Computing Science Summary Report: Scottish Government Computing Science Meeting Series: March 2026

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Scottish Government
Riaghaltas na h-Alba

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Introduction

The following summary report reflects recent discussions with key education stakeholders on the challenges and opportunities facing the delivery of Computing Science education in Scotland's schools.

Over the course of a short meeting series, stakeholders from across the education system with an interest in Computing Science education, came together to explore the issues facing the delivery of the subject in Scotland's schools. Discussions were centred around four key themes:

- Computing Science teacher recruitment and retention
- Teacher professional learning and development
- School infrastructure
- Subject attractiveness

This summary report draws together the key themes of these discussions with additional evidence provided by Scottish Teachers Advancing Computing Science (STACS), stakeholder views, and survey findings from children and young people. The report seeks to set these views within the broader context of an evolving national education policy landscape. It is worth emphasising that this report is not intended to provide an exhaustive review of Computing Science education in Scotland, but rather to reflect the challenges and opportunities which emerged through this meeting series. While this report is focused solely on the delivery of Computing Science and associated qualifications, the findings may have relevance for other school subjects facing similar challenges.

The Scottish Government thanks everyone involved, in particular those who participated in the meeting series and those who presented, STACS, and all the pupils who completed our pupil survey.

Background

Computing Science education plays an important role in Scotland's technology pipeline; however the subject faces a number of challenges, many of which are persistent and not confined only to Computing Science. The Scottish Technology Ecosystem Review (2020), identified school-level Computing Science education as essential to helping to build Scotland's tech sector and wider start-up ecosystem. This is on the premise that equipping more people at school level with a basic level of competence in Computing Science, will eventually produce more start-ups with a greater pool of engineers available to hire from as they develop and scale, leading to consequent benefits in job creation and in tax revenue.

In response, the Scottish Government funded the establishment of Scottish Teachers Advancing Computing Science (STACS), a teacher-led organisation which exists to advance Computing Science in schools, including through the delivery of high-quality professional learning for Computing Science teachers.

Despite making progress at a national level across a number of key areas in recent years, long-standing challenges continue to impact on the delivery of the subject in schools. To enable a fuller exploration of the challenges and opportunities that exist in relation to Computing Science teaching and learning, and to build on work initiated by STACS, Scottish Government officials convened a group of stakeholders from across the education system in September 2025. The group comprised a range of stakeholders including representatives from national bodies, such as Education Scotland, professional learning providers, local authority representatives and those with lived experience, including teachers. A full list of group members and stakeholders engaged with throughout this process can be found in Annex E.

The group met five times between September 2025 and January 2026 and explored the below themes in turn. Guest speakers were invited to present on areas of best practice and innovative approaches being undertaken across Scotland:

- Teacher recruitment and retention
- Teacher professional learning and development
- School infrastructure
- Subject attractiveness

Following the conclusion of the formal meeting series, Scottish Government officials sought the views of additional stakeholders including the Convention of Scottish Local Authorities (COSLA), the General Teaching Council for Scotland (GTC Scotland), Initial Teacher Education (ITE) providers and His Majesty's Inspectorate of Education in Scotland (HMIE). A survey was also issued through Education Scotland's teacher networks to capture children and young people's opinions and personal experience of Computing Science education. An overview of the survey findings is provided in Annex C. In addition, Toni Scullion of STACS provided a thorough written evaluation of the challenges facing the subject, which is reflected in this report.

While the report is clear that there is no single solution to the challenges facing Computing Science, there are a number of national initiatives underway which will improve the perception of the subject and how it is taught. The ongoing Curriculum, Qualifications, and Assessment Reform have the potential to transform the teaching, learning and assessment practice in respect of Computing Science in Scotland. Similarly, ongoing policy considerations related to the teaching profession, school estate and the impact of technology on our schools will influence Computing Science education. These national initiatives, coupled with additional actions identified under the four key themes of this report, present an opportunity to strengthen Computing Science education and in turn, bring benefits to children and young people, as well as Scotland's technology ecosystem.

Computing Science Education – Context and Challenges

During the meeting series we heard that there are a number of key challenges which affect Computing Science education in schools. In many cases the challenges identified are not unique to Computing Science and, in turn, the actions listed in this report have relevance to other subjects. For example, the **recruitment and retention of Computing Science teachers** has been a long-standing issue, as too is recruitment and retention of other subjects within the science, technology, engineering and maths (STEM) space.

With respect to Computing Science, and as shown in Annex D, the number of teachers has been in decline in recent years. For example, the Scottish Government teacher census shows that since 2008/09 there has largely been a decline from 766 full-time equivalent (FTE) teachers with Computing Science as their main subject compared to 550 in 2024/25. Initial Teacher Education (ITE) intakes have also not reached targets agreed between the Scottish Funding Council and Initial Teacher Education Providers in recent years. However, positively, the intake in the academic year 2025/26 was 31% higher than in the previous two years, at 60% of the target intake, which may indicate a positive upward trajectory, albeit small. This change is small but important, especially given the context that other STEM subjects also frequently do not meet ITE student intake targets.

Allied to this, it is worth noting that the average age of Computing Science teachers is 45, which is well cited as a challenge for the subject. Whilst this figure is broadly in-line with other subjects, the number of Computing Science teachers under 30 is lower than in other subjects, this figure also indicates the risk that a significant portion of teachers may be close to retirement age.

The impact of teacher recruitment and retention issues perpetuates a cycle of interlinked challenges around access to the subject, professional learning and perceived attractiveness of the subject. A shortage of Computing Science teachers results in more single-teacher departments and fewer schools offering the subject at all levels. Additionally, the reasons outlined above can also contribute towards retention rates further reinforcing the cyclical nature of the issues.

Professional learning for all teachers is crucial to ensuring high quality teaching and learning. This is true for all teachers no matter the sector or subject. However, we heard the view that access to up-to-date professional learning may be especially important for Computing Science teachers since the subject evolves very quickly. Currently, professional learning at a national level is primarily delivered by Education Scotland, SSERC and STACS, with each organisation providing a slightly different offer. Further information about each professional learning offering can be found in Annex B.

During our engagement we heard that the professional learning opportunities available to Computing Science teachers are generally of high quality. We also heard that there is sufficient and appropriate professional learning available. However, a number of potential actions were suggested by the group to further enhance the support and access to professional learning for Computing Science teachers.

With regards to the **school infrastructure**, and for the purposes of this report, there is a distinction made between devices and digital resources. The term devices refers to the main hardware used to access learning, which includes desktop computers, laptops, Chromebooks, tablets, WiFi, as well any equipment used in Computing Science education. The term digital resources refers to the software, programmes, websites, and other digital content, including storage, which are used as a platform to deliver Computing Science education.

During the meeting series we heard the view that in some areas there may be an issue with the quality and type of devices that schools are utilising to deliver Computing Science. This can be further impacted by class size increases if a computer suite can only accommodate twenty learners at desktop computers, and others may need to use a laptop instead. Access to a large screen and external equipment – such as a mouse and keyboard – are seen as vital. However, we also heard the view that Computing Science can be delivered on a range of different types of devices and that devices need not be particularly expensive or have cutting edge technology. It was noted that in some cases, a belief that very particular types of devices are needed, may result in schools deciding not to offer the subject.

Access to digital resources, and in particular, access to software to support the teaching of Computing Science was mentioned during the meeting series as a particular challenge facing the subject. We know that local authorities take different approaches to facilitating school access to digital resources including software, in line with their individual IT policies. However, we heard that access, or lack of it, to a range of software inhibits the learning and teaching of the subject. During the meeting series we heard the view that this was perhaps becoming a greater issue in schools.

Ensuring that children and young people, parents/carers, and wider society view **Computing Science as an attractive subject choice** and are aware of the further education and career opportunities that the subject can open for them, is crucial to increasing overall uptake and closing the gender and poverty related attainment gap within the subject. A pupil survey which we undertook to obtain views of the subject and pupil experiences (Annex C) illustrates a wide variety of views and in turn reinforces the views expressed during the meeting series.

Positive perceptions came through the survey. Many respondents were enthusiastic about learning Computing Science which was mainly attributed to applications of their learning to create a project whether it is related to games, databases, or websites. It was evident that producing something tangible is an important vehicle to delivering Computing Science education. However, we also heard that a barrier to the subject may be around a perception that Computing Science can be “difficult” or “uninteresting” compared to other subjects.

Positively, national data shows that entries to SQA (now replaced by Qualifications Scotland) National Qualifications have increased in recent years. In National Courses for instance, between 2019 and 2025, entries to National 5 Computing Science have increased by 3.8%, while entries to Higher have increased by 22.6% in the same period and Advanced Highers have increased by 25.2%. Lastly, total

entries across National Courses across SCQF levels 3-7 have increased from 12,915 in 2019 to 13,565 in 2025, an increase of +4.7%.

Encouragingly, there has also been an increase in the number of female entries to Computing Science National Courses in the same period, by 12.9% at National 5, 53.3% at Higher, and 72.2% at Advanced higher. However, as there has also been an increase in male entries, the proportion of total entries from female candidates has increased modestly from 18% to 21% between 2019 and 2025. Compared to other STEM subjects such as Biology and Chemistry the total female entries are lower in Computing Science. However, female pupils have consistently performed above the national average for pass rates in Computing Science for National Courses, as shown in the tables detailed in Annex D. This shows evidence that the gender gap is mostly an equity issue given the positive results.

It is also worth noting that there is some evidence of differences in uptake of the subject depending on pupil background. Data shows that both the entries for National Courses are higher for pupils in SIMD quintile 5 when compared to quintile 1, as are the number of 'A' grades achieved at National 5, Higher (Annex D). In 2025 at National 5, 948 out of 1638 entries from pupils in Quintile 5 achieved an 'A' grade (57.9%), compared to 407 out of 1,025 in Quintile 1 (39.7%). At Higher, 489 of 961 entries from pupils in Quintile 5 achieved an 'A' grade (50.9%), compared to 148 out of 556 entries from pupils in Quintile 1 (26.6%). These trends have remained consistent since 2021.[1] However, for Advanced Higher, this gap has reduced in 2025 with pupils in both Scottish Index of Multiple Deprivation (SIMD) quintile 5 and quintile 1 achieving a similar rate of 'A' grades (21.7% and 22.6% respectively).

Alongside increases to National Courses, there has also been a rise in recent years in the numbers of young people undertaking vocational and technical qualifications that are associated with Computing Science. For instance, there has been a rise in the number of National Progression Awards (NPAs) in Computer Games Development and Cyber Security that have been awarded at SCQF levels 4, 5 and 6 from 2019 to 2025 (Annex D). For Computer Games Development, there has been a rise from 365 awards in 2019 to 565 in 2025 (+54.8%); and for Cyber Security there has been a rise from 2,580 in 2019 to 9,975 in 2025 (+286.6%). However, it must be noted that increases in awards are not only about new pupils taking the subject. Some increases can be attributed to the fact that some pupils are taking multiple courses.

During the meeting series, group members explored a number of areas in relation to the attractiveness of Computing Science and related vocational and technical qualifications. Group members reflected that the subject would benefit from the input of industry specialists to boost pupils' understanding of what a career in Computing Science could offer.

It was also felt that the Curriculum Improvement Cycle (CiC) work, which is being led by Education Scotland presents a key opportunity to ensure that the subject is

[1] Please note that the data relating to SIMD quintiles can be accessed from the latest Scottish Government Pupil and teacher characteristics census 2025. Additionally, the data available is representative of pupils that are in S4, S5, and S6 and are on this census.

attractive to pupils and to ensure that pupils build the knowledge, skills and experiences to grasp the opportunities that further study and careers aligned with Computing Science presents. The aligned Qualifications Reform, being led by Qualifications Scotland will also ensure that the qualifications and assessment offer reflects the evolution of the curriculum. Qualifications Scotland is conducting a longer-term programme of work to review and reform the wider national courses and their assessments; this work will include updating Competing Science.

Evidence and Suggested Actions by Theme

Teacher Recruitment and Retention

Below are a number of actions identified through our engagement aimed at improving Computing Science teacher recruitment and retention rates. Whilst focused on Computing Science, the actions may also have applicability to other subjects facing teacher shortages. Additionally, the actions relating to other themes of this report, particularly emphasising the need for a strong professional learning offer and support, is framed as having an intended positive impact on the retention of Computing Science teachers.

1. Understanding Computing Science Teacher Figures

There is a difference between the two main reported figures of Computing Science teachers in Scotland. The teacher census reports that the number of teachers with Computing Science as their main subject taught was 550 full-time equivalent (FTE) in 2024. A key issue for Computing Science is the ongoing decrease in the number of Computing Science teachers – the number has decreased by 28% from 766 FTE in 2008.

By comparison, 1,305 teachers were registered with the General Teaching Council for Scotland (GTC Scotland) to teach Computing Science in 2025/26. One reason for the difference is that not everyone on the GTC Scotland register is teaching in publicly funded Scottish schools, they may be working in other sectors (e.g. Further Education) or not currently teaching.

To inform future action, it would be useful to more precisely define the reasons for the gap between those registered to teach Computing Science and those actually teaching it, and to consider how this compares with other subjects.

> Action 1: As part of the Scottish Government's work on the development of a Teacher Workforce Strategy, establish a clear understanding of the reasons behind the difference of the number of teachers registered to teach Computing Science and those who are currently delivering Computing Science education in Scottish schools as a baseline for future actions.

2. Pathways to qualification

The main route to becoming a qualified Computing Science teacher is a Professional Graduate Diploma in Education (PGDE) following an undergraduate Computing Science course, which is offered at four Scottish universities (the University of Aberdeen, the University of Glasgow, the University of Strathclyde, and the University of Highlands and Islands). However, this route alone does not produce the number of Computing Science teachers needed to grow the subject and in turn support Scotland's technology ecosystem.

Other routes for qualification as a Computing Science teacher include pathways which enable existing teachers to gain additional qualifications to enable them to also teach Computing Science. For example, primary teachers, or secondary teachers of another subject, can currently undertake further study and professional

learning to become a Computing Science teacher. Often this will involve the study of an 80-credit university Computing Science module(s) that, on completion, will result in the ability to teach the subject across all stages of secondary school education.

During our engagement with stakeholders, it was suggested that there is an opportunity to support more teachers, from different disciplines to a position where they are also able to teach Computing Science. In particular, it was emphasised that supporting primary school teachers, who would consider registration in another category, into Computing Science teaching presents an opportunity to increase the number of practicing secondary Computing Science teachers. This action may be attractive as we understand the number of primary school teachers required by schools is set to reduce in the coming years.

This also relates to work underway through which GTC Scotland are examining how additional registration can be promoted and accelerated in the short term. Their website has been updated with new content about additional registration, and this information will be highlighted to all registered teachers. A targeted letter will also be sent by GTC Scotland to local authorities and independent schools directing them to the updated web content.

Other models for qualification, within existing GTC Scotland registration requirements, includes a pathway through the University of Aberdeen, for example. This is a pilot funded by the Scottish Government, which will soon be offering an MA(Honours) Secondary Education with Computing Science programme in the academic year 2026/27 (Annex B). The programme involves an articulation route (2+2 model) with students entering into Year 3 of university following the completion of an appropriate Higher National Diploma (HND) in a computing-based subject such as Software Development or Cyber Security.

The Skyscanner Braided Careers Programme offered by the University of Glasgow is a pathway which has been created to enable individuals working in industry to combine their career in industry with a career in teaching. Individuals working in industry who are interested in a career in teaching and who have a Computing Science qualification, can undertake a PGDE and then follow a flexible probation route to full registration, to enable them to combine teaching with working in industry.

It was also suggested in the group that there could be an opportunity to develop a degree pathway similar to those who undertake a four-year teaching degree in subjects such as Design Technology or Physical Education.

Providing a pathway for further education lecturers, which adhered to current arrangements regarding GTC Scotland registration categories, to gain an additional qualification to become Computing Science teachers was a further opportunity identified by the group. As well as creating a potential new cohort of teachers, a key benefit of this option would be college lecturers' experiences of linking education pathways to career destinations, which would be a valuable asset for schools. This pathway does not currently exist, but the group felt this could be a possible route to expanding the number of Computing Science teachers.

Within this discussion, it was emphasised that providing additional qualifications in Computing Science for teachers not currently qualified to teach the subject, would

have to be combined with support and professional learning to ensure that these teachers were fully confident in their ability.

Overall, there was recognition that while a variety of pathways exist, further work is required to bring together the learning from these approaches and develop a clear, coherent plan for what should be offered in the future.

> Action 2: Scottish Government to work with GTC Scotland and organisations, as part of the development of the Teacher Workforce Strategy, to ensure that national developments to teacher education and development fully consider the requirements for Computing Science teaching.

3. Promote Teaching as a career to Computing Science Students

Engaging Computing Science students from various university departments, early in their studies, around the opportunities which teaching presents, was seen as a key opportunity to secure more Computing Science teachers in the future.

We heard that it can be challenging to convince undergraduates and graduates with the right skills and degrees to consider a teaching career, when starting salaries in industry for new graduates are generally higher than teaching. It was noted that engaging students early in their studies around the opportunities of a teaching career, is likely to have greatest impact. STACS also advised that it is not widely known that industry experience can count towards progression on the teacher pay scale, which is at the discretion of each local authority. This is not confined to those wishing to transition to become a Computing Science teacher but applies to industry experience in relevant fields for other subjects. Additionally, the STEM Bursary scheme also provides a financial incentive to undertake a one year graduate Diploma in Education for Initial Teacher Education (PGDE) with a bursary of £15,000.

STACS have undertaken work to engage Further and Higher Education institutions that offer Computing Science courses to promote a teaching career to students with some success (see Annex B). During the meeting series it was felt that expanding this programme of work would be beneficial.

> Action 3: STACS to work with partners to expand work to promote Computing Science teaching as a possible future career option to students in Further and Higher Education early in their programmes of study.

4. Support for Computing Science Teachers

Ensuring that Computing Science teachers have access to professional learning and peer support was viewed as central to improving Computing Science teacher retention rates. Professional learning is discussed in more detail within the next theme whilst this section focuses on peer support.

During the meeting series it was felt that teachers working in single-person departments, and those who were newly qualified, may require enhanced support but that generally, all Computing Science teachers need to feel part of a wider community, regardless of their experience level.

As Computing Science teachers, the Co-leads of STACS see the crucial role of peer support and to that end STACS have developed an innovative Community of Practice model to support the Computing Science teaching profession. They recruit tutors from the teaching community within their network to deliver peer-led professional learning that is dynamic and responsive to current classroom subject delivery. The organisation creates a strong foundation for any current or prospective Computing Science teacher to engage with upskilling opportunities and engage with good practice across the teacher network. STACS also suggested that opportunities for experienced Computing Science teachers to mentor those new to the profession could be an important part of creating a community culture which, in turn, may promote greater teacher retention.

An allied point made around peer support was that in some cases, greater flexibility from schools may be needed, to enable Computing Science teachers to be 'released' from timetable to attend professional learning and peer support opportunities. It was accepted that there is a paradox in that this can be particularly challenging for teachers in single teacher departments but that these are the groups that may need access to peer support and professional learning the most.

Action 4: STACS to lead work to ensure that all qualified and prospective Computing Science teachers have access to, and are part of, a professional Computing Science learning community.

Scottish Government current action on teacher recruitment

The Scottish Government is taking steps to address issues in respect of teacher recruitment and has started a campaign to recruit more teachers into areas where there are shortages. The recruitment campaign, launched in January 2026, will encourage more students to take up a career in teaching, specifically in hard to fill subjects, including Computing Science, and in remote and rural areas. Priority subjects being targeted in the teacher campaign includes STEM, Modern Languages and Home Economics.

The Cabinet Secretary for Education and Skills has also convened a roundtable involving key partners to explore solutions to challenges relating to supporting teacher education, workforce planning, recruitment and retention.

- This work aims to create a more sustainable long-term approach for students through enhanced support for teacher education, recruitment and retention.
- As part of this work, officials will work with The General Teaching Council for Scotland to cost benefit the expansion of additional registration.

A range of other actions now underway will also help make teaching a more attractive career option. These include work with COSLA on medium and long-term joint workforce planning, which will take into account the importance of responding to issues including different local needs. This will enhance the Scottish Government's detailed, national evidence-led annual teacher workforce planning exercise to project the requirement for newly qualified teachers (and initial teacher education targets).

Proposals have been published on reducing class contact time for teachers, to help address concerns around teacher workload, thereby creating the space to drive improvement and reform in our schools and improve outcomes for learners.

Professional Learning

1. A clear professional learning offer that is accessible to all teachers

During the meeting series we heard that the current professional learning offer for Computing Science is high quality and comprehensive. However, having a more focussed approach, for example subject-specific in-service days, and clearly signposting what professional learning opportunities are available where, would be beneficial.

There are currently three main organisations delivering professional learning for Computing Science nationally: Education Scotland, STACS and SSERC. We heard that changes in the use of social media platforms by schools and organisations in recent years may have led to a decline in awareness of what is on offer. It was noted that greater clarity around 'who does what' would aid teachers, particularly those looking to access learning quickly, and that organisations delivering professional learning should consider ways to expand awareness of their offer.

Computing Science is, by its nature, a subject that will evolve and develop quickly and to support innovative teaching that reflects real-world applications of the subject. We heard that all Computing Science teachers, regardless of experience level, are required to engage regularly with professional learning, and whilst this is true for all teachers, the pace of change in the subject may make this even more important for Computing Science teachers.

However, it was noted that Computing Science teachers who do not hold a Computing Science-related undergraduate degree, require enhanced professional learning to build the required knowledge and confidence. As such, the professional learning offer should be designed to support all Computing Science teachers to develop the required knowledge, experience and technical expertise to deliver Computing Science to a high standard, including those teachers who undertake an accelerated training route and may require specialised professional learning to enable them to feel confident teaching the subject at all levels.

Additionally, and while much of this paper focuses on Computing Science as a subject taught in secondary schools, we know that early years practitioners and primary teachers also work to build knowledge in this part of the curriculum. The group acknowledged that primary teachers face additional challenges in prioritising professional learning on a specific subject area given the breadth of subjects that they teach, and as a result, the national offer of professional learning should be developed in a way that supports both primary and secondary colleagues. Both SSERC and STACS have relevant programmes designed for primary teachers and further information can be found at Annex B on Good Practice.

Practitioner enquiry was raised by the group as an example of professional learning which empowers teachers to explore and improve their own practice through evidence-based methods. During the meeting series it was suggested that further work could be undertaken to encourage more teachers to undertake their Professional Enquiry in Computing Science. It was noted this could be particularly effective in primary schools to help build confidence and give teachers time to embed the subject into their teaching.

The newly established Centre for Teaching Excellence will establish Communities of Practice, online and in person, in specific areas that teachers can join to collaborate with each other. In addition, the Centre will create Practitioner enquiry networks that will allow teachers working on enquiry-based projects to share findings with peers.

The group identified the most common barriers to teachers undertaking professional learning as lack of time (to both attend and embed learning into their practice), financial constraints, and geographical location. Given that Computing Science evolves very quickly, this was raised as a particular risk for this professional group. It was also noted that those teachers in remote and rural locations often face additional financial and travel constraints which can negatively impact on attendance at professional learning events. To ensure that all teachers are able to access professional learning, organisations delivering professional learning should ensure that this is available in a range of formats, including shorter sessions, online sessions and modularised delivery to ensure that teachers are able to build the required knowledge over a longe, more manageable period of time.

Action 5: Scottish Government to work with partners, including Education Scotland and STACS, to ensure that there is clarity in the Computing Science professional learning offer, and that these opportunities are inclusive, to maximise teacher attendance, reach, and ability to implement learning in their practice.

2. Ensuring Professional Learning Reflects the Curriculum

Computing Science is being considered as part of the Technologies curricular area within Education Scotland's Curriculum Improvement Cycle. All subject areas in the curriculum are being developed by Education Scotland and the associated core groups of teachers. The core Computing Science group are currently developing subject specific content using a Know, Do, Understand model which will clarify the conceptual progression and knowledge/actions at each Curriculum for Excellence Level. These are underpinned by the Big Ideas and Concepts identified by the wider Technologies curriculum area.

The Curriculum Improvement Cycle process provides a significant opportunity to strengthen professional learning, by bringing it up to date, while ensuring the overall offer is reflective of the changes to the curriculum. High quality learning and teaching materials will be created to support the revised Computing Science curriculum alongside professional learning opportunities.

Strengthening and streamlining the curriculum through the Curriculum Improvement Cycle work and the subsequent improvements to Professional Learning are pivotal to improving standards in Computing Science learning and teaching.

Action 6: Education Scotland, to work with partners to ensure that future professional learning reflects the outcomes of the Curriculum Improvement Cycle.

Scottish Government support for teacher professional learning

The Scottish Government funds a number of education organisations across Scotland to deliver professional learning to teachers (Annex B). In relation to

Computing Science, the Scottish Government directly funds **STACS** with £270k annually. One of their objectives is to deliver a professional learning model, which is formed around a 'community of practice' which is peer-led, and reinforced with teaching resources designed for teachers at all experience levels. They also deliver annual in-person events for primary and secondary Computing Science teachers to come together to attend focussed sessions for their upskilling and to network and collaborate.

The Scottish Government also provide **SSERC** with £780k annually to deliver STEM professional learning. While the Computing Science and Digital programmes are not directly funded by this, it forms the all-round package of support by SSERC for professional learning. They primarily offer face-to-face professional learning for Primary teachers in Computing Science. While being paid-for sessions, SSERC ensure value for money for participants by facilitating them to take away 16-week class loan kits.

As an executive agency, **Education Scotland** work in partnership with, and are funded by, the Scottish Government. Education Scotland offer professional learning via online and in person sessions, curated and created resources, and live lessons.

Education Scotland support Computing Science professional learning through developing resources to support revised senior phase qualifications, co-designed practical in-person upskilling workshops for Computing Science teachers to support the delivery of revised senior phase qualifications in Web Development and Python alongside an online self-study platform developed with SQA Academy (now Qualifications Scotland) and Skills Development Scotland supporting key areas of the subject.

The live lesson model, where teachers and pupils engage with a session directly, is hosted online. Aimed at primary and lower secondary classes, they allow teachers to develop their own skills and confidence within areas of Computing Science (and digital skills) and give learners opportunities to experience different aspects of the subject.

SQA (now Qualifications Scotland) have, in the past, provided support for Computing Science teachers through Understanding Standards events. These were following the Review of National Qualifications, led by SQA's Computing Science National Qualification team, along with some senior appointees. These events included the usual Understanding Standards materials which explained the national standards required in assessments, with real examples. In addition, SQA also asked senior appointees to create a series of afternoon professional learning workshops to upskill teachers in some of the new web and database content that was introduced in National Courses (National 5, Higher, and Advanced Higher).

Going forward, Qualifications Scotland will continue to provide Understanding Standards events, webinars and online professional learning to support the introduction of new qualifications.

School Infrastructure

1. Local Authority Digital Access

In Scotland, local authorities are responsible for ensuring that digital tools and services are secure, appropriate and complies with legislation. We recognise that each local authority has their own risk appetite, and as such, access to specific digital resources varies across different local authorities.

During the meeting series, the group reflected that access to digital resources, in particular software, presented a major barrier to delivering Computing Science education and that there is significant variation across Scotland in terms of the Computing Science software in use. Some group members remarked that it was becoming increasingly difficult to reassure local authorities that digital resources are safe to use in schools, and the process for doing so – the completion of a data protection impact assessment (DPIA) - is extremely complex and time-consuming. However, the group were keen to emphasise that they understood the importance of local authorities protecting and securing networks.

This issue also presents challenges for teachers accessing and implementing their own professional learning, due to the variation in access to particular device types or software across local authorities.

It was raised by the group that a named contact within each local authority's IT department, should be made available to schools to help improve communication channels, support teachers in dealing with network access issues, and improve the DPIA process.

Action 7: Local authorities to consider identifying a named contact(s) within their local authority's IT department, to improve communication channels and resolve issues promptly for schools.

2. Classroom Devices

We heard mixed responses from the pupil survey (Annex C), when prompted to reflect on classroom equipment. Some pupils commented that the devices they used were "old" or "slow" computers. However, many others said that there were no hardware issues inhibiting their learning. Views during the meeting series were similarly different indicating that there is likely a varied picture between schools and authorities.

Allied to this point we heard from the group that, in general, there may be some misunderstanding about the type of devices that can be used to teach Computing Science and that some teachers and schools may set a "high bar" for the type of devices that are needed. It was noted that devices don't need to be particularly expensive or have "cutting edge" technology, and that desktop PCs and monitors enable delivery of the subject (Annex B). It was noted that delivery of the subject can be adapted depending on the device used, although there was a consensus that it is much more challenging to deliver the subject on a tablet device.

The group therefore identified that further support could be provided to Computing Science teachers and schools to enable them to explore, and implement, cost-effective measures to aid teaching and learning which comply with the current devices in use by their school and/or local authority. This is particularly pertinent for local authorities who have entered into long-term contracts which limit their ability to switch to alternative devices or software.

3. Class Sizes

During the meeting series we heard varied views on class sizes. It was noted that teachers may face challenges with delivering Computing Science in classes with 30 pupils and that it would be more appropriate to have Computing Science classes capped at 20 pupils. We heard that in some cases schools have opted to cap class sizes at 20. A variety of reasons were cited for supporting a 20 pupil cap including the lack of available space, device availability, effective 1-1 support for learners during class time, and timetabling issues in some schools. We heard that challenges with class sizes may be particularly acute where there is bi or tri level teaching in classes.

However, views differed on the extent to which class sizes impact the delivery of the subject. Some stakeholders suggested that class size was less important than ensuring all learners had access to an appropriate device and digital resources. Given the varied views on this, we suggest that STACS could undertake further work to explore this issue further.

It is worth emphasising that currently Computing Science is classified as a non-practical subject within the Scottish Negotiating Committee for Teachers (SNCT) handbook. Within the SNCT handbook, subjects are assessed based on specific safety criteria and subjects are categorised as ‘practical’ or whether it is safe to deliver the practical elements of the course within certain class sizes. The classification is not concerned with the optimal size for delivery, instead, it is about the content of the course and making sure it can be delivered in a way which manages any risks coming from the practical elements. It is the responsibility of the SNCT to update the classifications of subjects.

4. The National Picture on School Infrastructure

As outlined above, policies relating to devices and access to digital resources varies across local authorities which can have an impact on the delivery of Computing Science education, and the access and impact of professional learning opportunities. There is a sense that these issues have possibly grown over time. STACS could explore, with local authorities, the possibility of undertaking a survey to better understand different approaches to organising Computing Science classes including the impact of class and classroom sizes, as well as device and digital access policies within each local authority. This information could prove to be useful in delivering curriculum resources and professional learning by responding to the variations in school infrastructures in each local authority. This information would also be beneficial to other organisations supporting Computing Science education, and to

other subject areas with similar experiences with devices and access to digital resources.

Action 8**:** STACS to work with partners, including local government, to improve understanding of the variations in school infrastructure which may impact on Computing Science delivery, to ensure that minimum requirements for Computing Science provision is met.

Scottish Government Action on School Infrastructure

Our refreshed Learning Estate Strategy - co-produced with COSLA and forming the foundation of our £2bn Learning Estate Investment Programme - emphasises the importance of future-proofing the estate with robust digital infrastructure.

We are consulting on proposals to update the School Premises (General Requirements and Standards) (Scotland) Regulations 1967 to ensure they reflect the needs of modern education. While the current regulations set minimum standards for areas such as site size, lighting, and ventilation, they are outdated and do not address contemporary priorities, including digital connectivity. This consultation invited views on what minimum standards should apply in areas such as digital infrastructure. It was open 16 December 2025 to 24 March 2026.

Alongside the actions set out above, the Scottish Government is working with COSLA to develop a shared vision for the role of technology in education. This work is intended to provide a common understanding of the foundations required to support any future digital approach, including devices and connectivity, access to digital services, and the digital skills of teachers and learners.

Subject Attractiveness

1. Access to Computing Science education

Subject availability was cited among group members as a key barrier to changing perceptions of Computing Science. Group members reflected that a lack of exposure to Computing Science in primary and the early years of secondary significantly reduces the likelihood of pupils opting to undertake qualifications in the subject. As outlined in Annex B there is good practice ongoing at Mearns Primary School, East Renfrewshire Council, and the approach within North Lanarkshire Council, which both implement models that target early exposure to Computing Science through different approaches. Subject availability is a multifaceted issue with direct links to the challenges facing teacher recruitment and retention. It also relates to subject choice in schools whereby pupils select which subjects they wish to study in the Senior Phase.

Discussions around the barriers and issues surrounding Computing Science naturally loop back to how many pupils are interested in it, particularly leading up to subject and qualification choice. However, it was widely felt that lack of access to Computing Science at primary level and the early years of secondary level impacts uptake later in school.

As well as issues with access during the Broad General Education and early years, it is also the case that for a variety of reasons, including recruitment challenges and digital infrastructure issues, Computing Science is not offered in all schools at the Senior Phase.

To inform the Curriculum Improvement Cycle, His Majesty's Inspectorate for Education (HMIE) plans to undertake a number of thematic inspections on the development and design of Broad General Education (BGE) curriculum in primary and secondary schools and the effectiveness of arrangements for continued progress in learning across the transition from primary to secondary.

We heard that lack of access to Computing Science at all stages is a "foundational" or core challenge for the future of the subject and that without widespread access to the subject, the other actions detailed in this report would not be successful. Enhanced support should be provided to teachers to deliver Computing Science at all learning stages.

2. Curriculum and Qualifications Reform

The Curriculum Improvement Cycle (CIC), led by Education Scotland, is well underway with all curricular areas currently being reviewed and updated. Computing Science is being considered as part of this process, within the Technologies curricular area. A key aim of the CIC is to ensure that Scotland's curriculum remains relevant, engaging and attractive to children and young people, supporting them to develop the skills and knowledge and experience to thrive. It is also considering a number of cross-curricular learning, including Digital Skills and Entrepreneurship, which will help to clarify, strengthen and embed these important skills within Scotland's Curriculum. These skills are of significant importance not only to children and young people, but also to Scotland's wider economic prosperity.

The Curriculum Improvement Cycle has been identified by the group as holding significant potential to reinvigorate the subject. The group reflected that it provides an opportunity to strengthen Computing Science pathways to improve progression routes through school and beyond.

The expansion of Computing Science aligned vocational and technical qualifications, such as National Progression Awards in Cyber Security and Computer Games Development, and programmes such as CyberFirst, were viewed by some in the group as offering significant potential as pathways for children and young people to later undertake a National Course in Computing Science. However, it was reflected that progression routes aren't always clear for children and young people and the number of vocational and technical qualifications available can make mapping progression routes challenging. Allied to this point, there was some concern that existing pathways into further and higher education may continue to show preference for National Courses over vocational and technical qualifications. Furthermore, it was felt that addressing the associated Computing Science teacher recruitment and retention challenges outlined elsewhere in this report, is necessary in order to be able to capitalise on the opportunities presented by the growth in Computing Science aligned vocational and technical qualifications.

An intended benefit of the school qualifications reform that the Scottish Government and its delivery partners have committed to, is "the creation of clear and high-quality learner pathways for all children and young people. This will include addressing long-standing issues in respect of parity of esteem between different pathways (such as work based learning) and qualification types."

The group identified that the Curriculum Improvement Cycle and Qualifications Reform work, which is being driven forward as a coordinated programme presents opportunities to ensure that all children and young people are able to develop the skills that they need to grasp the opportunities that the tech sector presents.

Action 9: All stakeholders involved in the delivery of Computing Science to leverage the opportunities created by education reform, including the Curriculum Improvement Cycle and qualifications reform, to strengthen progression routes and make the subject more appealing to children and young people.

3. Power of Role Models and Industry Exposure

During the meeting series, and evidence through the pupil survey, we heard the view that not all pupils currently see Computing Science as the exciting and engaging subject it can be, and that there are also issues about particular groups of pupils including females viewing the subject as not being "for them". As aforementioned and outlined in Annex D, there also appears to be differences in uptake of the subject when pupil's SIMD background is considered. Data shows that both the entries for National Courses are higher for pupils in SIMD quintile 5 when compared to quintile 1, as are the number of 'A' grades achieved at National 5 and Higher.

The group received a presentation from St. George's School, Edinburgh on the delivery of their annual 'Fearless Women in Computing' event. The event is aimed at female pupils in P6-S6 and is delivered in conjunction with industry to inspire girls to consider future study and careers in Computing Science. The event has been

attended annually by around 600 girls from independent and state schools and provides an opportunity to hear from industry leaders about what a career in technology offers, aiming to break down the gender barrier that persists in the sector. Evaluation of the event has shown improved perceptions of studying Computing Science and increased likelihood of considering a career in the tech sector by the girls and young women in attendance. Additionally, STACS focus their activity on addressing the gender gap in Computing Science at events, through their teaching resources, and professional learning. The intention is that equipping teachers with high-quality resources and upskilling will foster positive change for the next generation of female pupils.

Members of the group with teaching experience reflected that exposure to positive industry role models had anecdotally had a more positive impact on pupils' perceptions of the tech sector, than teachers could have alone. The group discussed that Computing Science is often considered negatively by children and young people due to a number of factors, including a lack of general understanding about the career opportunities that studying Computing Science can open.

Given the anecdotal positive impact that industry exposure has on children and young people's perceptions of Computing Science, there is an opportunity for schools to utilise industry experience within schools to help inspire and inform children and young people about what a career in the technology sector can offer. Group members reflected that the Fearless Women in Computing event appeared to be a successful model, which could be replicated across Scotland to inspire girls and young women to consider a career in tech. They also suggested that the model could be broadened out to encourage other under-represented groups, such as those from lower socio-economic backgrounds and UK minority ethnic groups, to consider a career in the tech sector.

Action 10: STACS to lead work in the development of a national approach to help ensure that pupils have the opportunity to engage with role models and industry. This may include the development of resources and coordinating organisations who are active in this space.

Conclusion

The challenges facing Computing Science are multi-faceted and, in some cases, long-standing. However, as this report evidences, there are a range of innovative approaches already being undertaken across Scotland to overcome barriers, which could help signal a way forward at a national level.

This report presents a range of actions which, if pursued, have the potential to improve teaching and learning in Computing Science. Evidence has shown that Computing Science education plays a key role in the tech ecosystem and as such, overcoming the identified barriers holds benefits not only for Computing Science teachers, but also the children and young people in their skills development and future opportunities, and for the Scottish economy more broadly.

Good progress has been made in a number of areas relating to Computing Science teaching and learning in recent years, as evidenced by the increase in girls opting to take National Courses in the subject and improving pass rates. We are also assured by the quality of the overall professional learning offer even if for some this can be hard to access. These improvements are the result of a range of factors and have been supported by dedicated teachers and organisations that are working hard to help the subject thrive.

As identified within this report, there are also a range of ongoing national initiatives, including the ongoing Curriculum Improvement Cycle, which present significant opportunities for further progress to be made in tackling many of the key challenges identified in this report, in the years to come.

The Scottish Government is committed to continuing to work with stakeholders to build on progress that has been made, and the findings of this report will feed into ongoing policy considerations at a national level.

Annex A: Summary Of Actions

Action 1: As part of the Scottish Government's work on the development of a Teacher Workforce Strategy, establish a clear understanding of the reasons behind the difference of the number of teachers registered to teach Computing Science and those who are currently delivering Computing Science education in Scottish schools as a baseline for future actions.

Action 2: Scottish Government to work with GTC Scotland and organisations, as part of the development of the Teacher Workforce Strategy, to ensure that national developments to teacher education and development fully consider the requirements for Computing Science teaching.

Action 3: STACS to work with partners to expand work to promote Computing Science teaching as a possible future career option to students in Further and Higher Education early in their programmes of study.

Action 4: STACS to lead work to ensure that all qualified and prospective Computing Science teachers have access to, and are part of, a professional Computing Science learning community.

Action 5: Scottish Government to work with partners, including Education Scotland and STACS, to ensure that there is clarity in the Computing Science professional learning offer, and that these opportunities are inclusive, to maximise teacher attendance, reach, and ability to implement learning in their practice.

Action 6: Education Scotland, to work with partners to ensure that future professional learning reflects the outcomes of the Curriculum Improvement Cycle.

Action 7: Local authorities to consider identifying a named contact(s) within their local authority's IT department, to improve communication channels and resolve issues promptly for schools.

Action 8: STACS to work with partners, including local government, to improve understanding of the variations in school infrastructure which may impact on Computing Science delivery, to ensure that minimum requirements for Computing Science provision is met.

Action 9: All stakeholders involved in the delivery of Computing Science to leverage the opportunities created by education reform, including the Curriculum Improvement Cycle and qualifications reform, to strengthen progression routes and make the subject more appealing to children and young people.

Action 10: STACS to lead work in the development of a national approach to help ensure that pupils have the opportunity to engage with role models and industry. This may include the development of resources and coordinating organisations who are active in this space.

Annex B: Case Studies of Good Practice

The following case studies demonstrate evidence of good practice within the Computing Science Education community which were discussed during the meeting series. This is not an exhaustive list of good practice across Scotland, but attempts to place them in the context of this report to demonstrate positive case studies across the meeting themes.

Teacher Recruitment and Retention

Pathways to qualification:

Skyscanner Braided Careers Programme, University of Glasgow

A presentation was provided by the University of Glasgow, during the meeting on Teacher Recruitment and Retention, highlighting the new Braided Careers Programme. Four Skyscanner employees will undertake a full-time PGDE, resulting in a braided career modelled on working two days a week as a Computing Science teacher, and three days in their roles for Skyscanner. This is in its first year for the academic year 2025/26, assessment of its progress and impact has yet to be undertaken. This is a programme that could provide evidence of whether a braided career between industry and teaching is a viable system opportunity to continue to pursue. While it could be challenging to implement, it has potential benefits of securing more Computing Science teachers and adding industry role models into classrooms that could inspire more learners to take the subject. This concept could also be useful for other subject areas.

Software Engineering & Teaching Programme - Skyscanner

Pathways to qualification:

University of Aberdeen, MA(Honours) Secondary Education with Computing Science

The University of Aberdeen are now offering a MA (Honours) Secondary Education with Computing Science. This course is funded by the Scottish Government and will be offered to students in the academic year 2026/27 as part of a two-year pilot. The aim is to provide an alternative pathway, in which students who are undertaking an appropriate computing-based HND (such as Software Development), entry into Year 3 of University which will include 60 credits Education and 60 credits of Computing Science. Year 4 mirrors the accredited PGDE Secondary programme and includes education and placement. Any evaluation of its impact cannot yet be undertaken. However, it offers another pathway into teaching which could prove to be popular and contribute towards teacher recruitment targets.

Secondary Education (Computing Science) at University of Aberdeen - UCAS

Promote Teaching as a Career to Computing Science Students:

STACS, Engagement with Further and Higher Education Institutions

STACS have undertaken preliminary work in engaging Computing Science students in numerous Higher Education institutions to highlight the benefits of becoming a Computing Science teacher. They are working to offer classroom teaching

experience to these students with the assistance of voluntary Computing Science teachers. The intended outcome is to promote the teaching of Computing Science to students who are considering their career options. STACS will continue to expand this work to engage the cohort of students earlier in their course pathway and with further education institutions.

For more information, or to get involved, please consult Scottish Teachers Advancing Computing Science

Professional Learning

Scottish Government support for teacher professional learning:

STACS, Computing Science Professional Learning Offer

STACS's professional learning model, formed around a 'community of practice' which is often peer-led, has proved to be a strong example of upskilling Computing Science teachers who are registered and engage with the STACS network. They also create teaching resources which support Computing Science teachers at all stages of education, and experience and staffing levels in their respective schools. These are designed to be easy to implement and deliverable for all teacher experience levels. The model is largely designed around using SQA (now Qualifications Scotland) course reports to shape targeted support in response to National Qualifications.

For more information, you can consult Scottish Teachers Advancing Computing Science

SSERC, Computing Science Professional Learning Offer

SSERC's Computing Science professional learning offer largely targets Primary teachers, whilst encouraging engagement from secondary teachers looking to enhance BGE experiences for learners. While being paid-for in person sessions, SSERC ensure value for money for participants by facilitating them to take away 16-week 'physical computing' class loan kits on the day, which helps to embed professional learning across the school, and can often influence school investment into Computing Science resources. SSERC also provide the knowledge and tools for teachers to lead the Computing Science learning back in their own settings, helping to overcome the barriers of low confidence in teaching Computing Science and lack of access to professional learning.

SSERC | Digital Professional Learning

Education Scotland, Professional Learning Offer

Education Scotland offer professional learning via online and in person sessions, curated and created resources and live lessons, alongside partnership offers - such as professional learning offered by Raspberry Pi Foundation and Micro:Bit Education. Education Scotland are the regional delivery partner for the CyberFirst programme through UK Government funding. This involves a schools award programme, professional learning, local hubs (Abertay University and West of Scotland College), creation and curation of learning and teaching resources, network of associate teachers to support locally with engagement in the programme, youth

worker piloting a programme for young people not attending school, and to an online cloud based platform to deliver the National progression award.

School Infrastructure

Classroom Devices:

Utilising a Range of Devices

It has been highlighted that local authorities employ different device strategies with varying success for Computing Science education. While further work shall be undertaken to formally explore the evidence as part of these case studies, anecdotal evidence through the STACS network and from Education Scotland suggests that schools are delivering good Computing Science education through increased engagement with professional learning events that focus on the use of physical computing devices such as Micro:bit, Lego and MakeyMakey which are compatible with a range of common desktop, laptop, Chromebook and iOS devices. In particular, these physical computing devices are most commonly seen in learners BGE experiences. Moving into the senior phase, and a more focussed approach on text-based syntax, learners have better experiences with desktop-based systems with external monitors, keyboards and mice. It is more challenging to have positive experiences at this level with this type code-based activity (software development, web development and database development – all part of current National Qualifications in Computing Science) with smaller screen devices and restricted access to the filing systems. At Advanced Higher, there have been examples of pupils being given a Raspberry Pi computer to carry out their course and project as these devices can be connected to external peripherals and allow learners to fully access the system in a way that they cannot when using Local Authority devices. This indicates success by utilising the infrastructure in place and being adaptive to their circumstances given infrastructure decisions are made at local authority level. However, there may be other challenges associated with using this type of device.

Subject Attractiveness

'Mearns Masters': Mearns Primary School, East Renfrewshire

Mearns Primary School and Nursey have adopted the Mearns Masters Programme throughout the school. This is a skills-based initiative designed to equip learners with the agency, creativity, and technical proficiency required for their futures. As part of the Coders pathway in this programme, they weave together the core principles of Computing Science, Project-Based Learning, and link in with Global Citizenship to promote creation, problem-solving and confidence in their learners. A variation of physical resources are used that map the learning journey from their early learners through to primary 7.

For more information, please visit Mearns Primary School & Nursery Class - Mearns Masters

North Lanarkshire Council Approach to Computing Science

Encapsulating the totality of all the themes discussed, the North Lanarkshire Digital Pedagogy Team have embarked on policies that aims to enhance the benefits of a rich Computing Science curriculum offer within the local authority. They provide tailored support packages across all settings, including early years settings, primary

schools, ASN provisions, and secondary schools. These bespoke packages are designed in partnership with individual settings to align with school improvement priorities, staff confidence levels, and learner needs. By offering flexible, responsive support, the team are working to ensure that Computing Science is accessible, progressive and embedded meaningfully across all sectors. To support consistency and progression, the team has developed localised Computing Science progression pathways from Early Years through to Third Level.

To further enhance access and equity, the Digital Pedagogy Team has established a digital lending library comprising a range of coding and programmable devices to support learning across all stages. Each device is accompanied by a minimum of three structured lessons per stage, to ensure clear progression and purposeful integration into classroom practice. Lastly, the professional learning offer and resource development are described as designed to build long-term capacity rather than dependency. By combining high-quality career long professional learning, exemplified materials, and practical in-class modelling, the Digital Pedagogy Team empowers practitioners to grow in confidence and embed Computing Science meaningfully across the curriculum, to invest in a lasting impact for learners across North Lanarkshire. This is being implemented as part of a wider curriculum support with other subjects.

Curriculum and Qualifications Reform:

Engagement with Computing Science-related Programmes

CyberFirst

Education Scotland have outlined the positive impact that programmes like CyberFirst is having on schools. A case study provided on St. Matthew's Academy, North Ayrshire, demonstrates increases in engagement in Computing Science classes and an expansion of the classes offered at S3, S4, and a separation of senior phases offering between NPAs and National Courses taught separately. This has proved to have had a positive impact on many pupils who may not have considered studying Computing Science as a subject or qualification choice. The University of Glasgow has completed an evaluation of the CyberFirst programme in Scotland and highlights high quality and accessible resources, positive impact on students, and strong peer and national support.

CyberFirst Schools Award – DigiLearn

There is other evidence of positive impact that other programmes have on Computing Science education. Other initiatives include:

Digital Xtra

Digital Xtra is a Scottish charity which continues to receive Scottish Government funding. It facilitates funding awards for specific programmes that supports innovative, meaningful and creative extracurricular activities. For more information consult their website: Digital Xtra I Supporting digital skills provision across Scotland

dressCode

dressCode is a Scottish Charity founded by Toni Scullion. It aims to close the gender gap in Computing Science education by building a network of dressCode clubs in schools, running of annual coding competitions open to primary and secondary schools among other activity. For more information and how to get involved please consult: Dresscode | Inspiring girls into Computing Science in Scotland

Power of Role Models and Industry Exposure:

St. George's School – Fearless Women in Computing Event

As referenced in the report, St. George's School, Edinburgh deliver their annual Fearless Women in Computing Event, which targets female pupils from P6-S6 from the school, but also invites nearby state schools, particularly from low socio-economic areas. The event's reach, particularly to state schools, was made possible through industry sponsorship, which funded transport and ensured that financial barriers did not prevent participation. All pupils participate in various interactive stalls put on by partners of the event to engage and inspire the female pupils in attendance. As evidenced in their impact report, this event demonstrates rapidly improved perceptions of studying Computing Science in the future, and genuine considerations of entering the tech sector as a desirable career option.

The impact report is yet to be published, however, you can consult the following link to view video content from the event. Fearless Women in Computing 2025 - Sponsor and speakers announced

Annex C: Pupil Survey: Summary

A short survey was issued through Education Scotland's teaching networks as the meeting series concluded, seeking views from school pupils. Over 2,800 responses were received which points to an engaged Computing Science teacher community who wish for pupil voice to be heard as part of this engagement.

Below is a summary of the questions asked, and responses detailing key themes emanating from these.

Pupils who responded were a fairly **equal spread of ages** ranging from S1-S6, and **over half had Computing Science timetabled**.

Most respondents answered yes to **their school having a Computing Science teacher**, a minority did not know and a few answered no.

There was an equal spread of the **number of Computing Science teachers** in their school ranging from 1-4 teachers.

On what they **enjoyed most about studying Computing Science**, the pupils cited it as being fun, they enjoyed coding and programming, understanding how systems work, and producing something at the end of their learning. They referred to skills such as the problem-solving aspect as an enjoyable way to tackle the challenges they face in the subject. Furthermore, some topics included learning about cyber security and game development. This points to the impact that National Progression Awards can have as potentially acting as a pathway to further study in Computing Science and later undertaking National Course(s). While these responses reflect those in Broad General Education, there were consistent responses from those in the Senior Phase about their enjoyment of the subject.

On what they **least liked about studying Computing Science**, they were asked to reflect on what could be different or better. Reasons in this include the subject being uninteresting, challenging, and repetitive. Specifically, those from S4 cited that written work and theory were least favoured and preferred practical lessons. Some others, given by a minority of responses, included how they felt that the subject was taught and not having sufficient Computing Science timetabled.

They were asked to **reflect on the devices and software** used and comment on what is good or what could be better. There are mixed responses to this, ranging from a good provision to pupils wanting better devices and software access. This points to the divergence between schools, and ultimately, local authority provisions; as outlined in the report.

They were asked, if applicable, **why they do not have Computing Science timetabled**. Most responses point to not being interested enough to take the subject, and some just did not choose it. A few respondents said that Computing Science was not required for future study.

Lastly, the children and young people were asked if they were **interested in either studying Computing Science in Further or Higher Education, or a career in Computing Science.** A majority responded that they were not, pointing to the lack of interest in studying the subject for the reasons already cited. For those that were, they were informed about the impact that Computing Science education could have

on their career aspirations, for example, the skills both directly required for a job in the technology industry or indirect benefits for a range of other career aspirations.

Annex D: Datasets

Computing Science Teacher Workforce Statistics

Computing Science Teacher Numbers (by main subject employed by a local authority)

Academic Year	Total Teacher Number (FTE)*
2008/09	766
2009/10	728
2010/11	699
2011/12	675
2012/13	660
2013/14	649
2014/15	636
2015/16	601
2016/17	594
2017/18	582
2018/19	595
2019/20	577
2020/21	595
2021/22	595
2022/23	588
2023/24	578
2024/25	550

*This is taken from the Scottish Government Census Supplementary Statistics. Data on Teacher numbers for other subjects can also be found in this publication.

Initial Teacher Education (ITE) Target for Prospective Computing Science Teachers**

Academic Year	Target*	Intake	% Achieved
2019/20	53	44	83
2020/21	47	44	94
2021/22	47	44	94
2022/23	52	26	50
2023/24	52	16	31
2024/25	52	16	31
2025/26	52	31	60

*ITE targets are proposed by the Teacher Workforce Planning Advisory Group and agreed between the Scottish Funding Council and Initial Teacher Education Providers. The targets for 2026-27 remain unchanged ITE-Intake-Targets-for-AY-2026-27-Annex-B.xlsx

Computing Science National Qualification Results

National Courses

National 4	2019	2020	2021	2022	2023	2024	2025	2019-25 change	2019-25 %change	2024-25 change	2024-25 %change
Entries	2,725	2,765	2,590	2,885	3,320	2,460	2,250	-475	-17.4%	-210	-8.5%
Passes	2,420	2,525	2,385	2,515	3,060	2,140	1,975	-445	-18.4%	-165	-7.7%
Pass Rate	88.8%	91.4%	92.1%	87.1%	92.1%	87%	87.8%	-1pp	n/a	0.8pp	n/a

National 5	2019	2020	2021	2022	2023	2024	2025	2019-25 change	2019-25 %change	2024-25 change	2024-25 %change
Entries	6,345	6,215	6,290	6,440	6,795	6,745	6,585	240	3.8%	-160	-2.4%
Passes (A-C)	4,745	5,600	5,425	5,085	5,355	5,320	5,400	655	13.8%	80	1.5%
Pass Rate	74.8%	90.1%	86.3%	78.9%	78.8%	78.9%	82.0%	7.2pp	n/a	3.2pp	n/a

Higher	2019	2020	2021	2022	2023	2024	2025	2019-25 change	2019-25 %change	2024-25 change	2024-25 %change
Entries	3,230	3,165	3,380	3,495	3,560	3,745	3,960	730	22.6%	215	5.7%
Passes (A-C)	2,070	2,825	2,910	2,540	2,490	2,725	2,990	920	44.4%	265	9.7%
Pass Rate	64.1%	89.3%	86.2%	72.7%	69.8%	72.7%	75.5%	11.4pp	n/a	2.8pp	n/a

Advanced Higher	2019	2020	2021	2022	2023	2024	2025	2019-25 change	2019-25 %change	2024-25 change	2024-25 %change
Entries	615	490	565	695	665	705	770	155	25.2%	65	9.2%
Passes (A-C)	405	460	500	555	490	495	560	155	38.3%	65	13.1%
Pass Rate	66.3%	93.9%	88.7%	79.7%	73.5%	70.1%	73.0%	6.7pp	n/a	2.9pp	n/a

Female Data for National Courses

SCQF level 4-7 Combined Entries

	2019	2020	2021	2022	2023	2024	2025
Female	2,345	2,365	2,400	2,605	2,890	2,940	2,810
Male	10,560	10,270	10,420	10,900	11,445	10,710	10,750
Total	12,915	12,635	12,825	13,515	14,340	13,655	13,565
Female %	18.2%	18.7%	18.7%	19.3%	20.2%	21.5%	20.7%

National 5	2019	2020	2021	2022	2023	2024	2025	2019-25 change	2019-25 %change	2024-25 change	2024-25 %change
Entries	1,280	1,255	1,240	1,340	1,470	1,540	1,445	165	12.9%	-95	-6.2%
Female % of Total	20.2%	20.2%	19.7%	20.8%	21.6%	22.8%	21.9%	1.8pp	n/a	-0.9pp	n/a
Passes (A-C)	1,030	1,180	1,115	1,125	1,255	1,260	1,275	245	23.8%	15	1.2%
Pass Rate	80.4%	94.0%	89.8%	84.0%	85.1%	81.8%	88.3%	7.9pp	n/a	6.5pp	n/a

Higher	2019	2020	2021	2022	2023	2024	2025	2019-25 change	2019-25 %change	2024-25 change	2024-25 %change
Entries	535	555	585	650	670	785	820	285	53.3%	35	4.5%
Female % of Total	16.6%	17.5%	17.3%	18.6%	18.8%	21.0%	20.7%	4.1pp	n/a	-0.3pp	n/a
Passes (A-C)	385	515	530	505	510	600	670	285	74.0%	70	11.7%
Pass Rate	71.9%	92.3%	90.6%	77.3%	76.5%	76.1%	81.3%	9.4pp	n/a	5.2pp	n/a

Advanced Higher	2019	2020	2021	2022	2023	2024	2025	2019-25 change	2019-25 %change	2024-25 change	2024-25 %change
Entries	90	85	100	115	135	150	155	65	72.2%	5	3.3%
Female % of Total	14.6%	17.3%	17.7%	16.5%	20.3%	21.3%	20.1%	5.5pp	n/a	-1.1pp	n/a
Passes (A-C)	65	80	95	95	115	115	125	60	92.3%	10	8.7%
Pass Rate	75.3%	[c]	[c]	82.3%	83.1%	76.7%	80.9%	5.6pp	n/a	4.2pp	n/a

[c] indicates figures have been suppressed to protect confidentiality

Results for National 5, Higher, and Advanced Higher by SIMD Quintile.

National 5

QUINTILE/YEAR	A	B	C	D	No Result	Total	% of 'A' Grades
2025	**2,803**	**1,118**	**897**	**582**	**556**	**5,956**	**47.1%**
1	407	208	171	116	123	1,025	39.7%
2	393	213	168	132	130	1,036	37.9%
3	400	195	171	94	104	964	41.5%
4	655	223	217	112	86	1,293	50.7%
5	948	279	170	128	113	1,638	57.9%
2024	**2,619**	**1,142**	**991**	**694**	**650**	**6,096**	**43.0%**
1	315	220	208	162	140	1,045	30.1%
2	409	199	180	126	131	1,045	39.1%
3	407	178	182	122	140	1,029	39.6%
4	650	273	201	142	133	1,399	46.5%
5	838	272	220	142	106	1,578	53.1%
2023	**2,461**	**1,232**	**1,082**	**719**	**651**	**6,145**	**40.0%**
1	304	237	211	145	149	1,046	29.1%
2	332	191	189	145	158	1,015	32.7%
3	369	224	199	124	130	1,046	35.3%
4	579	281	217	157	117	1,351	42.9%
5	877	299	266	148	97	1,687	52.0%
2022	**2,229**	**1,267**	**1,017**	**727**	**581**	**5,821**	**38.3%**
1	242	234	231	163	138	1,008	24.0%
2	320	208	199	142	131	1,000	32.0%
3	365	224	189	138	130	1,046	34.9%
4	550	283	206	138	103	1,280	43.0%
5	752	318	192	146	79	1,487	50.6%
2021	**2,446**	**1,260**	**1,173**	**519**	**311**	**5,709**	**42.8%**
1	338	279	242	112	65	1,036	32.6%
2	421	212	247	96	56	1,032	40.8%
3	412	241	205	114	59	1,031	40.0%
4	563	235	222	109	65	1,194	47.2%
5	712	293	257	88	66	1,416	50.3%

Higher

QUINTILE/YEAR	A	B	C	D	No Result	Total	% of 'A' Grades
2025	**1,413**	**684**	**547**	**375**	**540**	**3,559**	**39.7%**
1	148	112	104	79	113	556	26.6%
2	209	99	111	87	111	617	33.9%
3	210	113	91	65	117	596	35.2%
4	357	171	121	87	93	829	43.1%
5	489	189	120	57	106	961	50.9%
2024	**1,191**	**574**	**613**	**465**	**498**	**3,341**	**35.6%**
1	118	98	105	94	118	533	22.1%
2	138	90	108	85	87	508	27.2%
3	192	85	119	73	93	562	34.2%
4	294	116	137	102	96	745	39.5%
5	449	185	144	111	104	993	45.2%
2023	**1,073**	**563**	**520**	**494**	**535**	**3,185**	**33.7%**
1	95	94	100	95	98	482	19.7%
2	129	100	92	90	126	537	24.0%
3	170	90	85	87	102	534	31.8%
4	287	124	106	101	108	726	39.5%
5	392	155	137	121	101	906	43.3%
2022	**1,092**	**586**	**571**	**439**	**480**	**3,168**	**34.5%**
1	119	95	115	97	96	522	22.8%
2	167	99	92	68	112	538	31.0%
3	162	113	112	95	103	585	27.7%
4	269	125	121	86	80	681	39.5%
5	375	154	131	93	89	842	44.5%
2021	**1,443**	**640**	**546**	**259**	**195**	**3,083**	**46.8%**
1	183	113	126	53	36	511	35.8%
2	190	123	102	50	37	502	37.8%
3	266	106	98	57	37	564	47.2%
4	336	132	114	44	39	665	50.5%
5	468	166	106	55	46	841	55.6%

Advanced Higher

QUINTILE/YEAR	A	B	C	D	No Result	Total	% of 'A' Grades
2021	**187**	**108**	**95**	**31**	**29**	**450**	**41.6%**
1	5	9	17	7	3	41	12.2%
2	17	8	9	5	1	40	42.5%
3	29	29	11	6	6	81	35.8%
4	44	24	25	6	7	106	41.5%
5	92	38	33	7	12	182	50.5%
2022	**195**	**126**	**119**	**79**	**50**	**569**	**34.3%**
1	13	7	14	14	6	54	24.1%
2	11	11	19	14	12	67	16.4%
3	25	24	14	19	6	88	28.4%
4	52	22	27	16	12	129	40.3%
5	94	62	45	16	14	231	40.7%
2023	**146**	**128**	**110**	**83**	**82**	**549**	**26.6%**
1	15	15	13	11	14	68	22.1%
2	18	16	18	13	14	79	22.8%
3	14	24	15	8	18	79	17.7%
4	44	32	28	24	18	146	30.1%
5	55	41	36	27	18	177	31.1%
2024	**131**	**119**	**119**	**96**	**89**	**554**	**23.6%**
1	6	8	8	13	14	49	12.2%
2	14	7	19	17	15	72	19.4%
3	13	20	23	12	14	82	15.9%
4	36	33	26	25	21	141	25.5%
5	62	51	43	29	25	210	29.5%
2025	**138**	**157**	**148**	**106**	**85**	**634**	**21.8%**
1	12	9	17	8	7	53	22.6%
2	10	19	17	20	14	80	12.5%
3	17	20	22	19	22	100	17.0%
4	48	39	41	20	18	166	28.9%
5	51	70	51	39	24	235	21.7%

Overview of National Progression Awards

Total Vocational and Technical Awards in Technology* Subjects 2019-2025

*These figures include vocational and technical subjects considered part of the Technology subject grouping (such as Computing Science, Business Education, and Craft, Design, Engineering and Graphics)

All Awards	2019	2020	2021	2022	2023	2024	2025	2019-25 change	2019-25 %change	2024-25 change	2024-25 %change
SCQF3	0	85	25	30	25	30	40	40	n/a	10	33.3%
SCQF4	565	890	1,340	1,270	1,535	1,845	1,865	1,300	230.1%	20	1.1%
SCQF5	1,370	2,075	2,110	2,640	3,420	4,155	5,190	3,820	278.8%	1,035	24.9%
SCQF6	645	1,060	1,255	1,420	1,745	2,320	2,880	2,235	346.5%	560	24.1%
Total	**2,580**	**4,110**	**4,730**	**5,360**	**6,725**	**8,350**	**9,975**	7,395	286.6%	1,625	19.5%

Computing Science-related National Progression Awards

While there are more National Progression Awards related to Computing Science than are displayed in the tables below, Computer Games Development and Cyber Security are two of the most popular ones and are shown to illustrate the rise in popularity since 2019.

Computer Games Development	2019	2020	2021	2022	2023	2024	2025	2019-25 change	2019-25 %change	2024-25 change	2024-25 %change
SCQF4	160	215	285	350	290	300	290	130	81.3%	-10	-3.3%
SCQF5	430	655	615	755	975	1,040	1,075	645	150.0%	35	3.4%
SCQF6	170	285	325	370	435	475	615	445	261.8%	140	29.5%
Total	**760**	**1,155**	**1,225**	**1,475**	**1,700**	**1,815**	**1,980**	1,220	160.5%	165	9.1%

Cyber Security	2019	2020	2021	2022	2023	2024	2025	2019-25 change	2019-25 %change	2024-25 change	2024-25 %change
SCQF4	40	55	55	45	40	65	50	10	25.0%	-15	-23.1%
SCQF5	200	230	250	240	215	225	195	-5	-2.5%	-30	-13.3%
SCQF6	125	210	230	255	305	320	320	195	156.0%	0	0%
Total	**365**	**495**	**535**	**540**	**560**	**610**	**565**	200	54.8%	-45	-7.4%

Professional Learning Data

Education Scotland Professional Learning Data

Education Scotland run multiple sessions for Computing Science and closely related areas of interest, this reaches all 32 local authorities. A short, statistical overview is provided below.

Academic Year	Number of Sessions	Number of Educators	Number of Learners	Number of Schools
2022/23	144	5,171	24,963	1,001
2023/24	142	3,675	22,798	991
2024/25	166	6,276	44,972	1,908

Live Lessons Model

Since August 2020, there have been 110 live lessons, with over 5,800 educator participants from 5,380 schools reaching more than 122,000 learners. In the same period, there have been 806 virtual and in person professional learning sessions – 138 (17%) of these - specifically aimed at Computing Science/Cyber; with over 31,000 participants in attendance (3,850 for the Computing Science/Cyber sessions).

STACS Community & Professional Learning Data

Membership Statistics

Academic Year	Local Authority Reach	Number of Secondary schools reached, through membership, that deliver Computing Science	Number of Computing Science teachers	Number of secondary teachers across other subjects
2022/23	100%	64%	65%	61
2023/24	100%	88%	90%	85
2024/25	100%	94%	98%	96

Professional Learning Data

Academic Year	Number of Sessions	Number of Educators (in-person and online)	Number of Schools
2022/23 (pilot year)	4	71	61 in 27 Local Authorities
2023/24	21	110	Est. 100
2024/25	8	83	Est. 70 in 27 LAs

In the academic year 2025/26 STACS also hosted their inaugural teacher conference in which 80 practitioners across early years, primary and secondary

education attended from over 60 schools across Scotland. A total of 27 workshops were delivered throughout the day. For more information on this please consult: STACS Annual Conference 2025 - Open to Early Years, Primary Teachers and Secondary Teachers. Hosted at Stirling University, 29th Nov. — STACS - Scottish Teachers Advancing Computing Science

SSERC Professional Learning Data

Financial Year	Number of Sessions	Number of Educators	Local Authority Engagement	Number of Schools
2022/23	37	599	21 / 32	262
2023/24	40	509	27 / 32	220
2024/25	26	388	25 / 32	168

Annex E: Meeting Group Members and Stakeholder Engagement

Representatives from the following organisations attended the series of meetings:

- Gillian Milne, Association for Directors of Education Scotland (ADES)
- Andy Harvey, Educational Institute of Scotland (EIS)
- Brian Clark, Education Scotland
- Kirsty McFaul, Education Scotland
- Pauline Walker, School Leaders Scotland (SLS)
- Scottish Government Science and Technology in the Curriculum Policy Officials
- Brendan McCart, Scottish Teachers Advancing Computing Science (STACS)
- Toni Scullion, STACS
- Greg Reid, Scottish Qualifications Authority (SQA, now Qualifications Scotland)
- Kevin Reid, SSERC
- Callum Croughan, Primary Teacher
- Darren Brown, Secondary Teacher
- Greg McDowall, Head Teacher.

Presenters at the meetings included some of the group representatives and the following guests:

- Scottish Government, Education Workforce Policy Officials on: Scottish Government Teacher Workforce Data and Trends.
- Dr Clare Smith, University of Glasgow on: The Skyscanner Braided Careers Programme
- Scottish Government, Digital Learning Policy Officials on: Scottish Government's Digital Vision.
- Robbie Paterson, Senior Qualifications Manager, SQA (now Qualifications Scotland) on: the Future of SQA and Attainment data for qualifications.
- Jack Walker, St. George's School on: The Fearless Women in Computing Event
- Karen Meechan, ScotlandIS: Industry Insights for Education.

Further engagement was also carried out with Initial Teacher Education providers, His Majesty's Inspectorate of Education (HMIE), Convention of Scottish Local Authorities (COSLA), and the General Teaching Council for Scotland (GTC Scotland).

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