0%	1:54	77.1%	83.9%
Male	40.0%	0:32	3.0%	16.1%
User specified	–	–	–	–

Playlist views

Playlist	Playlist starts	Views ↓	Average view duration	Watch time (hours)
Total	**1,160**	**2,471**	**1:49**	**75.0**
Microbiological Techniques	308 26.6%	726 29.4%	1:14	15.0 20.0%
Primary	361 31.1%	534 21.6%	1:47	15.9 21.2%
Understanding Electricity SSERC Meet	53 4.6%	211 8.5%	1:24	5.0 6.6%
Physics Videos for Technicians	71 6.1%	158 6.4%	2:28	6.5 8.7%
Sounds Good	56 4.8%	136 5.5%	1:05	2.5 3.3%
Secondary Technology	61 5.3%	114 4.6%	7:17	13.8 18.5%
Secondary Biology	35 3.0%	113 4.6%	1:02	2.0 2.6%
Secondary Chemistry	21 1.8%	65 2.6%	0:59	1.1 1.4%
Can You Feel The Force SSERC Meet	18 1.6%	58 2.4%	1:25	1.4 1.8%
Pneumatics and Hydraulics SSERC Meet	28 2.4%	57 2.3%	1:34	1.5 2.0%
Introductory Physics	7 0.6%	46 1.9%	1:59	1.5 2.0%
Physics Teacher Virtual Summer School	35 3.0%	40 1.6%	7:06	4.7 6.3%
Young Stem Leader (YSL)	13 1.1%	39 1.6%	2:50	1.8 2.5%
Ssercmeets	16 1.4%	34 1.4%	0:37	0.3 0.5%
Primary Bottle Science	22 1.9%	33 1.3%	0:42	0.4 0.5%
Secondary Physics	10 0.9%	31 1.3%	0:43	0.4 0.5%

The SSERC website

Following user feedback, we took the opportunity to refresh the look of the SSERC website to provide a fresh, less cluttered look and make site navigation easier on all digital devices.

Downloads

Much of the content on the website is in the form of documents (Word, PowerPoint, pdf etc.) for download. We have recently (September 2021) started tracking the number of downloads of these documents. From then until the end of this period, our documents were downloaded a total of 63,779 times.

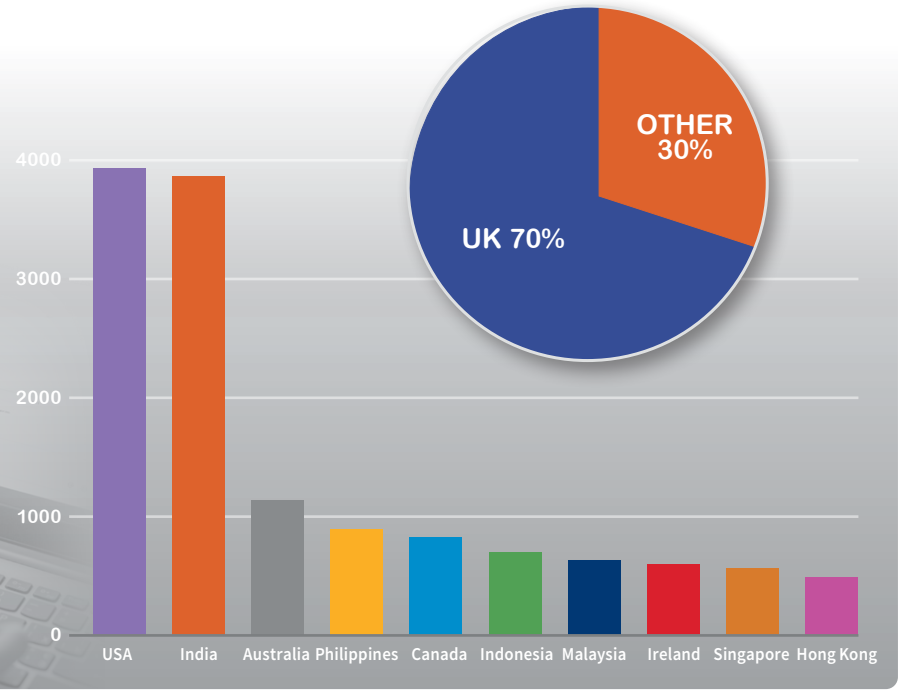
Members

We have also started tracking the dates at which new users register to access the website. Over this period, we had 589 new users approved.

Figures for 1st April 2021 - 30th March 2022

	Total (World)	UK overall	Scotland
Users	78,097	54,542 (69%)	34,009 (62%)
Sessions	119,746	94,528	68,871
Pageviews	434,476	391,346	329,892
Pages per session			4.79

The UK makes up 70% 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 182 other countries!



SSERC Online Learning

To support our growing portfolio of online learning activity we took the opportunity during lockdown to develop and pilot a new online learning platform. This has been successfully used to support the following self-study courses:

- Early level STEM - numeracy and maths.
- Laying the foundations of computing science.
- Introductory Chemistry for technicians.
- All our existing self-study courses will be transferred over to SSERC Online Learning and some new ones developed including:
  - CRIS (Cyber Resilience and Internet Safety)
  - Laying the foundations 2
  - Micro:bit v2
  - Let's play @computing science.

Social media

Our social media channels continue to be a useful way of communicating with our stakeholders and promoting the positive impact of our portfolio of products and services on user groups.

Our main social media channels are:

Advisory Service

Aim
To further develop and promote the Advisory Service.

In another year largely dominated by the coronavirus pandemic, the SSERC Advisory Service has continued to operate and indeed to 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 ITEs.

Response to COVID-19

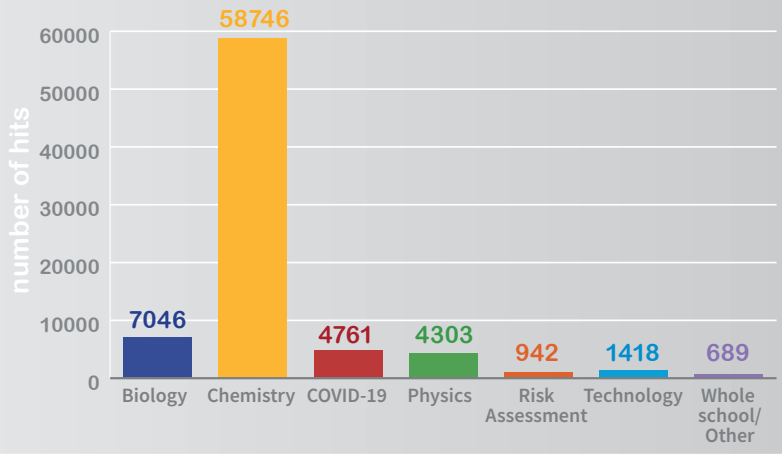
While still looming large, the impact of COVID-19 eased considerably over this period, largely due to the vaccination programme. As 2021 progressed, schools re-opened and restrictions were increasingly eased and while the arrival of the omicron variant was a setback, its effects were less than had been feared.

The extensive guidance that SSERC had developed and made available to all via the website, coupled with changes being evolutionary rather than revolutionary meant that there were fewer calls and emails on the subject than in the previous year. Indeed, requests for specific advice tailed off to less than 20 enquiries on this topic over the whole of this period.

Similarly, the website traffic on COVID-19 was also down to around 6.5% of health and safety traffic over the period (around 5,500 'hits') and the various documents we produced were downloaded around 1500 times.

Health and safety web page 'hits' 2021-2022

The Health and safety home page 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 a strong performance.



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SSERC Personnel

Annie McRobbie (Education Manager for Biology), Duncan Lamb (Education Manager for Technology) and Alan Purves (Education Officer for Technicians) have all achieved their NEBOSH Certificate in Occupational Health and Safety.

Evelyn Lee who is training to become a Radiation Protection Adviser (RPA), has been accepted on a Strathclyde University course that will help with the theoretical and legal aspects of her training. Chris Lloyd (Head of Advisory Service), has been recognised as a COVID-19 Workplace Champion by RoSPA. This is due to his work on not only ensuring the safety of staff at SSERC but also those engaged in teaching and supporting practical STEM subjects in schools and colleges.

Health and safety poster

A poster has been developed that highlights SSERC's role as the source of health and safety advice and guidance for member schools. The poster emphasises that employers expect SSERC advice to be followed. The website address and contact information are clearly displayed. The poster can be viewed here. When staff were asked to discuss Vision 2030, one theme that emerged was to continually highlight the Advisory Service and SSERC safety advice at professional learning events. The inclusion of this poster in course materials will support this.

Publications & advice

The first issue of a new tri-annual publication for technicians, The School STEM Technician has been published. This new publication, as the title suggests, is highly focussed on the interests of STEM Technicians. We are ensuring that important safety matters are covered in this bulletin as well as the existing STEM Bulletin.

Following some incidents in schools, SSERC has carried out research and drawn up guidance on dealing with projector bulbs that blow and disperse mercury vapour.

In Chemistry, Higher and Advanced Higher, Prescribed Practical Activities (PPAs) are still widely used. Guidance has therefore been updated and new risk assessments produced for these activities.

From issue 275 of the secondary STEM Bulletin onwards, we will be accepting articles from external contributors and also advertising. Protocols are in place to ensure that our reputation as a centre of excellence for safe, effective, engaging practical work is in no way compromised by these initiatives.

Advisory related courses

Despite the removal of lockdown restrictions, our online health and safety courses have remained extremely popular. They were run again this year and they, along with the two self-study courses, are now firmly part of the landscape and proving popular. Practitioners appreciated this, commenting:

"Thank you all... the website orientation for newbies like me was very helpful."

and

"Thank you for all of your help through the course these past three Monday evenings. It has been very informative for us!"

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For a number of years, SSERC has offered a free face-to-face health and safety induction course for learners on a one-year teacher education course. Last year, the provision was entirely online and was very well received. This year we are offering a wider range of choices: face-to-face, online or an online, self-study option. Once again, the vast majority of trainee science teachers in Scotland have had a chance to have free health and safety training from SSERC, training that emphasises our unique and continuing role of supporting them throughout their careers.

The pilot of a blended radiation protection course in Scottish Borders Council is ongoing. The new course involves theoretical elements being delivered online or via self-study, and a practical session at SSERC. This means that practitioners coming to SSERC from some of the more distant locations can have a later start and earlier finish than if they attended one of our existing face-to-face courses. We already have an online course that covers the theoretical elements. A self-study module has now been created for this new professional learning, which could also be used as stand-alone introductory or refresher course.

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.

International Standard on Science Equipment

The International Standard, 61010-2-130 that SSERC contributed to has now been published. Suppliers and manufacturers who can show that their equipment meets the standard for a particular age group can market it as such. Buyers in schools can be confident that equipment that meets the standard is suitable for use in an education setting.

STEM Ambassadors

STEM Ambassadors have access to the website and can also contact SSERC for advice about any proposed practical work. In addition, a self-study health and safety module is being developed to give them a good grounding in health and safety before starting any activities.

Art and Design

The adaptation and development of Art and Design risk assessments is ongoing and it is hoped to have them on the website before the start of the next session.

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.

Evaluation activity

Aim
Use evaluation data to influence the direction of all SSERC work-streams and publish using various channels, e.g website, academic journals, social media.

GTCS Professional Learning Award

In November 2021, SSERC was proud to renew its status as a Professional Learning Awarded Organisation with the General Teaching Council for Scotland.

"A very well thought out, detailed submission which shared SSERC's broad range of professional learning opportunities which support STEM learning. These are well conceived to place the teacher at the centre as the learner. The team presenting were clearly invested in this work and modelled themselves a lead learner."

"SSERC has shown very proactive, responsive approaches to shaping the professional learning in terms of the pandemic and has a very good range of accessible offers which are well thought out to meet practitioner needs. Professional learning continues to be informed by new approaches and online ways of working offer greater accessibility to the professional learning on offer across Scotland and internationally."

The SSERC Evaluation Process

The SSERC five-step evaluation strategy was introduced in 2021 and after a full year of delivery, the first planned annual review has taken place. The experiences of our course leaders and delegates, as well as ongoing changes in the educational landscape and delivery methodologies, has led to an upgraded version of our evaluation strategy. A more streamlined evaluation process is now in place, crucially without any compromise on the level of insight we gain on our own performance and in terms of how delegates evaluate and measure the impact of their experiences with us.

Step 1	Step 2	Step 3
Pre-course evaluation	*Post-course evaluation*	*Measuring impact evaluation*
To understand the aims and objectives of the delegate.	To collect feedback on our own performance in professional learning delivery and for the delegate to begin planning for positive impact back at their centre.	To investigate the impact the professional learning course has had on themselves, colleagues and learners in their centre over a subsequent period of time.

Additional changes to our evaluation process for teachers ensures that our terminology and delegate journey is fully aligned with the relevant GTCS standards, again, ensuring that there is no compromise on the standards which form a large part of our status as a Professional Learning Awarded Centre by GTCS. As part of our continual improvement cycle, another full review of the strategy will take place among education teams in September 2022 to process a wide sample of delegate feedback on all aspects of our professional learning offers.

"The evaluation strategy shows clearly that quality assurance and supported self-evaluation for teachers is well conceived to support reflection across the professional learning from start to finish and beyond."

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Young STEM Leader Programme Evaluation

The education team at The University of Stirling are nearing completion of the independent impact and evaluation of YSLP. The report will focus on a range of aims and objectives linked to how successful YSLP is in increasing awareness, appreciation and engagement in STEM.

> *"I've absolutely loved it, really enjoyed it personally, really enjoyed working with the children and the parents and it's got to be one of the most successful partnerships and programmes, I think it's just excellent how it's planned, the logs are great and the feedback has been brilliant."*
>
> *Community Tutor Assessor*

In September 2021, the School Science Review published an article about the Young STEM Leader Programme. (Rough, G., MacGregor, A. and Menzies, J. (2021), The Young STEM Leader Programme: inspiring and developing young people through STEM, School Science Review, **103** (382), 43-48.)

The Young STEM Leader Programme: inspiring and developing young people through STEM

Graeme Rough, Alastair MacGregor and Jamie Menzies

Abstract The Young STEM Leader Programme (YSLP) is an important feature of the Scottish Government's STEM Strategy. YSLP creates culture change through developing peer role models who challenge stereotypes and improve awareness and attitudes towards STEM. YSLP is having a major impact on the quality and extent of peer support available across primary and secondary schools in Scotland. Over 1200 Tutor Assessors, representing over 600 educational centres, have been trained and certificated to run YSLP with representation from all Scottish local authorities. Some 4000 Young STEM Leaders are working towards non-formal and formal awards. By 2022, YSLP will be available to all school pupils in Scotland.

Wider STEM engagement

Aim
To increase the level of STEM engagement.

Introduction and overview

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. There are leadership opportunities for young people with the Young STEM Leader Programme as well as activities to link educators in all sectors with industry partners and STEM Ambassadors to create enhanced STEM learning events for young people in Scotland and further afield.

STEM Ambassadors in Scotland

In April 2021, SSERC took over the running of all three Scottish STEM Ambassadors Hubs (North, West and East) and combined these into one STEM Ambassador Hub covering the whole of Scotland under the name "STEM Ambassadors in Scotland" (SAiS). This merger included the recruitment of new staff members from the North and West Scotland regions and the continuation of contracts for the STEM Ambassadors East @ SSERC, which SSERC had taken on at the beginning of April 2020. For more information about the SAiS team click here.

April 2020 - March 2021

1796 new STEM Ambassadors registered on the database	**1317** STEM Ambassadors participating in volunteering activity	**19143** volunteer hours were completed	**31.68%** of primary schools engaged with the programme	**73.14%** of secondary schools engaged with the programme	**1078** New followers on LinkedIn	**1608** PVG's issued

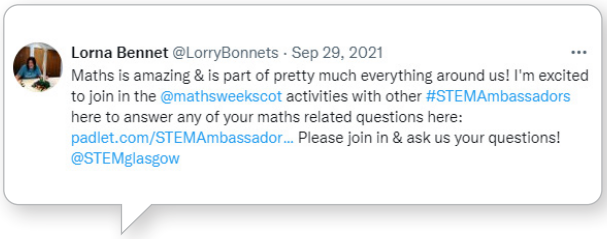
Investing in Volunteers

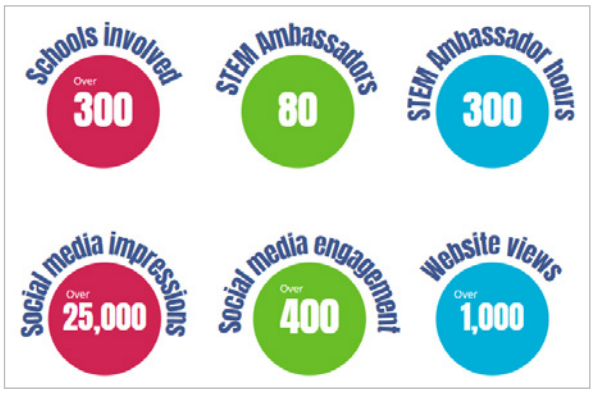
The STEM Ambassadors in Scotland Hub completed the Investing in Volunteers accreditation process in September 2021, 77 STEM Ambassadors were interviewed and 164 completed a survey. We were successfully issued the award in October 2021 with positive comments from the Assessor (see below quote) and the STEM Ambassador volunteers.

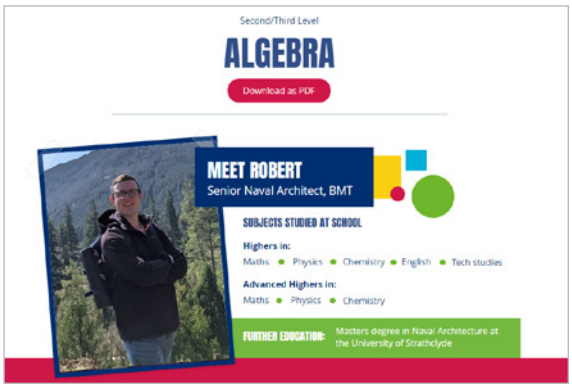
> *"Volunteers clearly understood why they were integral to the organisation, stating their reasons for getting involved, which closely aligned with the aims of the organisation."*
>
> *Investors in Volunteers Assessor*

Maths Week Scotland

Each year Maths Week Scotland provides the opportunity to involve a large number of STEM Ambassadors in a national programme of activities. It has now become a fixed event in the calendar for the Hub. The Large Grants Fund awarded to the Hub supported the most ambitious programme of activities to date. The activities were flexible to allow schools to access to suit their individual needs and requirements when COVID-19 restrictions were still making volunteering challenging.

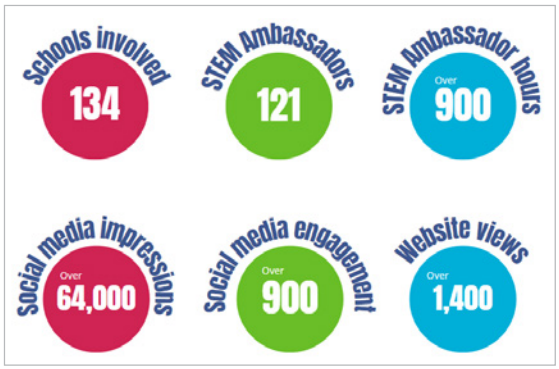


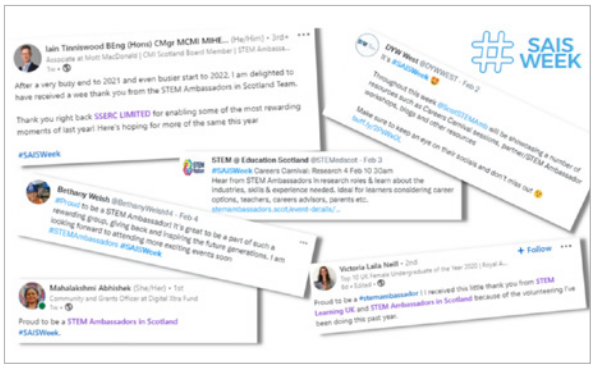




SAiS Week

STEM Ambassadors in Scotland Week is the flagship event for the Scottish STEM Ambassador Hub. This event aims to showcase what STEM Ambassadors can do and to encourage more STEM activity and partnership working.





"All set up at Aberdeen Science Centre to celebrate #saisweek. Looking forward to engage with some enthusiastic young people and their families. Proud to be a STEM Ambassadors in Scotland."

STEM Ambassador

Training

Training is an integral part of what SAiS offer STEM Ambassadors. Between April 2021 and March 2022 SAiS delivered or hosted over 40 information or training sessions to support STEM Ambassadors to engage with the programme and develop skills. We worked in partnership with the Improving Gender Balance and Equalities Team from Education Scotland to develop a session called STEM is for Everyone – which shows STEM Ambassadors how to be inclusive in their practice. Professional Science Communicator, Sam Langford, developed a training session for STEM Ambassadors called The Secrets of Sci Comm – this gives STEM Ambassadors the tools to make STEM activities engaging.

> *"Loved this workshop it's given me more confidence to deliver a session on unconscious bias in the future."*
>
> *STEM Ambassador after attending STEM is for Everyone*

Online events for schools

SAiS hosted or delivered over 20 online events for teachers and their classes. Over 1,000 people attended these events. The most popular events have been with primary schools, in particular, the SSERC collaboration with The3Engineers.

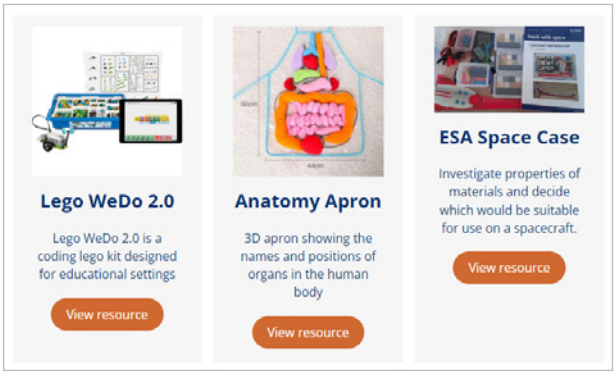
Institute of Food Science + Technology ifst citb

Employers

The SAiS Hub have collaborated with and supported employers and organisations from across the UK. Some key events have included Forestry and Aquaculture in STEM Week with Lantra, supported the launch of three SSERC Education Industry Partnerships with Neptune Energy, Leidos and Ocean Winds and worked with IFST (Institute of Food Science and Technology) and CITB (Construction Industry Training Board) to recruit STEM Ambassadors.

Looking forward

Looking forward to April 2022 to March 2023, some key focuses will including promoting the SAiS physical Resource Hub across Scotland to encourage more hands-on STEM activity. The Hub will also continue to work with the Young STEM Leader Programme, including collaborative training and projects for STEM Ambassadors, Young STEM Leaders and Teachers.



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 fully operational in schools and community groups across Scotland, with over 7,000 young people taking part. For more information on the YSLP visit www.youngstemleader.scot.

Young STEM Leaders are running digital activities at Fintry Primary School in Dundee.

Programme participation

There has been considerable growth in YSLP participation, with over 7000 Young STEM Leaders (YSLs) engaging with the programme that is now represented in every Local Authority Area in Scotland. Despite challenges faced with online learning, we are pleased to see the following certification results for this year.

Award level	Certificates
YSL2	384
YSL3	55
YSL4NF	174
YSL4F	25
YSL5	41
YSL6	111

April 2021 - March 2022

702 Delivering Centres (159 new)

343 Primary schools

250 Secondary schools

29 Youth groups

90 other Delivering Centres*

7000+ Young STEM Leaders

1700 trained Tutor Asssors (829 new this year)

* e.g. local authorities and partners

Estimated **30,000** hours of STEM leadership activity as a result of YSLP

Over **600** SCQF points earned by Young STEM Leaders

Over **7,000** young people have taken part in the programme

#YoungSTEMLeaderWeek 2021

The second annual **#YoungSTEMLeaderWeek** took place in October 2021 to launch and celebrate the programme across all of our centres. A number of activities were planned for the week, including:

- Inaugural Tutor Assessor Conference – whole day online event attended by over 100 TAs from centres across the country.
- 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, attended by over 1000 young people
- A social media campaign driving participation and uptake in the YSLP.

Over **100** Tutor Assessors attended our first Tutor Assessor Conference as part of #YoungSTEMLeaderWeek

ARTAVs

Our team of Associate Regional Trainers and Verifiers (ARTAVs) have been in post since November 2020, to 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 even individual – level, increasing the flexibility and accessibility of the programme to new centres or educators.

This year the YSLP and ARTAV teams collectively delivered **126 professional learning sessions** to **1445 delegates** from schools and community groups across Scotland. Over 700 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.

The ARTAV team is available to deliver or support YSLP professional learning across Scotland, for more information visit www.youngstemleader.scot/the-team.

YSLP 2021/2022

126 PL sessions delivered

1445 Delegates

ARTAV allocation.

The YSLP and ARTAV teams.

>>

Partnerships and auto-awards

The YSLP team has been engaging with various STEM award providers to align the YSLP to existing awards and frameworks. This provides the opportunity for young people completing other STEM programmes to gain additional recognition through a Young STEM Leader award. New awards were agreed with Aerospace Kinross and Young Engineers and Science Clubs.

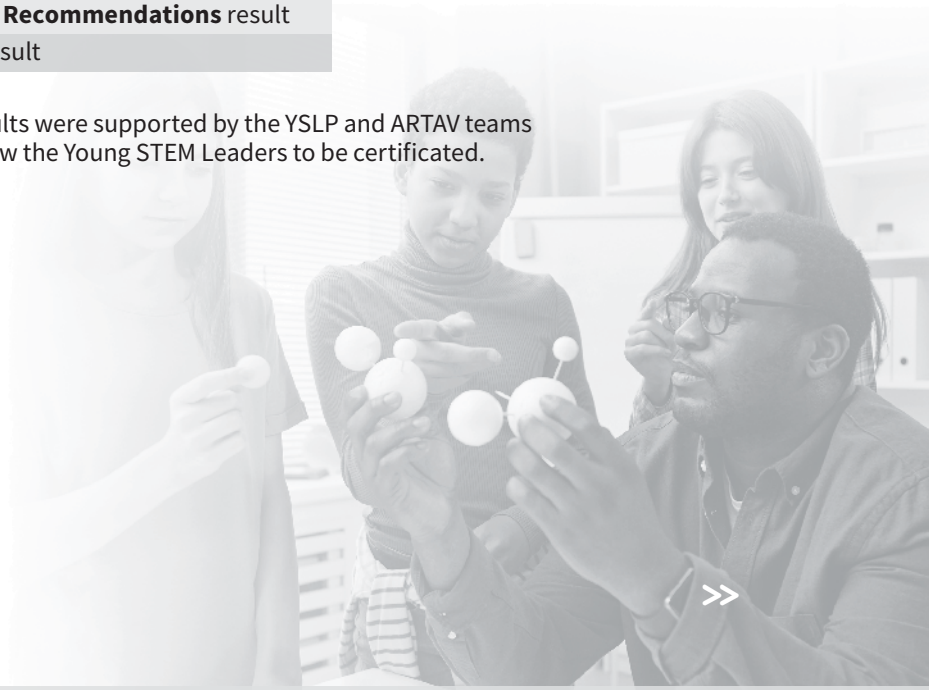
This year, around 20% of awards were achieved through participation in a partner programme, serving as an effective way to recognise the achievements of young people and promote the benefits of YSLP awards.

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 External Verification 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 32 times
21 centres received an **Accepted** result
9 centres received an **Accepted with Recommendations** result
2 centres received a **Not Accepted** result

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.



YSLP Beyond Scotland

Scottish Government and SSERC Board approval allowed for a new joint venture between SSERC and Sports Leaders Qualification (SLQ) to develop and launch a new STEM Leader award for schools in England.

Two levels of a new Qualification in STEM Leadership have been developed	
Level 1	Qualification in STEM Leadership (Key Stage 3/Years 7 and 8), broadly equivalent to SSERC's YSL4 award.
Level 2	Qualification in STEM Leadership (Key Stage 4/Years 9 and 10), broadly equivalent to SSERC's YSL5 award.

STEM Leaders submission SLQ

In November 2022, SLQ launched the STEM Leaders programme into the English secondary education market via a joint venture with SSERC. Developed in partnership with SSERC, STEM Leaders encourages learners 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.

During this pilot year, Pioneer STEM centres have helped support and shape the development of the programme, providing valuable feedback and sharing good practice with potential new STEM centres. Over 300 learners have engaged in the programme and will continue to develop their leadership skills within their setting.

	Number of Learners	Number of Centres
2021/2022	338	16

Looking forward

As of the 1st August 2022 the STEM Leaders programme will be available to all English secondary schools.

SLQ geographic areas in England, Wales and Northern Ireland.

Partnership working

Education Industry 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 offers organisations the opportunity to innovate, creating fresh and impactful engagements in STEM. It is 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

SSERC has worked with Leidos Innovations UK to partner with six secondary schools in Glasgow and the West of Scotland through a series of professional learning opportunities for staff and STEM challenges for their learners. Throughout the process, the STEM Ambassador Team at Leidos has supported and mentored the staff and learners. The pinnacle of this EIP was our Celebration Showcase Event at Glasgow Science Centre on 16th June 2022.

Education sserc Industry

PARTNERSHIPS

leidos

Ocean Winds

SSERC is working with Ocean Winds to deliver their hugely ambitious STEM Strategy, so far, we have achieved:

OW OCEAN WINDS

✓	22 STEM Ambassador registrations
✓	5 Ambassadors participating in Sustemability Challenge with NESCol
✓	14 Ambassadors taking part in the Big Number Natter as part of National Numeracy Day
✓	1 Ambassador participating in Net Zero Event at Speyside High School
✓	3 Ambassadors volunteering to be interviewed as part of STEMNext
✓	2 Ambassadors attending the STEM Inspiration Awards to be inspired by existing best practice

SSERC facilitated OW funding support to:
STEMNext : TechFest Essay Competition
First Lego League in 2022/2023

Provision of content for:
Professional Learning events for teachers
Teaching materials and 20+ kits for Offshore Wind Turbine projects in schools
Career related videos for use in schools and partner programmes

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Neptune Energy

SSERC has worked with Neptune Energy and secondary schools in Aberdeen to take part in energy-based STEM challenges, and like other EIP's, benefitting from the incredible support of their STEM Ambassadors and experts in the renewable energy sector. Our Showcase Event took place on 13th June 2022 where we celebrated the brilliant impact this has made for the teachers and young people involved.

ENTHUSE Partnerships

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

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

BP Dyce and Bucksburn Aberdeen Partnership
Our ongoing programme of maths and numeracy professional learning across the Dyce and Bucksburn clusters, along with Stoneywood Primary, is generating hundreds of hours of professional learning for educators in the area.

"The partnership has fundamentally changed the way we deliver numeracy lessons and learning in our school."

Jacobs Glasgow and West of Scotland
SSERC has worked with Jacobs and their large team of STEM Ambassadors to partner with secondary schools in Glasgow and the West of Scotland through a series of professional learning opportunities for staff and STEM challenges for their learners. Teams of learners are aiming to achieve a Young STEM Leader award by providing solutions to challenges that have been set by the engineers and other sector specialists at Jacobs.

Aramco Northeast
This partnership will officially launch in Summer 2022 but with some early preparatory work in place, the expectation is that this programme of work will generate a wide range of professional learning for educators in the northeast of Scotland and opportunities for young people to engage with the organisation.

Dundee Spectris
Similar to the Aramco partnership, the early planning and scoping is underway. SSERC hopes to engage schools, teachers and young people with the STEM Ambassadors of Spectris in Dundee and Angus with the official launch scheduled later in 2022 via a digital learning theme.

ESERO Space Champion

SSERC is proud to be one of two champions in Scotland for the European Space Education Research Office. Working with the Royal Observatory in Edinburgh, SSERC will support 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 STEM Ambassadors in Scotland as part of the One Million Interactions programme to promote the Space sector. In the new academic year, Young STEM Leaders will deliver a space-themed panel Q&A session focusing on careers and the talent pipeline in the space sector in Scotland.

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The Nuffield Research Placement Programme

The Nuffield Research Placement (NRP) Programme gives S5 learners from disadvantaged backgrounds the opportunity to take part in a two-week STEM research placement within a university or industry research group during their summer holidays and in 2021 SSERC became the lead for the programme in Scotland.

The NRP Programme is managed by our National Partnerships Manager and STEM Programmes Coordinator.

Placements

125 Applications

90 Placements matched

Placements have taken place at:

articulate, Cancer Research UK, UWS University of the West of Scotland, University of Stirling, ThermoFisher Scientific, Howden, Heriot Watt University, University of Strathclyde Power Networks Demonstration Centre, University of Strathclyde Glasgow, GCU Glasgow Caledonian University, NHS Dumfries & Galloway, SAMS Scottish Association for Marine Science, University of Aberdeen, Spirit AeroSystems, University of Glasgow, Edinburgh Napier University, University of St Andrews, Siemens, SUERC Scottish Universities Environmental Research Centre, vivomotion

Learners worked in a great variety of different disciplines including: renewable energy engineering, digital chemistry, vaccine development, and software coding.

We have had lots of fantastic feedback from participants about their placements. One of our learners who was hosted by the Scottish Association for Marine Science (SAMS) said:

Six young people we placed at the University of Glasgow's School of Chemistry had the opportunity to meet Nobel Prize in Chemistry 2021 winner Professor Sir David MacMillan.

"I've had a great time at my placement, it was really awesome to see and work in SAMS and I have really enjoyed my project. I've also got to speak to some really interesting people, and I think this will have been great experience and look great for when I (hopefully) apply to study at SAMS when I leave high school. It's been a great experience overall and I'm so glad I was able to do it."

Looking forward

A Celebration event at the Advanced Research Centre, University of Glasgow took place on 27th September, bringing together learners and providers to showcase their research output. We will shortly be launching learner and placement provider recruitment for year two of this programme.

Business development activity

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

Support for STEM Education

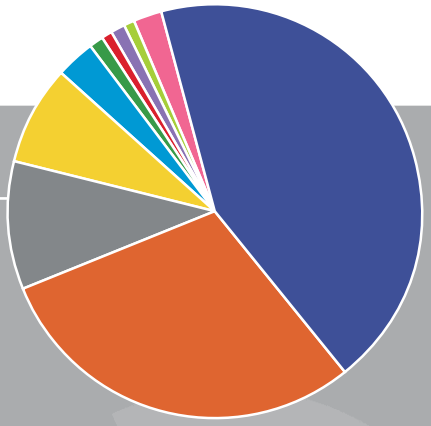
Every £1 given by Scottish Government earns an extra £0.53.

Our funders

- 32 Scottish Local Authorities
- The Scottish Government
- STEM Learning
- Primary Science Teaching Trust
- Edina Trust
- Institute of Physics
- The Scottish Association for Metals
- The Wellcome Trust
- Digital Xtra Fund
- Education Scotland
- Other Member Organisations

Income

2021/2022



	£'000s	%
Scottish Government grants	1078	44
Membership subscriptions*	741	30
Wider STEM Engagement**	239	10
STEM Learning Income supporting professional learning***	205	8
PSTT	65	3
SSERC courses	34	1
Edina Trust	20	1
CJRS/Kickstarter grants	20	1
Education/industry partnerships	18	1
Other income	53	2
Total income	**£2,473**	**100**

* Local Authorities, collleges and independent schools.
** This includes STEM Ambassadors in Scotland and the STEM Enrichment Partnership.
*** This includes courses where schools were funded through ENTHUSE bursaries.

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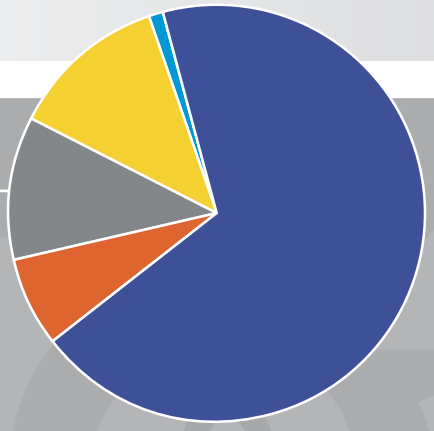
Expenditure*

2021/2022

	£'000s	%
Staff	1660	68
Property costs	180	7
Supplies and services	276	11
Other operating and administration costs	293	12
Governance costs	22	1
Grants distributed	6	0
Total expenditure	**£2,437**	**100**



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

Other activity

Rental hire

SSERC offers other organisations the opportunity to hire our Dunfermline venue for conferences and courses. We also offer office room hire, which includes long as well as short-term arrangements. The Rock Trust currently rents an office room from SSERC. During the year we also held an event as part of a team building exercise for the Rock Trust.

System developments

SSERC has carried out a small refresh of our website to give clearer and quicker access to our services. We have also begun a project to develop and implement a new CRM system, which will enable us to be more responsive to our delegates and funders.

SSERC Digital garden

As part of our corporate social responsibility programme, we worked with a local primary school - King's Road Primary School in Rosyth - to take an unused and neglected walled garden space within the SSERC HQ estate and transform it into a digital garden. We are grateful to the following organisations who part funded this activity:

The before and after of the SSERC Digital garden.

SSERC, 1-3 Pitreavie Court, South Pitreavie Business Park, Dunfermline KY11 8UU. Telephone 01383 626070, email: enquiries@sserc.scot, website: www.sserc.scot.