



THE YOUNG STEM LEADER PROGRAMME

Inspiring and developing young people through STEM

Annual Report

Academic year 2020/21

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YOUNGSTEM
Leader
led by 

Introduction and foreword



The Young STEM Leader Programme has thrived in the last academic year, with its participants rising to the challenge of centre closures. This sort of flexibility, innovation, and determination to succeed sums up our Young STEM Leaders and their Tutor Assessors within our Delivering Centres. Young people adapted well to the emerging situation as they moved their STEM leadership online, utilising technology and building their digital skills to complete their planned STEM activities, events and interactions to inspire their peers. There are now thousands of educators and young people all over the country taking part in this programme, and I am so incredibly impressed with what they are all achieving.

Alastair MacGregor

CEO, SSERC



It has been a true privilege to witness all the incredible STEM leadership happening in centres across Scotland during an extremely challenging year for schools, youth groups and community organisations. By delivering virtual STEM clubs, creating websites, recording podcasts, supporting home learning or inspiring their peers face-to-face, YSLs have demonstrated true resilience and passion for STEM – with over 500 achieving awards. I extend my thanks to all YSLs, Tutor Assessors and SSERC staff in helping to grow and develop the programme, and look forward to being a part of this exciting project as it reaches more young people across Scotland and beyond.

Jamie Menzies

Young STEM Leader Programme Manager



Cover image: Young STEM Leader at Charleston Academy leading a microscopes workshop

Programme Overview

1. Introduction

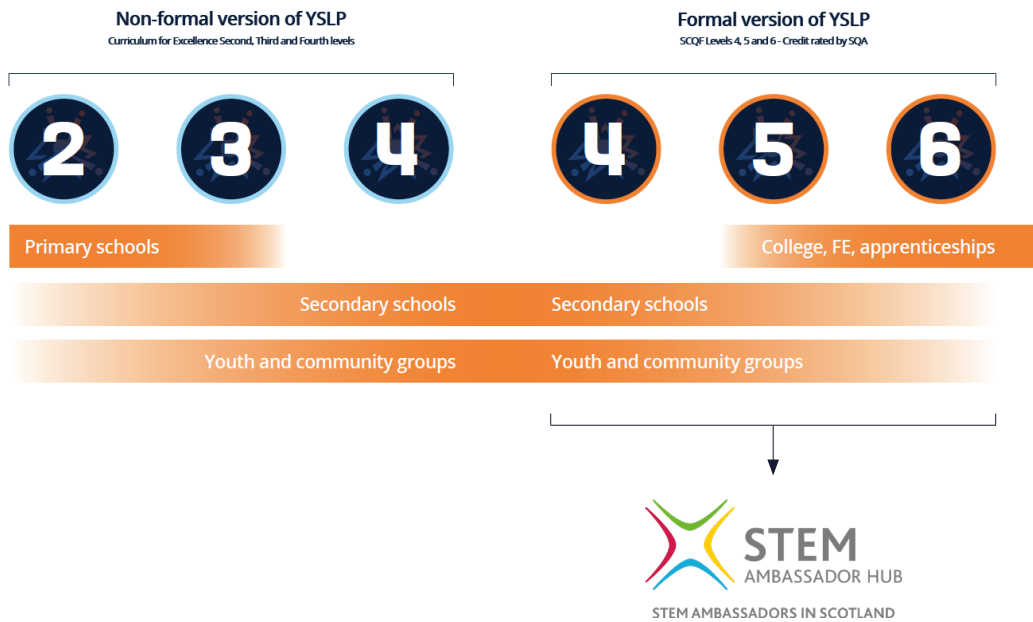
This report details the achievements and deliverables of the Young STEM Leader Programme (YSLP) led by SSERC and looks ahead to the key targets for the next academic year. The YSLP team are delighted to support with any queries relating to the content of this report.

2. About the programme

The programme is 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 schools, communities and youth groups. YSLP is available across six levels split into two versions:

- The non-formal version of YSLP is offered at Curriculum for Excellence Second, Third and Fourth Levels (YSL2, YSL3 and YSL4 (NF)). Typically delivered in primary schools, the BGE phase of secondary schools and in youth and community settings, these awards are made up of four digital badges: Discover, Create, Inspire and Lead. Completing the four digital badges satisfies the requirements of the award at these levels.
- The formal version of YSLP is offered at SCQF Levels 4, 5 and 6 (YSL4 (F), YSL5 and YSL6). Typically delivered in the senior phase of secondary schools, youth and community groups and some further education/ apprenticeship programmes, the formal awards consist of eight learning outcomes (LOs) with associated performance criteria and minimum action required. These awards are SCQF credit rated and levelled by SQA.





3. Staffing and Governance

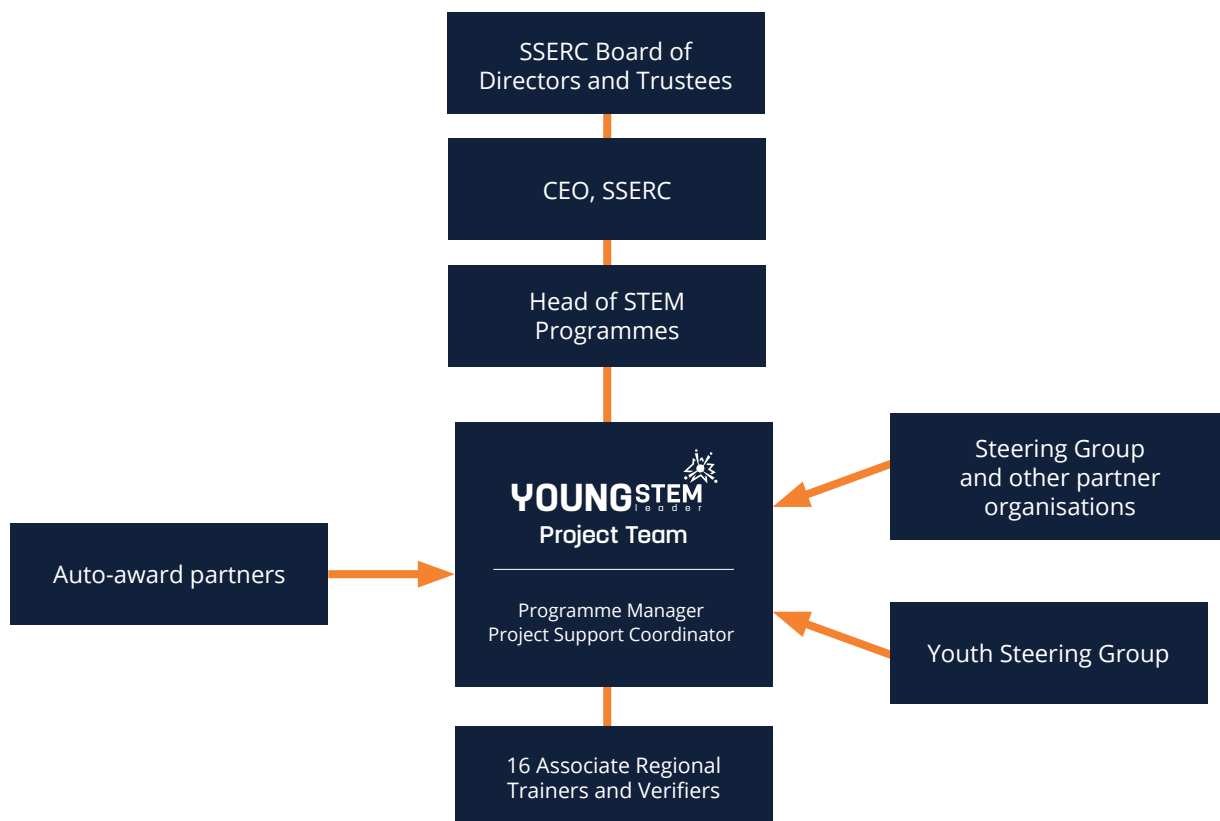
The Scottish Government-funded YSLP is led by SSERC in partnership with numerous organisations across Scotland. These organisations form the YSLP Steering Group, which meets quarterly to inform the development and delivery of the award.



3. Staffing and Governance (continued)

The YSLP team based at SSERC work with partner organisations to coordinate the programme at a national level, including overseeing the training and quality assurance processes, developing award content and coordinating regional appointees.

Jamie Menzies	Programme Manager
Gayle Thomson	Project Support Coordinator
Graeme Rough	Head of STEM Programmes



To support our quality assurance processes and promote the programme at a regional level, 16 Associate Regional Trainers and Verifiers (ARTAVs) were appointed from the existing pool of Tutor Assessors in November 2020. Initially intended to perform a quality assurance role, the remit of the ARTAVs was extended to include:

1. External Verification
2. Delivery of training and information sessions
3. Support for regional Young STEM Leader activity within their local area
4. Development of YSLP resources

3. Staffing and Governance (continued)

The team consists of members from primary, secondary and community backgrounds, and each have made a valuable contribution to the success of the award by bringing expertise, insight and knowledge.



4. Participation

There has been considerable growth in YSLP participation in academic year 2020/2021, with over 3000 YSLs engaging with the programme across each of Scotland's 32 Local Authority Areas.



Despite the challenges faced with centre closures and a move to online learning, many YSLs have continued with the award digitally in order to complete the programme.

Awards issued during academic year 2020/2021



4. Participation (continued)

There has been great variety in the activities, events and interactions that have been led by young people this year, including (but certainly not limited to):

- YSLs at **Ratho Primary School, Mosshead Primary School, Dedridge Primary School, Ardrossan Academy** and more leading a series of home learning events during lockdown
- STEM Girls at **Peebles High School** leading online careers events and supported study sessions to encourage girls into STEM
- YSLs at **Kilcreggan Primary School** and **Wallace High School** making STEM websites.
- YSLs at **North Ayrshire Family Learning** leading outdoor STEM activities with their families
- YSLs at **Kirkcaldy High School** recording podcasts
- YSLs at **Hayshead Primary School, Heart of Midlothian FC Digital Innovation Centre** and more leading digital learning
- YSLs at **Turnbull High School** leading The Chase gameshow STEM workshops
- YSLs at **Biggar High School, St Bridget's High School** and more leading science workshops in class
- **St Mary's (Cleland) Primary School, Dalmarnock Primary School, Arbroath Academy** and more running STEM clubs
- YSLs at **Monefieth High School** serving hot drinks at their Barista station and creating Formula 1 cars
- YSLs at **Braes High School** leading bridge building activities
- YSLs at **Cedarbank School, Springfield Primary School, St Andrew's RC Secondary (Glasgow), Paisley YMCA, King's Park Secondary School, Caldervale High School, Balwearie High School, Milne's High School, Fintry Primary School, St Marnock's Primary School** and more interviewing STEM Ambassadors as part of their leadership
- YSLs at **Arbroath Academy** flying drones
- YSLs at **Linlithgow Primary School** making online live lessons for the Great Science Share for Schools

4. Participation (continued)

- YSLs at **Stewarton Academy, Hillhead High School, St Thomas Aquinas High School, Bo'ness Academy** and more leading P7/S1 transition events
- YSLs at **Charleston Academy, Kinross High School, Dalziel High School** and **Rosshall Academy** contributing to LGBTQ+ STEM Day and YSLs at **Kirkintilloch High School** leading an LGBT History Month Twitter Takeover
- YSLs at **Denny High School** spreading Christmas STEM cheer and YSLs at **Rosebank Primary School** making spooky Halloween STEM activities
- YSLs at **Tillicoultry Primary School** sharing stop motion STEM movies
- YSLs at **Rosshall Academy** mapping STEM across Scotland

YSLs at Kilcreggan Primary School completing online Logs



Deliverables in Academic Year 2020/2021

5. Training and Professional Learning



The YSLP team and ARTAVs have delivered over 150 hours of professional learning activity almost entirely online during the academic year, including:

- Information Sessions
- Tutor Assessor Training – two-hour session overview of the content, assessment and quality assurance involved in delivering the award
- Tutor Assessor Connections – monthly networking and spotlight sessions for existing Tutor Assessors
- Webinars
- Conference presentations

There were over 1000 total attendances at YSLP events during the academic year. Looking forward, the team will deliver a comprehensive suite of online and in-person events during Autumn 2021 to support centres to start, re-engage or develop the Young STEM Leader Programme in their setting. This will include new events such as Kickstart Sessions which will encourage centres to restart their delivery after a period of inactivity.

Bespoke Tutor Assessor training has also been delivered to cohorts, schools, clusters, organisations and local authorities across Scotland, this will continue into next session and beyond.



6. #YoungSTEMLeaderWeek

Following a series of open Tutor Assessor training events, the programme was officially launched with the inaugural #YoungSTEMLeaderWeek, a social media campaign in October 2020 to celebrate the availability of the programme and the opportunities it offers. A number of activities were planned for the week, including:

- STEM VIP interviews between groups of YSLs and role models in STEM, including STEM Ambassadors
- Videos from partner organisations and political figures
- Daily challenges related to the four elements of the programme: Discover, Create, Inspire and Lead
- Professional learning events for Tutor Assessors

The hashtag #YoungSTEMLeaderWeek was used 365 times, 136 centres engaged with activities and the campaign made 115,000 Twitter impressions. The second annual #YoungSTEMLeaderWeek will run from 25-29 October 2021.



Interviews and videos with STEM role models were a key part of the social media campaign










Many centres got involved with the daily challenges linked to the four elements of YSLP: Discover, Create, Inspire and Lead

7. Auto-awards



The YSLP team have been engaging with various STEM award providers to align 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. Existing agreements are listed below.

Award provider	Agreement
 	<ul style="list-style-type: none"> • Industrial Cadets Gold Project carries an auto-award for YSL6 • Industrial Cadets Bronze Project carries an auto-award for YSL4 (non-formal) • FunSTEM Programme carries an auto-award for YSL2
	<ul style="list-style-type: none"> • Primary Class carries an auto-award for YSL2 • Entry Class carries an auto-award for YSL3 • Development Class carries auto-awards for YSL4, YSL5 and YSL6 • Professional Class carries auto-awards for YSL5
 	<p>Auto-award for YSL6 with the Industrial Biotechnology Innovation Centre (IBioIC) Leaders in Science Programme</p>
	<p>Completing a formal YSLP award can satisfy the <i>Skills and Volunteering</i> component of a Duke of Edinburgh Bronze, Silver or Gold award providing the activities take place over the prescribed DofE timescales.</p>
	<p>Completing YSL6 satisfies the requirements of The Boys' Brigade Queens Badge.</p>

8. Evaluation



Education researchers from the University of Stirling continue to evaluate the impact and success of the programme. Using interviews, questionnaires, and focus groups between 2019 and 2021 with Tutor Assessors, YSLs and their participants, a full evaluation report will be published in May 2022, building on the earlier report which followed the initial pilot.

Young people were also given the opportunity to participate in the evaluation process via the Young Researcher programme created by the University.

100%

of Tutor Assessors agree/strongly agree that YSLP is **building positive attitudes towards STEM** in their centres

89%

of Tutor Assessors agree/strongly agree that YSLP is **increasing the desire among young people to work in STEM**

72%

of Tutor Assessors agree/strongly agree that YSLP is **challenging elitism in STEM**

88%

of Tutor Assessors agree/strongly agree that YSLP creates **opportunities for children to spend time with positive STEM role models**

Estimated
50,000
hours

of STEM leadership activity
as a result of YSLP

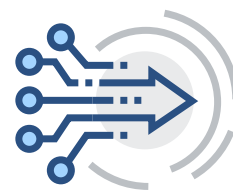
Over
800
SCQF credit
points

earned by
Young STEM Leaders

Over
3000
young people

have taken part in
the programme

9. Development activity in 2020/2021



- Development of the YSL4 and YSL5 Frameworks.
- Successful SCQF credit rating and leveling of YSL4 and YSL5 by SQA and a credit rating review of YSL6.
- New components of the Young STEM Leader online platform were developed and will be available for use in August 2021:
 - Automatic internal verification functionality, allowing Tutor Assessors to complete Internal Verification of their cohort prior to certification.
 - Automatic certification functionality, allowing Tutor Assessors to submit YSLs for certification directly on the online platform.
- Working with a production company, five video case studies were developed to showcase the award in different settings including primary schools, secondary schools and community groups from across Scotland. These videos will be released later in 2021.
- The YSLP team and Education Scotland's Improving Gender Balance and Equalities (IGBE) team have developed an eLearning module for YSLs allowing for a deeper engagement with gender balance in STEM. These modules will allow YSLs to use a different route to achieve learning outcomes or badges to contribute to their award. The modules will be available in Autumn 2021.
- Formed the Community Learning and Development working group – led by ARTAV Claire McGinley, this group seeks to inform the development of resources, adaptations and improvements to the award specifically for the CLD sector.
- Undertook External Verification of 17 centres, with 16 achieving an Accepted or Accepted with Recommendations result.
- Established a new cohort of the Youth Steering Group.
- Tutor Assessors Trained in each of the 32 Local Authority Areas in Scotland.
- Maths Week Scotland Breakout of STEM Stereotypes resource kits created in conjunction with six YSLP Delivering Centres, STEM Ambassador Hub and 6 STEM Ambassadors.
- Embedded YSLP into existing SSERC programmes: ENTHUSE partnerships, Scottish Universities Science School (SUSS) and probationer professional learning programmes.

9. Development activity in 2020/2021 (continued)

With the aspiration that every young person in Scotland will have access to the Young STEM Leader Programme by the end of 2022, a Development Plan has been created to support the national roll-out of the programme and make the programme accessible to all. Five key improvement priorities were identified with progress regularly reviewed.

Through a bidding process, partners were invited to apply for the Young STEM Leader Development Fund for projects to support the improvement priorities in the development plan. Grants of up to £5,000 were awarded to the following partners:

- **Aberdeen Science Centre** will engage with Aberdeenshire secondary schools through the delivery of workshops relating to the Discover and Lead badges in YSL3.
- **Dynamic Earth** will create an eLearning module for YSLs in the lead up to COP 26.
- **Glasgow Science Centre** will work to align YSLP to the existing GreenPower initiative.
- **YouthLink Scotland** will collaborate with two new Delivering Centres to pilot a model of YSLP delivery within two new makerspaces at Citadel Youth Centre, Edinburgh, and Douglas Universal Connections, South Lanarkshire.

The YSLP team will also be working closely with the new STEM Ambassadors in Scotland Hub to grow our existing partnership and provide new ways for YSLs and STEM Ambassadors to work together.

A summary of the key points from the YSLP Development Plan is provided overleaf.

National Uptake

Increasing programme uptake in geographic areas which are currently undersubscribed in primary schools (defined as <8% uptake) and secondary schools (<50% uptake)

- YSLP Team undertook analysis of the uptake of YSLP across Scotland in August 2021 - with the aim to use this data to offer support to low-uptake regions or school clusters.
- Continued to offer professional learning for Tutor Assessors - including Tutor Assessor Connections, Kickstart Sessions and webinars in addition to TA Training events.
- Promotion will continue across social media and through presence at partner conferences and events - with the aim to have 7-10k active YSLs by end 2021.

Community settings

Increasing programme participation in community learning and other non-school settings

- Established YSLP CLD Working Group in June 2021.
- Working with Babcock's International to run a pilot YSL6 programme with apprentices and graduates.
- Further links created across ENTHUSE partnerships and other community programmes.
- Work will continue to engage more CLD settings by engaging with partners like Awards Network and YouthLink Scotland.

Balance across school uptake

Achieve more balance between primary and secondary uptake, and also within individual school clusters

- The YSLP team have continued to encourage schools to integrate the programme across learning communities.
- Delivered six professional learning sessions as part of SSERC's Primary Cluster Programme.
- Embedded YSLP into ENTHUSE and other Education/Industry Partnership (EIP) Programmes.
- Looking forward, events focused on P7/S1 transition and further resources to support this will be generated.

Offering YSLP to all young people

Ensure that YSLP being offered to a maximum number of young people in a centre, irrespective of their current ability

- Identified areas for improvement during Internal (50 centres) and External (18 centres) Verification.
- Supported a diverse range of settings - including family learning groups, youth groups and Additional Support Needs (ASN) schools. Plans to create an ASN working group in Autumn 2021.
- Collaborating with Education Scotland, Dynamic Earth and STEM Ambassadors in Scotland to produce eLearning modules for YSLs - to be launched late 2021/early 2022.
- Plans to offer YSLP as part of DYW Live on eSgoil in Autumn 2021 to allow young people in schools with no Tutor Assessors to access the programme.

Ease and flexibility of delivery

Maximise the simplicity and accessibility of delivery, verification and certification processes

- Developed automated certification and internal verification functionality for the YSLP website.
- Improved access to the programme in schools by adding YSLP to the GLOW Application Library.
- Next steps involve the ARTAV Team generating a suite of Standards Guidance resources that will assist Tutor Assessors when making assessment decisions and undergoing quality assurance.

10. YSLP Beyond Scotland



As YSLP enters its third year in Scotland, SSERC is preparing to offer the programme beyond Scotland. Our original development partners, SLQ, are now supporting us to prepare a pilot for academic year 21/22 in England. Around 30 secondary schools will take part, testing the programme which has been converted from the CfE/NQ format into versions which align to Key Stage terminologies. Along with the necessary changes in documentation, the programme will be rebranded as STEM Leaders, with the official award title: Award for Leading Activities in STEM. Importantly however, the aims, values and ethos of the programme will remain. Irrespective of the country they are in, young people will lead their peers in STEM activities to inspire and encourage more people, in more places, to consider STEM as a future pathway. The pilot will provide impact data and information to inform the next steps, with the aim of a full UK offer in subsequent years, moving towards the international school settings thereafter.

A Young STEM Leader being presented with their Discover badge certificate at Charleston Academy

