

Professional Learning in STEM

Findings from the Annual STEM Survey of
School-Based Technical Support Staff 2018/19

January 2021

Contents

Tables.....	3
Figures.....	3
Executive summary	4
About the survey.....	6
Section A – About you	8
Section B – STEM in your setting.....	9
Section C – Your professional learning.....	10
Education Scotland response.....	15

Tables

Table 1: Number of professional learning hours accessed in 2018/19 compared to previous year..... 10

Figures

Figure 1: Number of responses per type of technical support delivered..... 8

Figure 2: Respondents' work pattern..... 8

Figure 3: STEM co-ordinator in setting 9

Figure 4: Involved in STEM activities across the cluster 9

Figure 5: STEM partner(s) from private, public or third sector 9

Figure 6: Number of STEM CLPL hours accessed per technician's role 10

Figure 7: Professional learning accessed which had an impact of 'valuable' and/or 'most valuable' 11

Figure 8: Organisations providing STEM CLPL to school-based technical staff 12

Figure 9: Accessing professional learning in STEM 12

Figure 10: Main barriers to accessing STEM professional learning..... 13

Figure 11: Learning priorities for academic year 2019/20 14

Executive summary

This report presents the key findings from Education Scotland's Annual STEM Survey for School-Based Technical Support Staff covering academic year 2018/19.

Education Scotland has continued to gather and analyse annual STEM surveys since 2016/17 to inform and support the ongoing implementation of the STEM Education and Training Strategy (2017)¹. Responses from school-based technical support staff have been gathered and reported on since the surveys started. However, in 2018/19 a separate survey for school-based technical support staff was developed and issued.

The findings from the surveys² provide valuable insights into the professional learning needs of practitioners and technicians; the challenges they face in accessing professional learning and their professional learning priorities. The survey findings have been used by Education Scotland to help shape the national professional learning offer, including the projects supported through the Enhancing Professional Learning in STEM Grants Programme. A wide range of partner organisations have also used the survey findings to help them align their professional learning programmes and strategies to the needs of practitioners.

Education Scotland will continue to measure progress against the following STEM Strategy key performance indicator:

Increased practitioner confidence in STEM learning in the early years, primary years and in CLD settings and increased practitioner engagement in STEM professional learning opportunities.

- *Increase the cumulative hours of STEM professional learning accessed by early years, schools and CLD practitioners annually.*

Progress against this key performance indicator, and others, are reported on annually with detailed findings available through the First STEM Strategy Annual Report³ and Second STEM Strategy Annual Report⁴.

Key findings

Number of responses – There were 215 responses to the 2018/19 survey.

Technician CLPL (career-long professional learning) hours – The total number of cumulative hours of professional learning accessed by the 215 survey respondents between 1 August 2018 and 31 July 2019 was 2,516 cumulative hours.

The average cumulative hours of STEM professional learning per practitioner between 1 August 2018 and 31 July 2019 was 11.7 hours. The findings reveal that, across all sectors, school-based technical staff report the lowest average number of STEM CLPL hours accessed.

¹ STEM Education and Training Strategy: <http://bit.ly/STEMstrategy>

² [A summary of STEM resources | Learning resources | National Improvement Hub \(education.gov.scot\)](#)

³ First Annual Report of the STEM Education and Training Strategy <https://www.gov.scot/publications/stem-strategy-education-training-scotland-first-annual-report/>

⁴ Second Annual Report of the STEM Education and Training Strategy: <https://www.gov.scot/publications/stem-strategy-education-training-scotland-second-annual-report/>

Technician work pattern – 76.3% of respondents work full-time and 23.7% work part-time.

Technical support provided – Respondents confirmed that they provide support in the following areas:

- Science
- Digital/ICT
- Technical.

Types of professional learning accessed – The three top responses were:

- | | |
|--|----------------------|
| 1. External course outside of my setting | 28.4% (61 responses) |
| 2. Professional reading/engaging independently with research | 23.3% (50 responses) |
| 3. Online learning. | 21.9% (47 responses) |

STEM professional learning provided by – The top three providers of STEM professional learning accessed by the respondents were:

1. Local authority
2. SSERC
3. Scottish Technicians Advisory Council (STAC).

Ease of access to STEM CLPL – The responses indicate that only 14.9% found it easy and/or very easy to access STEM CLPL. This is very low in comparison to the data from the Annual STEM Practitioner Survey 2018/19 of 29.4%.

Main barriers to accessing STEM CLPL – The top three barriers were:

- | | |
|---|----------------------|
| 1. Lack of funding to pay for professional learning | 36.7% (79 responses) |
| 2. Lack of funding to pay for associated travel/accommodation | 27.4% (59 responses) |
| 3. Lack of support in my organisation. | 22.8% (49 responses) |

Professional learning priorities for 2019/20 – The top three priorities in relation to STEM were:

- | | |
|---|-----------------------|
| 1. Sciences | 48.8% (105 responses) |
| 2. Health and safety update | 42.8% (92 responses) |
| 3. Supporting advanced higher projects. | 35.8% (77 responses) |

Annual STEM Survey 2018/19

School-based technical support staff

Findings

About the survey

Background

The aim of this annual STEM survey is to track enhancements in STEM professional learning undertaken by school-based technical support staff.

The survey covers aspects such as:

- Number of cumulative hours of STEM career-long professional learning (CLPL) accessed
- STEM professional learning priorities of practitioners
- Barriers to accessing CLPL.

Structure and purpose

The survey was available on-line to all technicians. It was promoted widely via Education Scotland and Scottish Government communication channels. The survey comprised three sections:

- About you
- STEM in your setting
- Your professional learning.

The survey findings have played, and will continue to play, a crucial role in shaping the implementation of the CLPL actions in the STEM Education and Training Strategy (<http://bit.ly/STEMstrategy>).

The evidence provided by the surveys are also directly informing the work and CLPL offer of Education Scotland's regional teams. These teams will play a key role in supporting and coordinating professional learning in STEM.

In addition, the survey data allows Education Scotland to track progress against the following key performance indicator (KPI) in the STEM Education and Training Strategy:

- II. Increased practitioner confidence in STEM learning in the early years, primary years and in CLD settings and increased practitioner engagement in STEM professional learning opportunities.
- Increase the cumulative hours of STEM professional learning accessed by early years, schools, college and CLD practitioners annually.

Section A – About you

Number of responses

There were 215 responses. Breakdown of responses by sector:

- Additional support needs = 1 response
- Primary = 1 response
- Secondary = 213 responses.

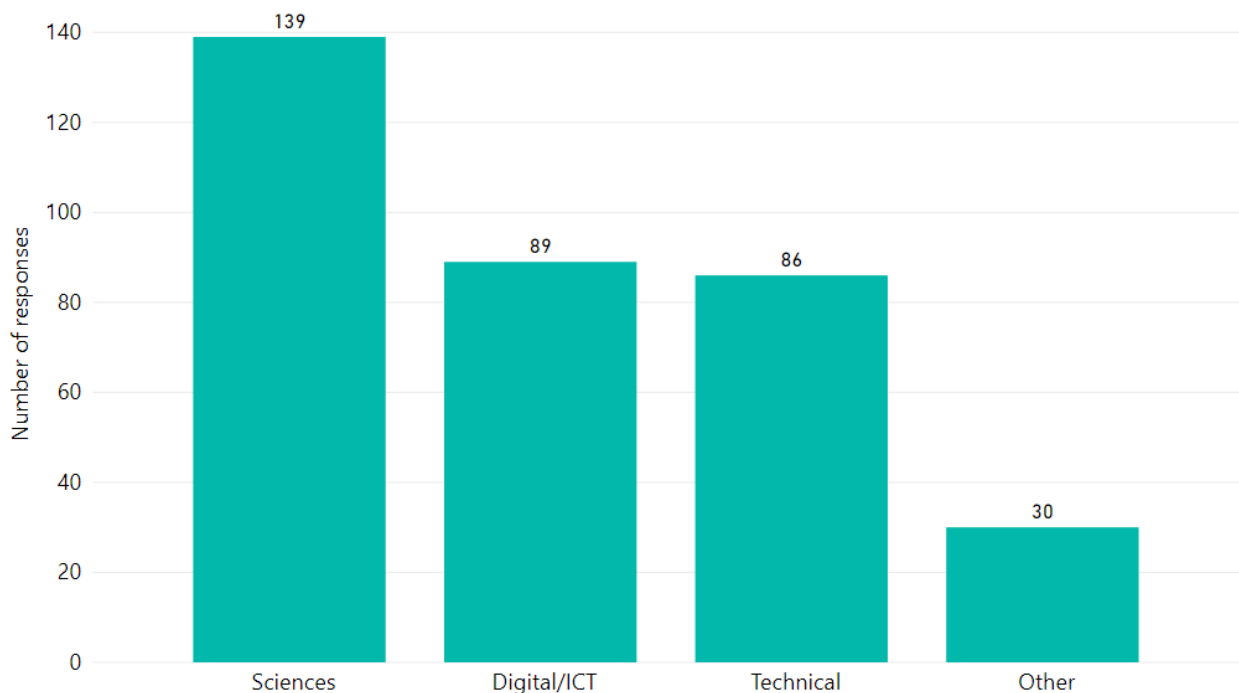


Figure 1: Number of responses per type of technical support delivered

What is your work pattern?

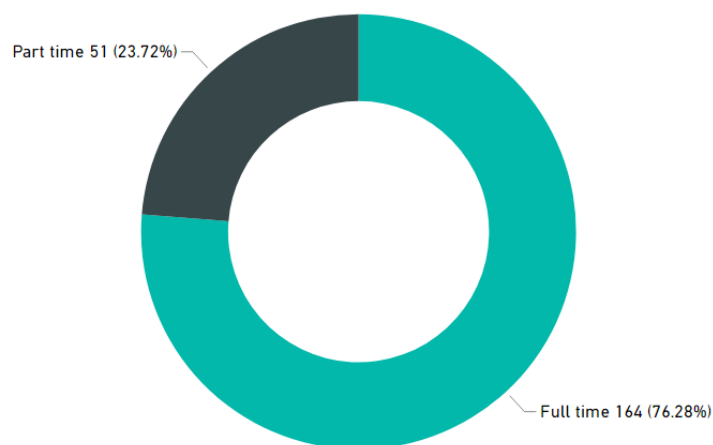
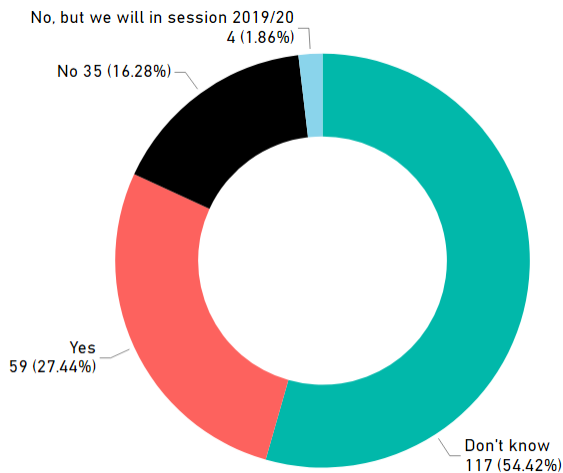


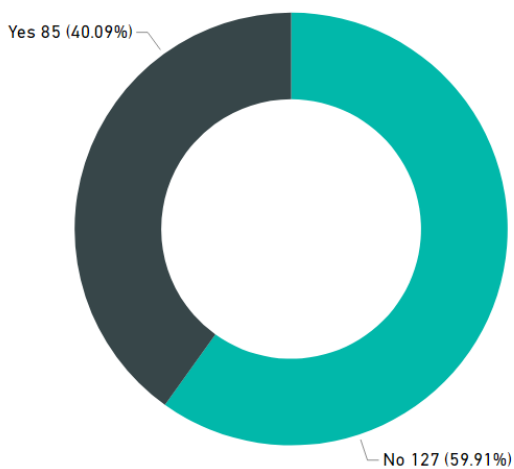
Figure 2: Respondents' work pattern

Section B – STEM in your setting



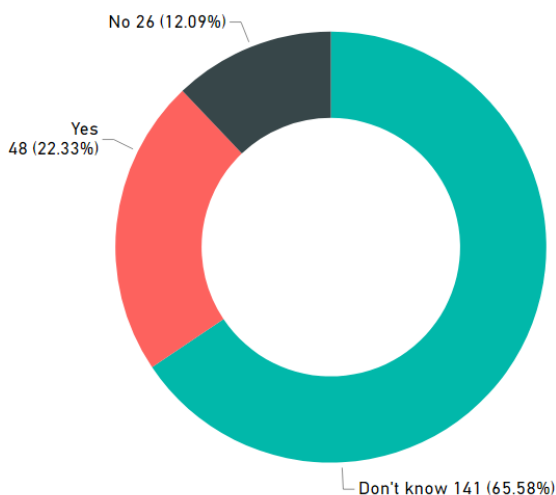
27.4% (59 responses) confirmed that they worked in a setting with a STEM co-ordinator.

Figure 3: STEM co-ordinator in setting



40.1% (85 responses) confirmed that they were involved in STEM activities across their cluster. (Note: there were only 212 responses to this question.)

Figure 4: Involved in STEM activities across the cluster



22.3% (48 responses) confirmed that they were working in a setting that had a STEM partner(s).

Figure 5: STEM partner(s) from private, public or third sector

Section C – Your professional learning

Number of cumulative hours of STEM CLPL accessed

The **total number of cumulative hours** of STEM professional learning accessed by the 215 survey respondents between 1 August 2018 and 31 July 2019 was **2,516 hours**. This is an average of **11.7 cumulative hours per practitioner per annum**.

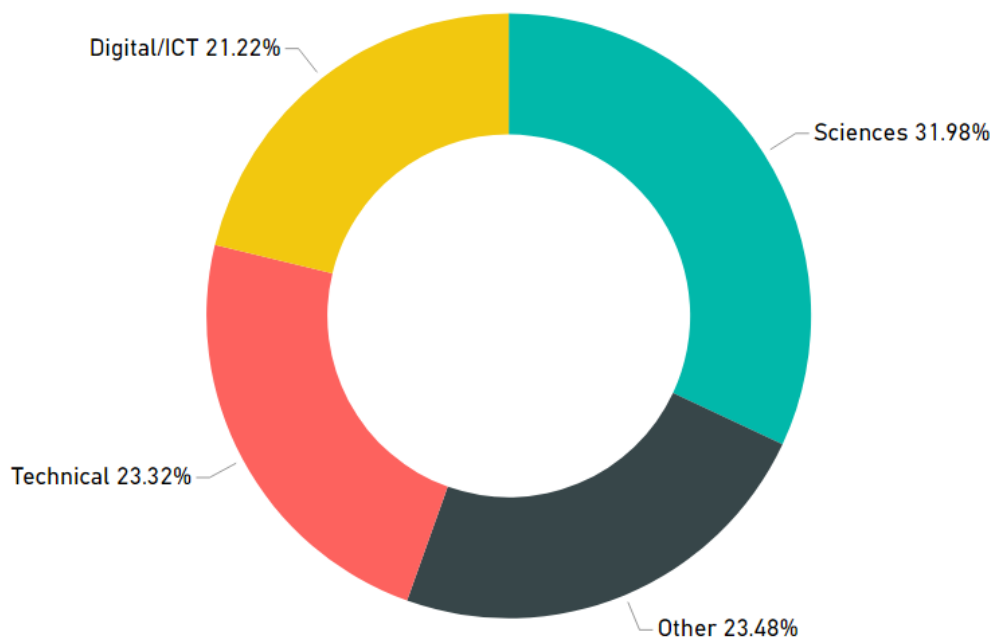


Figure 6: Number of STEM CLPL hours accessed per technician's role

More than two thirds of respondents said the professional learning they accessed in 2018/19 was 'About the same' as in 2017/18.

Number of CLPL hours in 2018/19 compared to 2017/18 survey period	% of responses	Number of responses
A lot more	3.2%	6
More	11.6%	22
About the same	70.9%	134
Fewer	10.6%	20
A lot fewer	3.7%	7

Table 1: Number of professional learning hours accessed in 2018/19 compared to previous year

Types of professional learning accessed and impact

The 2018/19 survey identified that the top three types of professional learning that were recognised as *'valuable'* and/or *'most valuable'* with regards to impact were:

1. External course outside of my organisation
2. Professional reading/research independently with research
3. Online learning.



Figure 7: Professional learning accessed which had an impact of *'valuable'* and/or *'most valuable'*

Organisation(s) who provided STEM professional learning

The 2018/19 survey identified that the top three types of organisation(s) that provided professional learning in STEM for technicians were:

1. SSERC
2. Local authority
3. Scottish Technicians Advisory Council (STAC).

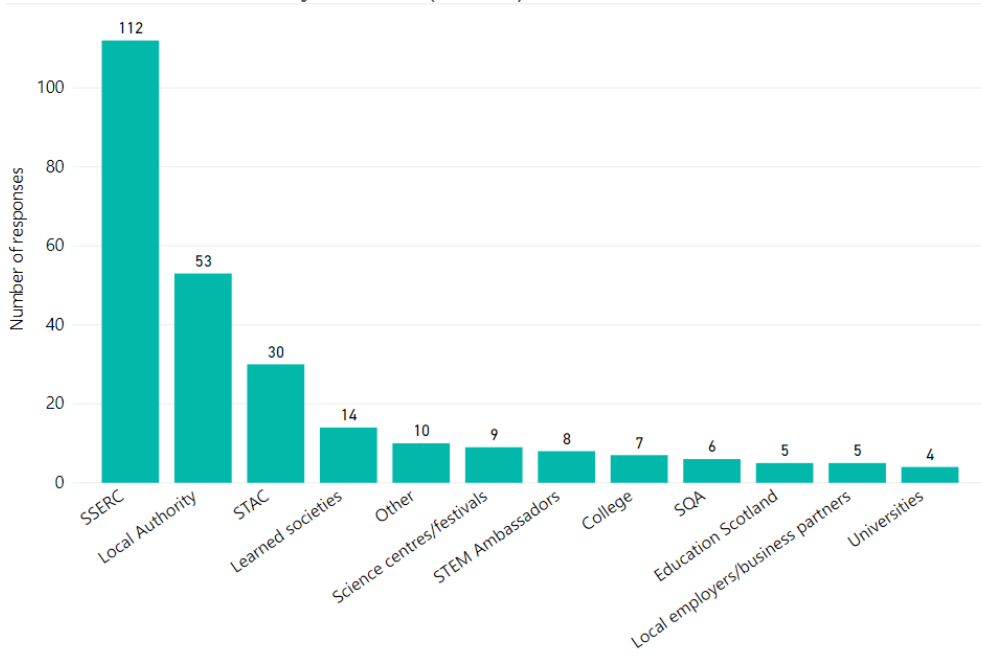


Figure 8: Organisations providing STEM CLPL to school-based technical staff

Accessing professional learning in STEM

Only 14.9% of respondents in the 2018/19 survey confirmed that it was ‘easy’ and/or ‘very easy’ to access STEM CLPL.

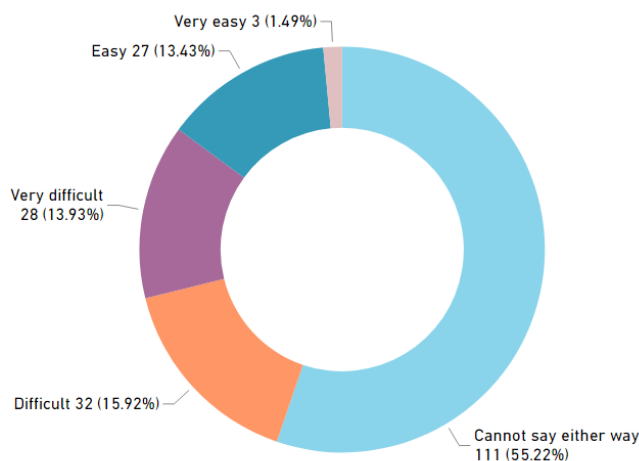


Figure 9: Accessing professional learning in STEM

Note: 201 responses were received for this question.

Main barriers to accessing professional learning in STEM

The 2018/19 technician survey highlighted the following barriers to accessing professional learning in STEM:

1. Lack of funding to pay for professional learning
2. Lack of funding to pay for associated travel/accommodation
3. Lack of support in my organisation.



Figure 10: Main barriers to accessing STEM professional learning

STEM professional learning priorities for this academic year (1 August 2019 – 31 July 2020)

The survey responses highlighted the following professional learning priorities for academic year 2019/20:

1. Sciences
2. Health and safety update
3. Supporting advanced higher projects.

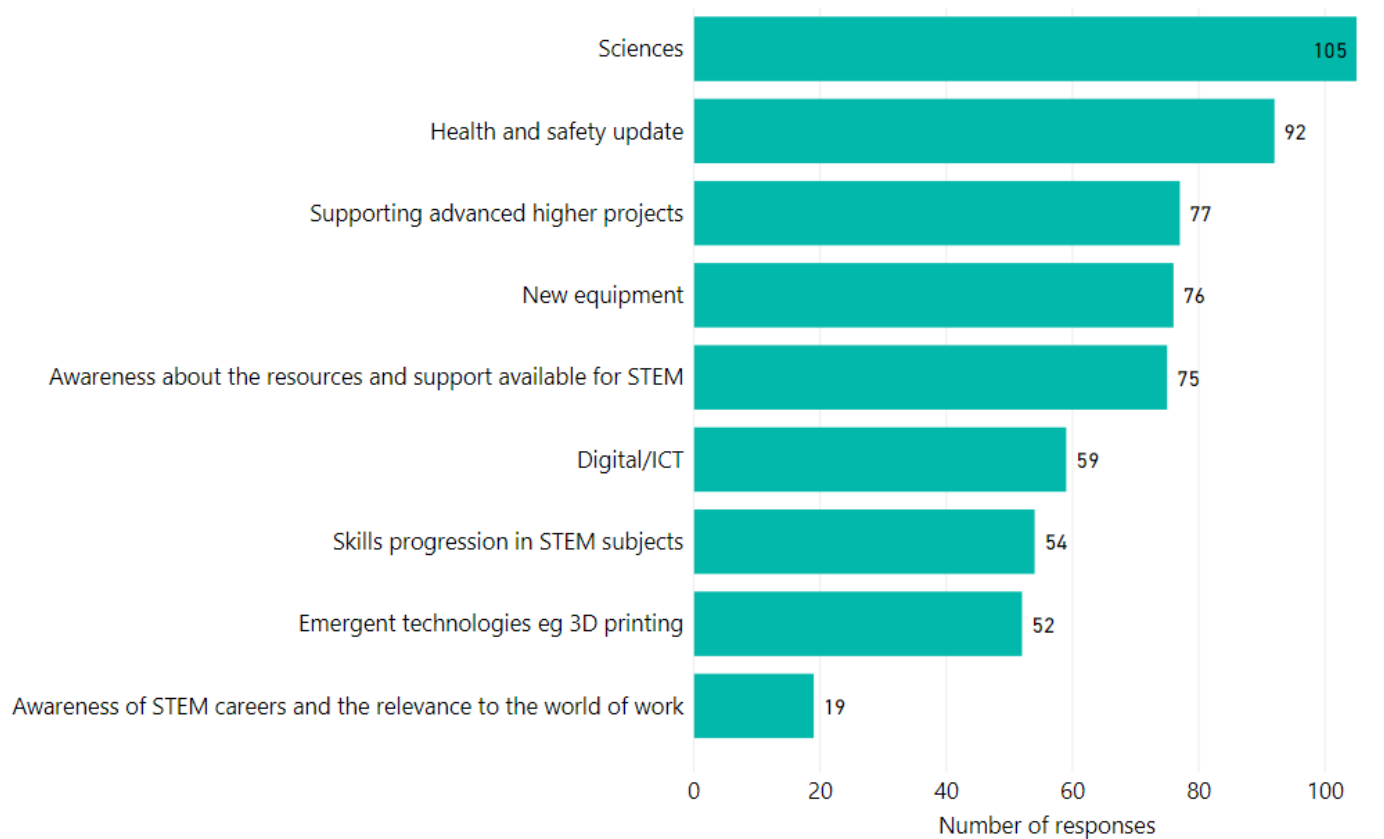


Figure 11: Learning priorities for academic year 2019/20

Education Scotland response

In the second year of the STEM Education and Training Strategy, the focus for Education Scotland has been to put in place the key national infrastructure and resources to address the priorities and needs identified by practitioners.

Engaging with partners – Education Scotland has disseminated the findings from the 2017/18 Annual STEM Practitioner Survey to a wide range of partners and STEM providers. This has helped many organisations to plan and shape their professional learning offers to align more closely to the needs of practitioners and technicians and to the new national model of professional learning. In our discussions with partner organisation we have continued to highlight the findings from the surveys and have encouraged partner organisations to consider how they might help address the particular challenges faced by technicians in accessing professional learning to meet their needs.

Enhancing Professional Learning in STEM Grants Programme – Education Scotland awarded a total of £1.9 million of STEM professional learning grants in financial year 2019-20, supporting 162 projects. Through our pre-application engagements and materials we emphasised that professional learning support for school-based technical support staff was one of the priority areas and strongly encouraged grant bids in this area. Grant funding was issued to the Scottish Technician Advisory Council and SSERC in both Round 1 and Round 2 of the STEM grants programme. For Round 2 of the grants programme spanning years 2019/21, 103 technicians were estimated to be benefitting from the first phase of funding and 122 from the second phase.

Education Scotland's Regional Teams – Education Scotland's STEM and Digital/Technology Teams continue to support local and regional provision of CLPL in partnership with local authorities and Regional Improvement Collaboratives.

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