# Improving lives through STEM education

## STEM Learning Impact Report 2025

STEM LEARNING

# Improving lives through STEM education

Young people are the future - of our communities, our economy and our planet. At STEM Learning, we believe passionately in the power of Science, Tech, Engineering and Maths to shape a better world. But that future will only be realised if we inspire the next generation through excellent teaching, exciting experiences and encounters with industry role models who show what a STEM future can look like.

Our vision is clear: to improve lives through STEM education. We are dedicated to equipping young people with the skills, knowledge and confidence to thrive. In classrooms, laboratories and school clubs across the UK, young people's curiosity lights up – the kind that can lead to invention, breakthrough and opportunity.

This is a moment of change, education across the UK is evolving at pace. In England, a new Ofsted inspection framework is reshaping how schools are evaluated, the Curriculum and Assessment Review is expected to publish its recommendations this autumn and a new schools white paper focusing on SEND reforms is on the way. In Northern Ireland, the government has launched TransformED NI - a comprehensive strategy to transform teaching and learning. In Scotland, the Education (Scotland) Act 2025 will establish a new qualifications body and independent inspectorate. And in Wales, the government is investing in the realisation of the Curriculum for Wales through dedicated grant support.

Alongside this, the Children's Wellbeing and Schools Bill aims to strengthen safeguarding and raise standards, schools will need to adapt to changes in the Employment Rights Bill, and AI continues to impact and evolve teaching and learning. Each of these shifts will shape the environment in which we educate, inspire and support young people.

At the same time, the demand for skilled STEM workers is rising, and too many young people remain unaware of the exciting and rewarding opportunities available in STEM careers. If we dedicate ourselves to supporting teachers, championing enrichment and partnering with industry, we can open those doors – and give every young person the chance to explore, achieve and flourish.

At STEM Learning, our mission remains simple: every young person, whatever their background, deserves to be inspired, informed and empowered to explore a future in STEM. Together, we can nurture talent, fuel ambition and build the strong, diverse STEM pipeline the UK needs.

**Jim Knight The Rt Hon Lord Knight of Weymouth**

STEM Learning Chair of the Board

Last year we celebrated 20 years of STEM Learning; this year marks a defining moment in our journey. Building on years of evidence, we have begun a new phase shaped by clarity of purpose and bold ambition for impact.

Our strategic focus is guided by three core objectives: to enable better achievement in STEM, foster a genuine love for STEM and grow a thriving UK talent pool. These goals align, not only with our organisational mission, but also with the UK's broader need to strengthen the STEM pipeline, particularly as the country faces ongoing skills shortages and transitions into new technologies and industries.

Our work continues to centre on high-quality professional learning for teachers and inspiring enrichment experiences for young people - and what makes us unique is how we bring these two strands together. By aligning excellent teaching with compelling enrichment, we create a powerful, joined-up approach that truly improves lives.

Professional learning is key to this approach: not as a one-off activity, but as a continuous, reflective process that supports teachers to grow in confidence, deepen subject knowledge and strengthen pedagogy over time. Through this, educators become agents of sustained improvement, shaping the next generation's engagement and achievement in STEM.

Looking ahead, the launch of the STEM Impact Fund in January 2026 marks a significant milestone. Building on over two decades of insights, evaluation and evidence of what works, this fund will scale sustained, place-based support - ensuring schools not only access funding, but receive tailored professional development and long-term improvement strategies.

But to build a more sustainable, innovative and fair future, diversity and inclusion must be at the core of everything we do. We are actively working to ensure that every young person, regardless of background, sees themselves in STEM, is inspired to pursue it and has access to the support they need to succeed.

As this report highlights, our progress would not be possible without the contributions of our partners, educators, funders and supporters. Looking forward, our collective challenge - and opportunity - is clear: to ensure STEM is accessible, inspiring and transformative for all young people for a more sustainable and prosperous future.

Thank you for being part of this journey.

**Séverine Trouillet**
STEM Learning Chief Executive

# Our strategic objectives

## Vision

Improving lives through STEM education.

## Mission

Empowering young people with the skills and knowledge to thrive through effective teaching and learning.

We are a purpose-driven organisation and everything we do helps more young people see themselves in STEM and succeed on their chosen path.

**Goal 1**

### Improve teaching for better achievement in STEM

Champion the profile of STEM in education by ensuring more effective teaching through up-to-date skills and knowledge, with a particular focus on communities most in need.

**Goal 2**

### Enrich learning to develop a love for STEM

Inspire and empower young people to choose STEM pathways by increasing aspirations and self-efficacy, especially among those who don't see STEM as for them.

**Goal 3**

### Grow the talent pool for a thriving UK economy

Create a more diverse and skilled STEM workforce through stronger collaboration between employers and educators, helping young people thrive in their future careers.

# Our values

## We are Proactive

We take initiative and make positive contributions to address challenges and seize opportunities.

## We are Innovative

We embrace new ideas, challenge the status quo and foster a culture of creativity.

## We are Sustainable

We are committed to the well-being and development of our employees, stakeholders and wider community, nurturing the environment we live in and the achievement of economic success in a responsible and ethical way.

## Our values in action

**June 2025**: The Bronze Green Impact Award presented to STEM Learning from the University of York, recognising staff for their sustainable practices in the workplace. This is a part of the global Green Impact project.

**July 2025**: AI working group established to address opportunities presented by AI technology and approach them ethically and with consideration by everyone within STEM Learning.

Our **Wellbeing Champions** bring our values to life by promoting mental health awareness and staff wellbeing; championing initiatives such as a Menopause coffee morning, a "Triathlon" walking challenge and Neurodiversity Celebration Week activities, fostering an open, supportive workplace culture.

# Impact: highlights from 2024-25

## Improve teaching

### 20,200

We delivered high-quality continuous professional development (CPD) to 20,200 teachers, improving teaching for over 3.4 million young people.

### 95%

Our CPD supports improved quality of teaching in schools with 95% of teachers showing increased subject knowledge and pedagogical understanding.

### +1 Grade

Engagement with student-facing STEM Camps through Destination STEM increases GCSE and A level attainment by up to one grade.

Improved quality of teaching in schools

Increased retention of teachers

More effective teachers of STEM in schools

Reduced gaps in attainment and progression

## Enrich learning

### Over 14,400

High-impact student-facing activities delivered to over 14,400 young people.

### 288

288 young people took part in research placements and experiences with demonstrable impact on their skills, confidence and aspirations.

### 329,000

329,000 hours of volunteering from a diverse range of STEM Ambassadors.

Increased aspirations for young people to progress in STEM

More and more diverse young people choose to progress in STEM

Reduced aspiration and opportunity gaps

Improved STEM skills for young people

## Grow the talent pool

### 13,800

13,800 STEM Ambassadors actively volunteered representing 3,300 employers.

### 97%

97% of industry volunteers for targeted STEM Ambassador interventions reported a strong sense of personal achievement.

### 6,900

Targeted support for 6,900 young people from under-resourced backgrounds.

Improved relationships and connections with STEM employers

Better recognition of how employers can support young people in STEM through high-impact programmes

## Long-term impact

Improved diversity in the STEM workforce

Increased social mobility for young people through improved employment prospects

Reduced skill shortages in UK industry

Economic growth from a more highly skilled workforce

The UK becoming a science and technology superpower

**Better achievement in STEM** → **Developing a love for STEM** → **A thriving UK talent pool** → **Long-term impact**

# Young people with the skills to thrive

## Skills for an AI-driven future

AI is transforming the landscape of work and learning, and education must keep pace. Teachers are increasingly using AI tools for tasks like planning and assessment,[1] yet access to training is unequal: private school teachers are more than twice as likely to receive formal AI training compared to state school counterparts (45% vs. 21%), with even lower rates in schools requiring improvement (11%).[2] In addition to this, 44% of teachers who use AI report feeling they're "cheating" – a perception we must change to boost the efficiencies AI could bring.[3]

Moreover, research from the Skills Builder Partnership shows that learners with strong essential skills - like creativity, planning, teamwork and adaptability - are significantly more likely to adopt AI (up to 30% more), earn higher wages, and experience less anxiety about technology.[4] Without developing these skills equitably, the social mobility gap may widen further.

## How we're making a difference

We're equipping educators and students to flourish in an AI-first world:

- Hosted the AI Roundtable, uniting educators, industry and policymakers to discuss AI literacy and ethics in education and establish bridges between stakeholders.
- Delivered five AI Sprints through the STEM Community - free, practical training sessions regularly attended by 150–200 educators covering inclusive use of AI in lesson planning, assessment and ethical considerations.
- Held two national AI Conferences and launched two new CPD courses focused on responsible and creative AI use, attended by over 230 teachers.
- Rolled out Computing Camps, in partnership with Quickline, offering immersive, multi-day experiences and enabling schools in disadvantaged areas to build students' computing confidence.

"It was interesting learning about the more creative side to computer science as I thought it was just more academic."

Student, computing camp

"I learned new ways to protect myself and how to identify phishing, and how artificial intelligence impacts daily life and what are the advantages and disadvantages of AI."

Student, computing camp

## Feature: AI Roundtable – Setting the Agenda

In 2024, STEM Learning convened a high-level AI Roundtable to set the foundations for AI in education.[5]

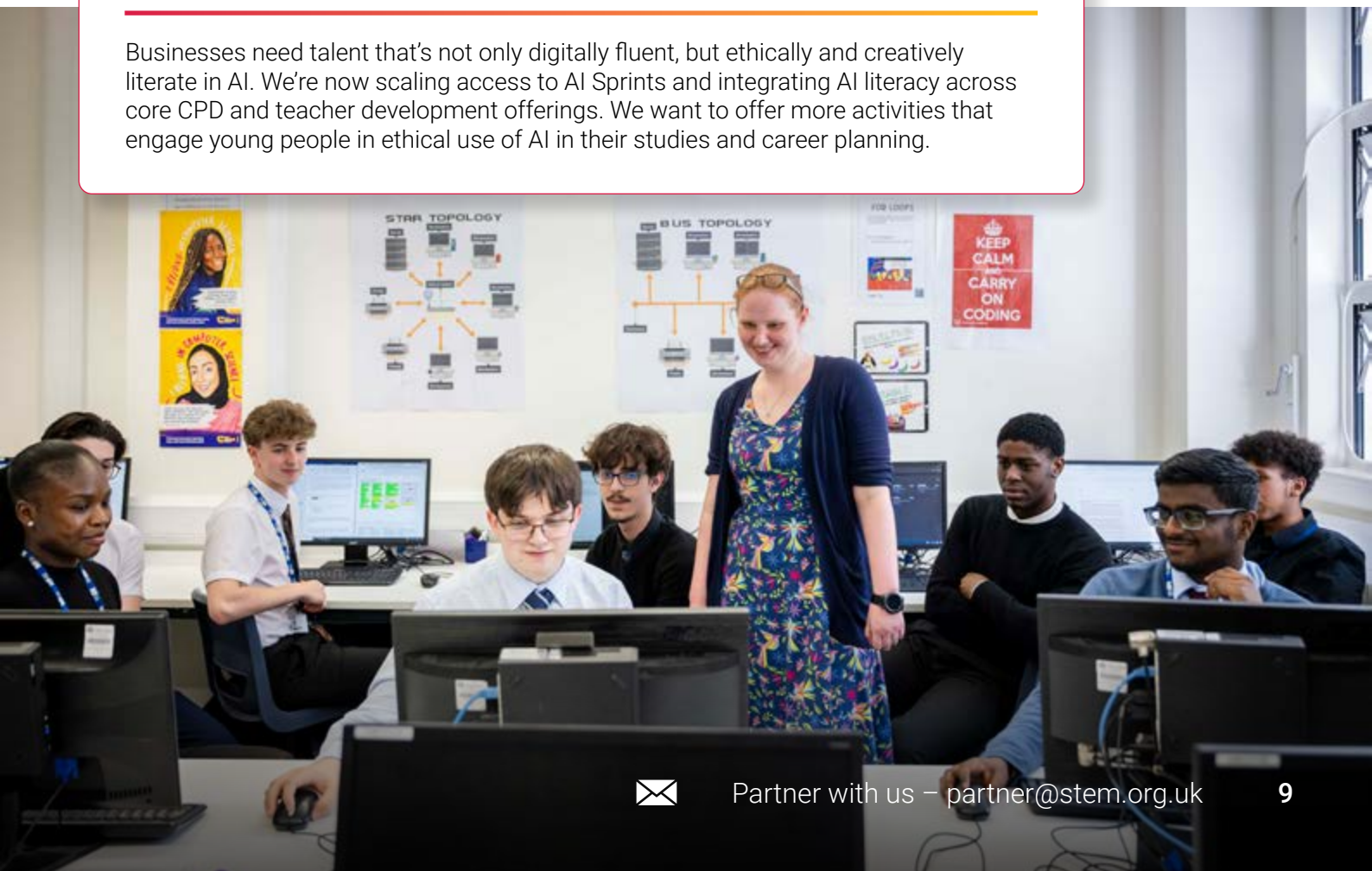
Key recommendations included:

- Universal teacher CPD in AI, including experimentation, ethics and safety.
- Essential AI literacy for all students with AI added to the essential digital skills framework, covering bias, ethics, creativity and practical use.
- A focus on equity, ensuring training reaches underserved schools.
- Creating workforce relevance by positioning AI engagement as a core workplace skill.
- Industry collaboration to align AI education with real job needs.

> "AI will change every job - not just those in tech. Schools must equip every teacher and student to use AI critically and creatively."
>
> AI Roundtable participant

## Evidence of Impact & Next Steps

Businesses need talent that's not only digitally fluent, but ethically and creatively literate in AI. We're now scaling access to AI Sprints and integrating AI literacy across core CPD and teacher development offerings. We want to offer more activities that engage young people in ethical use of AI in their studies and career planning.



# Other big talking points this year: building essential skills

## Oracy – finding young voices in STEM

Strong oracy – the ability to communicate ideas clearly, listen actively and engage in discussion – is vital for success in school, work and life. Research shows it underpins academic achievement, employability and social mobility.[6] The Royal Society's Review of Scientific Literacy and Oracy in Primary School Education (2025)[7] highlights that oracy is integral to scientific literacy: pupils who regularly talk, question and explain their thinking build deeper understanding of scientific concepts and are more likely to pursue science confidently. The review calls for more opportunities for structured scientific talk in primary classrooms.

Through Explorify, our free digital resource for primary teachers, we're helping children develop these skills in a science context[8]:

77% of educators agree pupils' oracy/speaking skills improved.

78% now encourage children to participate more frequently in science discussions.

"Children with additional needs may not be confident giving an answer in maths, English or Welsh lessons. When they see Explorify, they don't see it as a right or wrong answer… sometimes they're the best answers."

Classroom Teacher

By building confidence in discussion and debate, Explorify ensures young people see science as something they can talk about, question and make their own, directly addressing the Royal Society's call for stronger links between oracy and scientific literacy. Explorify is completely free for schools, and its reach depends on the generosity of partners. We invite businesses to help sustain and grow this vital resource.

Explorify

## Financial education – building real-world confidence

Alongside digital and communication skills, financial literacy is increasingly recognised as a core life skill. In our response to the Social Market Foundation (SMF) report on financial education,[9] we highlighted the urgent need for universal access to financial education across UK schools starting from primary age.

The SMF finds that "many children in England are unable to develop the knowledge and skills they need to make good financial decisions throughout their lives." Concerningly, only 1% of teachers believe their pupils possess adequate financial skills, and 36% of primary teachers say they would not feel confident teaching financial education if it became a core part of the curriculum.

While financial education is part of England's secondary curriculum and is embedded earlier in the devolved nations, most high-performing countries introduce financial education at primary level, ensuring children build these skills early.

We can do more to integrate financial skills into STEM contexts - helping students understand budgeting, data handling and decision-making, and by embedding these skills early, we can equip young people to navigate the financial challenges of adult life with confidence.

To meet this challenge, we invite businesses to:

- Fund STEM Camps with a dedicated maths-and-financial-education focus, giving students practical, real-world experience of budgeting and data analysis.
- Support teacher professional development (CPD) so educators gain the confidence and skills to deliver high-quality financial education from primary level onwards.

# Inclusion and underrepresented groups

Despite the growing demand for STEM skills in the UK workforce, significant underrepresentation persists among certain groups. Women, individuals from ethnic minority backgrounds, people with disabilities, those from disadvantaged socioeconomic backgrounds, and LGBTQ+ individuals are notably underrepresented.

The UK STEM sector is crucial for future economic growth, employing approximately 9.4 million people (29 % of all UK employment). However, skills shortages remain a concern: 49% of engineering and technology businesses report recruitment difficulties, followed by tech, defence and security, and automotive.[10]

Education plays a pivotal role in addressing these disparities. Equitable access to high-quality STEM education is essential to increase young people's science capital. Currently, women make up just 25% of the total STEM workforce in the UK, and only 23% of those in critical technology occupations are female.[11] Individuals from ethnic minority backgrounds are also underrepresented, with Black people holding only 3% of computing-related jobs.[12] Only 9% of tech employees come from lower socio-economic backgrounds and earn less than their peers from affluent backgrounds.[13]

The Science Education Tracker 2023 highlights a decline in engagement, aspirations and participation in science at school since 2019, partly due to COVID-19 disruptions. For example, the percentage of Year 7 students who thought they might continue science beyond GCSE fell from 70% in 2019 to 64% in 2023. Across Years 7–13, only 9% of students had a strong science identity, 54% were interested but not actively engaged, and 32% felt that science was 'not for me'.[14]

These trends emphasise the importance of high-quality teaching and targeted interventions to build students' confidence, interest and sense of belonging in STEM, particularly among underrepresented groups. If education does not address these disparities, the UK risks limiting the diversity and size of the future STEM workforce, with implications for innovation and competitiveness.

## Challenging stereotypes in computing

The I Belong student attitude survey revealed a significant gender gap in computing.[15] Girls reported much lower enjoyment and confidence in computer science compared to boys, despite achieving 8.6 percentage points higher at the top GCSE grades. Many girls viewed computing as "boring and difficult" and were more likely to see it as a subject lacking creativity. These misconceptions directly influenced uptake at GCSE and beyond.

### How we're making a difference:

Through I Belong, part of the Department for Education funded National Centre for Computing Education (NCCE), we're breaking down stereotypes and making computing more inclusive. We support schools with teacher CPD, enrichment and student events, and engagement with Computing Ambassadors who bring real-world inspiration into the classroom - showing that computing is creative, collaborative and open to everyone.

### Evidence of impact

Early findings from I Belong schools show that **collaborative projects, relatable role models and enrichment activities boost girls' enjoyment and sense of belonging in computer science**.[16]

One Year 9 student reflected: "I want loads of options and opportunities once I leave school, and computing will be a large part of that."

# STEM Ambassadors making a difference

Positive role models in classrooms are crucial to challenging misconceptions, stigmas and stereotypes about STEM study and careers. We bring together real-world STEM professionals with young people to inspire them and challenge stereotypes.

Our 26,000-strong community of STEM Ambassadors contributed over 329,000 hours last year, bridging the gap between classroom learning and real-world applications.

Our cohort of STEM Ambassador volunteers is made up of relatable role models - 55% are under 35, 48% are women and 20% from ethnic minorities - significantly younger than national volunteering trends.[17]

**Case Study**

## Mother Nature mobile game

In Birmingham, 12 girls aged 11–18 worked with STEM Ambassadors to co-create Mother Nature, a mobile game featuring a Black female scientist tackling climate change. The project built STEM skills in game design, boosted confidence and showed participants how STEM can address real-world challenges.

"The impact I made on this team is showing the diversity in civil engineering and the different career paths they could take. What I enjoyed most about this project is being there right from the start – seeing the girls grow and improve their confidence."

Divannia McMaster, STEM Ambassador

## Impact[18]

98% of educators report that STEM Ambassadors help students learn about STEM workplaces, with **99%** agreeing that they challenge stereotypes about STEM careers.

99% of educators feel that STEM Ambassadors boost students' confidence and enthusiasm for STEM and raise awareness of STEM study and career pathways.

By supporting STEM Ambassadors, businesses help build a pipeline of diverse, confident young people ready to pursue STEM careers, directly addressing future skills gaps.

## STEM Ambassadors: targeted interventions

To address areas of greatest need, we piloted a new model of STEM Ambassador engagement designed to reach underrepresented groups and shift young people's attitudes towards STEM. These targeted interventions created sustained, meaningful encounters between Ambassadors and young people.[19]

- **Impact on young people:** Confidence in their ability to succeed in STEM increased across most subjects, with the biggest gains in design & technology and computing.
- **Impact on educators:** Greater confidence in STEM practice, including a 39% rise in understanding research and innovation and a 38% rise in their ability to provide employer encounters.
- **Impact on Ambassadors:** 97% reported a strong sense of personal achievement, with 91% intending to volunteer again.

## Future / Next Steps

A diverse community of STEM Ambassadors ensures young people encounter relatable role models who inspire them to continue with STEM study and careers. Evidence shows this impact is greatest when encounters are sustained and meaningful, which is why we have built this into our STEM Ambassadors programme. We continue to evaluate the impact of targeted interventions to widen the social value the programme can generate. We are hugely grateful for the funding and support from UKRI for this flagship volunteering programme.

# Different models for greater inclusion

## Destination STEM – inspiring every young person

Too many young people, particularly those from disadvantaged backgrounds or who don't yet see STEM as "for them", miss out on the real-world experiences that build confidence, skills and aspiration. Tackling this inequality is vital to strengthening the STEM talent pipeline and driving social mobility. We need opportunities that are both deep and sustained, and broad and inclusive - reaching across the whole school system to inspire every learner.

That is why we have built a suite of programmes designed to create **progressive, personalised engagement** with STEM, starting early and deepening through each stage of education. These models, explored in the following pages, build on the principles of the recently updated **Gatsby Career Benchmarks**[20], which define world-class careers guidance as regular, layered and progressive. The benchmarks emphasise that young people need multiple encounters with employers and workplaces, tailored to their individual needs, and supported by informed teaching that links curriculum learning to real-world applications.

Our **Destination STEM** programme brings these principles to life. We run high-impact programmes such as research placements for young people from disadvantaged backgrounds, themed STEM camps and online mentoring with STEM Ambassadors - alongside competitions, events and celebrations. These sit under the umbrella of Destination STEM, which creates meaningful experiences for young people and clear pathways into STEM careers.

Beyond individual outcomes, these programmes generate significant **social value** – strengthening local economies, building community partnerships and helping employers fulfil their social and environmental responsibilities. By enabling young people to develop the skills and aspirations needed for future careers, we not only change lives but also contribute to the broader prosperity and resilience of UK society.

### Model one: Research placements and experiences

Our Research and Experience Placements give Year 12 students from the most disadvantaged backgrounds the opportunity to spend time in a STEM workplace, working on meaningful, complex projects and gaining direct exposure to STEM careers. Placements are supported by bursaries to remove financial barriers and complemented by our Be Future Ready employability skills course that connects students with employers.

This model is already aligned with the modern work experience framework[21], which calls for every young person to have access to multiple, high-quality workplace experiences throughout secondary education. By providing authentic, research-based placements and structured employer engagement, we enable young people to gain sustained, practical insights and the skills needed to thrive in the evolving world of work.

### Evidence of Impact[22]

This year, we delivered **288 placements** across the UK, bringing the total to more than 4,000 since 2020. The impact is clear with demonstrable impact on students' skills, confidence and aspirations:

- **96%** of students said the experience positively influenced their confidence in their own abilities.
- **91%** reported gains in problem-solving skills and teamwork.
- **98%** said their experience boosted their confidence in data collection and analysis.
- **81%** said the placement shaped their future plans, with more than half confirming existing choices, and a further 22% using the experience to help decide their next steps.

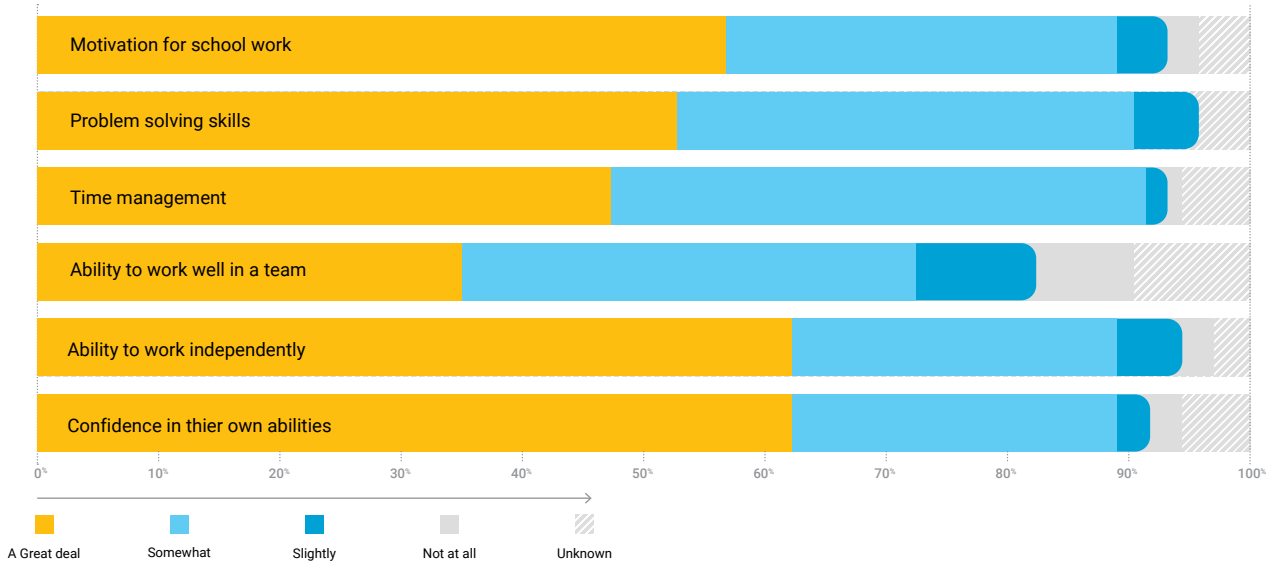
"The experience helped me grow as a person and become more self-reliant."

Research placement student, 2024

"I was very impressed with the calibre and aptitude of the student and welcome opportunities to provide placements in the future."

Employer host of a research placement, 2024

Providers of our placements and experiences see a **positive impact on students' skills** after participation:




## Future / Next Steps

In 2025-26 we would like to expand our placement programme to ensure more young people from disadvantaged backgrounds can access these transformative experiences. With additional support from innovation and business partners, we aim to:

- Increase the number, diversity and sophistication of placements offered.
- Pilot an enhanced placement model for more sustained engagement.
- Strengthen links between schools, students and local employers.
- Build a growing alumni community to sustain engagement and aspiration and provide further development and opportunities.

Case Study 1

## Engineering for a sustainable future: COWI

For four students, a summer placement at global engineering consultancy COWI was their first step into the world of sustainable design. Over several weeks they joined the Sustainability Team, working on live challenges that COWI engineers face on major projects, from carbon reduction strategies to environmental impact assessments.

The students quickly realised that their classroom learning connected to real decisions shaping tomorrow's infrastructure. For COWI, it was an opportunity to share expertise while opening doors for young people from diverse backgrounds.

"COWI really stood out to me for its smart and sustainable engineering solutions. It's really the place to be. I didn't know what sustainability meant in practice until this placement – now I can actually see how engineers make a difference."

Research Student

Case Study 2

## Building skills and widening access: University of Glasgow

At the University of Glasgow, a group of S5 pupils spent two weeks immersed in the world of quantitative social science. Instead of working on abstract assignments, they analysed real datasets, from national health surveys to measures of deprivation, to answer questions they had chosen themselves.

For many, this was their first taste of independence as researchers. Designing their own investigations gave them ownership, while university mentors supported them in mastering statistical methods and analysis. Students left with new confidence, stronger applications for university, and a deeper belief in their own abilities.

"Helping participants investigate their own questions really motivated them – you could see their curiosity and confidence grow every day. By the end, they were presenting their findings with the poise of undergraduates, not school pupils."

Placement Supervisor

Case Study 3

## Exploring the future of AI: edequity.ai

For two students placed at edequity.ai, the summer was a chance to explore one of the most pressing questions in tech: how good is AI at real market research? Working alongside the start-up's team, they tested AI tools to see how far they could be trusted to produce reliable insights for businesses.

The results were revealing and valuable for the company's own product development. Just as importantly, the students saw how their skills could contribute to an industry on the cutting edge of change. For the team at edequity.ai, mentoring the students was just as rewarding.

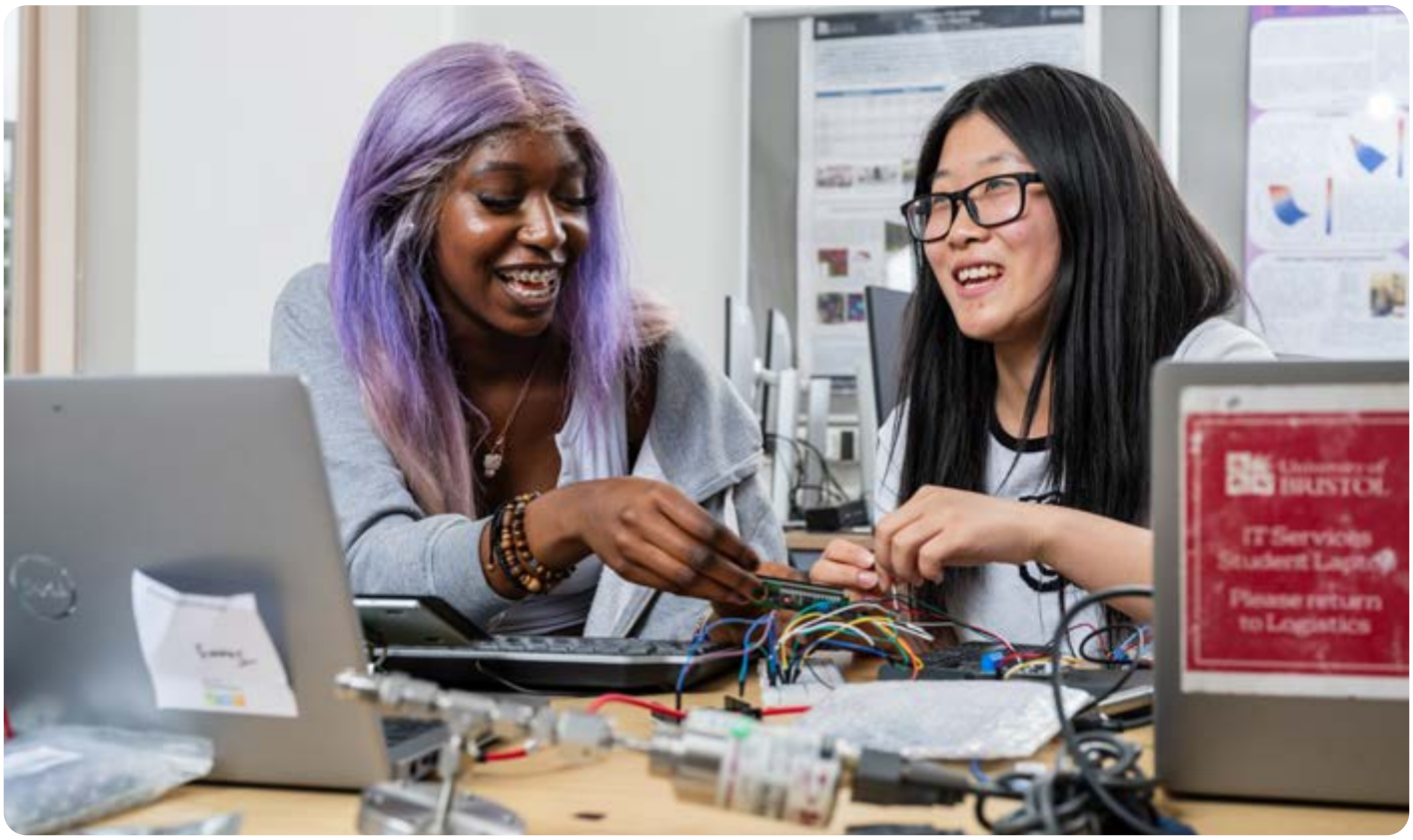
"The best part was mentoring two talented students and learning from their fresh perspectives. They asked questions we hadn't thought of and weren't afraid to challenge assumptions – it reminded us why nurturing the next generation of innovators matters."

edequity.ai Executive Business Manager

University of Derby

Oxford University Museum of Natural History

University of Birmingham




South West Nuclear Hub at the University of Bristol

# Different models for greater inclusion

## Destination STEM – inspiring every young person

### Model two: STEM Camps – Immersive Experiences that Inspire

As part of Destination STEM, we deliver STEM Camps – four-day immersive experiences designed to spark curiosity, deepen understanding, and build confidence. Camps are themed around key transition points and future skills: primary science, moving from primary to secondary school, computing (including AI, coding and cybersecurity), geology and secondary science.

### Evidence of Impact

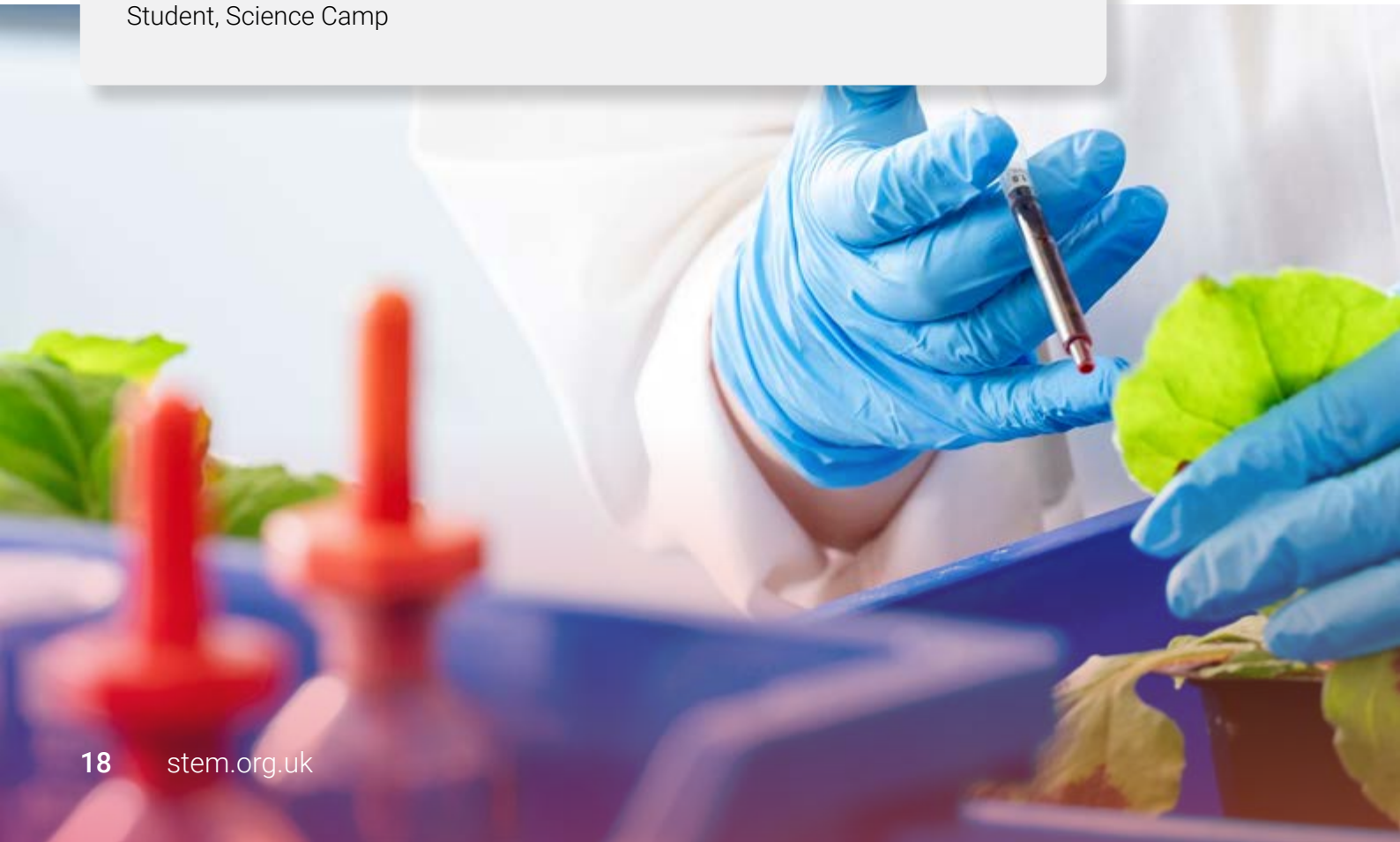
In 2024–25, we delivered 21 camps, reaching 221 young people.

Independent evaluation in 2021 found participation can raise GCSE and A-level attainment by one grade.[23]

Students report a significant boost in confidence, curiosity and future aspirations:

"This STEM camp has made me realise automotive engineering is part of science – that liking cars is more than just a hobby and can be a career."

Student, Science Camp



Case Study

## Physics STEM Camp: Holland Park School

In summer 2025, 20 Year 9 students at Holland Park School took part in a STEM Camp funded by Cummins. Over four days, their classroom transformed into a hub of discovery as they explored the fascinating world of physics.

Guided by physicist Stephen Hearn, students tackled energy transfer, electricity and atomic structures, linking theory to real-world applications. They got hands-on with equipment usually reserved for A-level, such as multimeters, and ran experiments ranging from testing electrical circuits to building fruit batteries. For many, it was their first experience of applying science beyond the GCSE curriculum.

The camp not only deepened subject knowledge but also changed perceptions of physics as a future pathway:

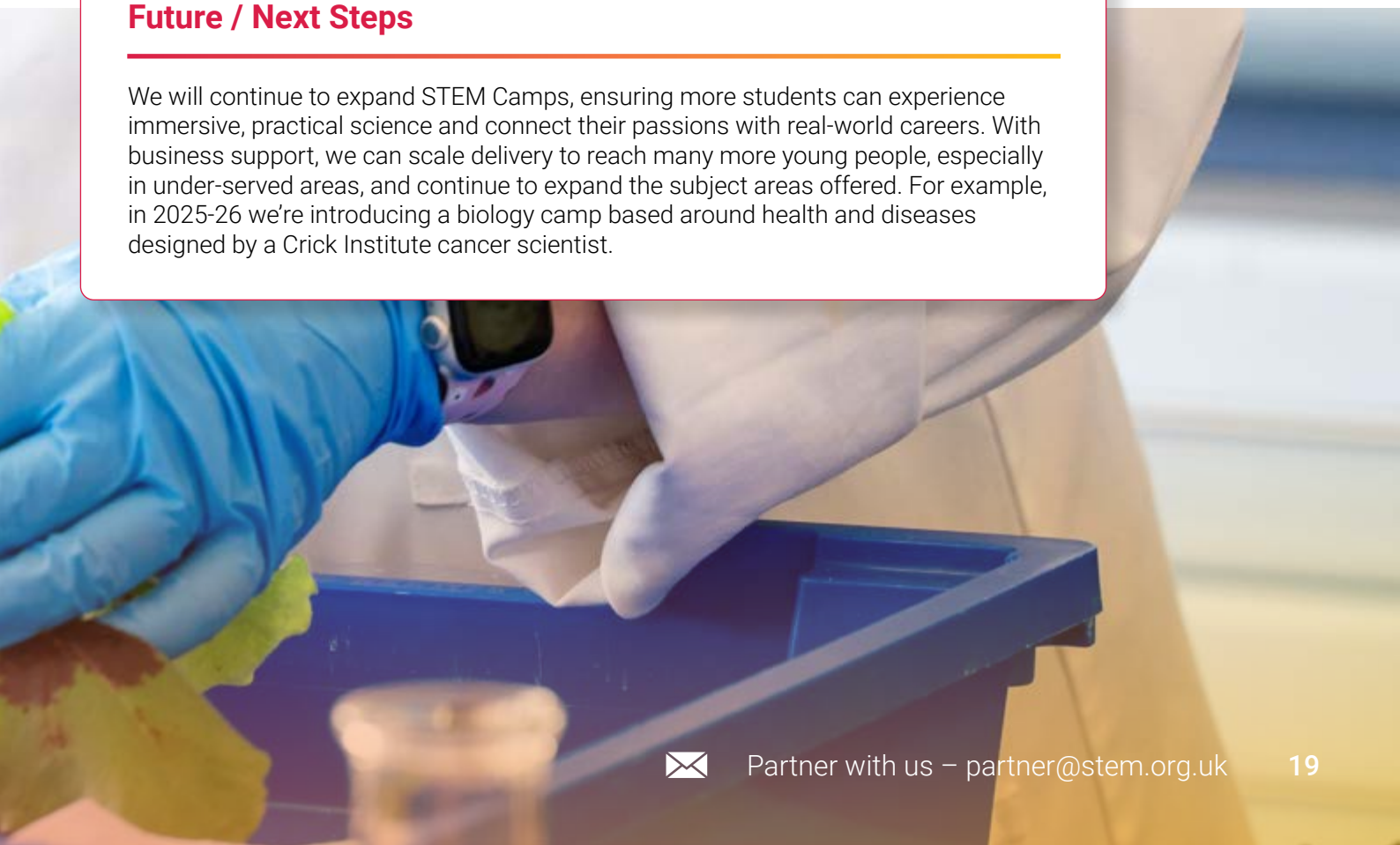
"I completely and utterly enjoyed the STEM camp… the theory lessons and practicals significantly broadened my knowledge. Stephen Hearn's enthusiasm really inspired me. This camp has been extremely valuable and important for me and my future."

Olivia Kalocay, Year 9

By the end of the week, students left with fresh confidence, new practical skills, and a stronger sense of how their interests could link to real careers in STEM. Teachers left with ideas on how to contextualise the curriculum and take their own learnings back into the classroom.

### Future / Next Steps

We will continue to expand STEM Camps, ensuring more students can experience immersive, practical science and connect their passions with real-world careers. With business support, we can scale delivery to reach many more young people, especially in under-served areas, and continue to expand the subject areas offered. For example, in 2025-26 we're introducing a biology camp based around health and diseases designed by a Crick Institute cancer scientist.



# Different models for greater inclusion

## Destination STEM – inspiring every young person

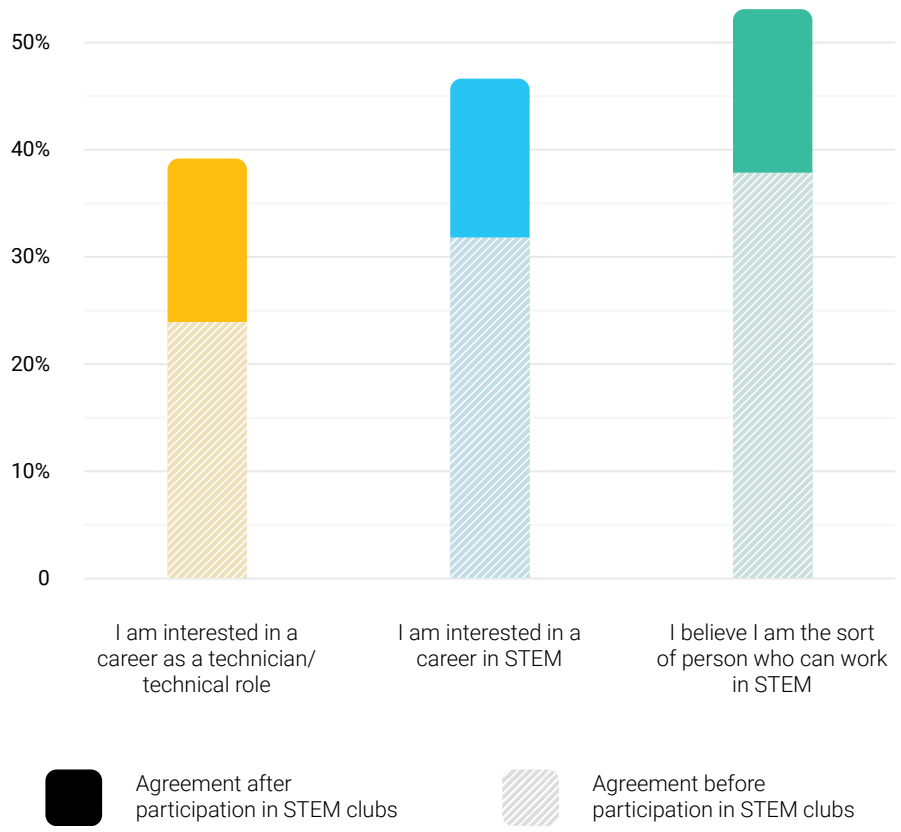
### Model three: Inspiring young people through competitions, celebrations and clubs

Our programmes combine intensive, hands-on competitions with large-scale celebration days, offering different ways for young people to connect with STEM:

- **UK CanSat Competition:** a sustained, team-based project where, this year, over 1,500 students across 300 teams, designed, built and launched a satellite the size of a drinks can. Students work over weeks to problem-solve, analyse data, innovate and apply STEM in practice.
- **Protecting Our Planet Day:** a one-day, high-profile event linking 142,000 young people with experts tackling climate change and biodiversity loss.
- **Mars Day:** an annual celebration reaching 178,000 students with live Q&As, activities and careers insights from the UK space sector.
- **STEM Clubs:** support for out-of-timetable sessions that enrich and broaden the curriculum, giving young people the chance to explore STEM subjects in less formal settings.

While CanSat builds deep technical and teamwork skills over time, Mars Day and Protecting Our Planet Day offer inspiration at scale, ensuring every young person can access moments that make STEM feel exciting, relevant and achievable.

Young people's **interest and awareness in STEM careers** is increased after participation in STEM Clubs[24]



## Evidence of Impact

"The confidence it gave me was massive. I remember not knowing how I could contribute and then I ended up being the sole person working on the parachute. It makes you realise you CAN do it!"

CanSat student

"CanSat always makes our students stand out at interview. We've placed students with Rolls Royce for degree apprenticeships, into UK space industry internships and also into university pathways. All have talked about CanSat in their applications."

Teacher

## Future / Next Steps

We are hugely grateful for the funding and support of our partners ESA, UK Space Agency, and the Gatsby Charitable Foundation, which enable us to offer these opportunities to young people.

With your support, we could grow both dimensions: providing more students with the depth of sustained project work like CanSat, while expanding large-scale events that bring STEM to life for hundreds of thousands more. Together, they form a powerful model for widening participation and strengthening the talent pipeline.

If you're interested in inspiring the next generation of STEM talent, consider partnering with us to run a competition or celebration, or support STEM Clubs. Every opportunity you help create can spark curiosity, confidence, and lasting impact for young people.

# Investing in teachers

Teachers have the ability to make STEM subjects feel "for me" for young people. They profoundly shape whether students see STEM as a viable path.[25]

Teachers are one of the most powerful multipliers in the education system. Each teacher influences hundreds of young people every year, shaping how they see themselves, what they believe is possible and the value they place on STEM. The way science and technology are taught determines both student outcomes, such as exam results, as well as playing a critical role in whether young people feel inspired to continue into further study, apprenticeships and careers in STEM.[26]

For businesses, this matters. The decisions young people make about their education and careers are directly influenced by their teachers, second only to their parents. If we want more young people to choose STEM, to develop the skills employers need, investing in teachers is the most effective place to start.

## How we're making a difference

High-quality teaching and excellent lessons are the foundations for success in STEM. When learning is engaging, relevant and challenging, it captures young people's curiosity and builds the confidence they need to pursue further study and careers in STEM.

To support this, our programmes develop more effective teachers of STEM through high-quality, subject-specific professional development. Teaching is demanding, and continual investment in teachers is essential to keep lessons fresh, inspiring and aligned with the fast-changing world of work. Professional learning is at the heart of our approach: not as a one-off activity, but as a continuous, reflective process that combines peer learning and sustained engagement in CPD. This supports teachers to grow in confidence, deepen subject knowledge and strengthen pedagogy over time.

"The chance to engage with colleagues from around the UK is invaluable. When directed by such a knowledgeable course leader with a real passion for what they are doing, you can't not be motivated to get back to school and put real change in place."

Rhys Edwards, Mark Rutherford School

"This is the most well-structured, practical and useful course I have attended in thirty years of teaching. I cannot underestimate the value of expert practitioners sharing their knowledge and the positive impact devolving this to colleagues will have on students."

Ms T Burrell, Charles Read Academy

CPD Inspirational teachers of primary science

Digital and AI Conference

## Evidence of Impact[27]

95% of teachers reported increased confidence in their teaching and professional practice as a result of our CPD.

97% made changes to their teaching approach, directly improving how STEM is experienced by their students.

82% of teachers have seen increased engagement in their pupils as a result of the CPD they attended.

76% of teachers have seen increased progress or attainment in their pupils as a result of the CPD they attended.

## Future / Next Steps

Our commitment is to continue investing in teachers as the most effective way to drive long-term change in STEM education. Through the industry-funded STEM Impact Fund, we will empower educators to develop their practice, build leadership capacity and create cultures of continuous professional learning - multiplying the effect across schools, communities and regions.

By investing in the STEM Impact Fund, businesses can play a direct role in shaping the future workforce. Your contribution supports sustained teacher development, student enrichment and career inspiration - helping young people gain the skills, confidence and ambition to become the scientists, engineers and innovators who will drive the UK's growth and tackle tomorrow's challenges.

## Building teacher expertise through evidence-informed CPD

At STEM Learning, we ensure our continuous professional development (CPD) is evidence-informed, impactful, and best in class. We do this by carefully curating our CPD offer, drawing on three core factors: the evidence base, the educational landscape and our organisational strengths.

We use high-quality, trusted research to shape our programmes - drawing not only on large-scale reports from the Education Endowment Foundation that schools already recognise, but also on subject-specific approaches such as Science Capital, Best Evidence Science Teaching, PRIMM – Support for teaching programming in school, and Progressing to be an Engineer: the Approach.[28] This ensures we bring the best ideas from across the sector, rather than promoting a single 'teaching approach', and translate them into practical classroom strategies.

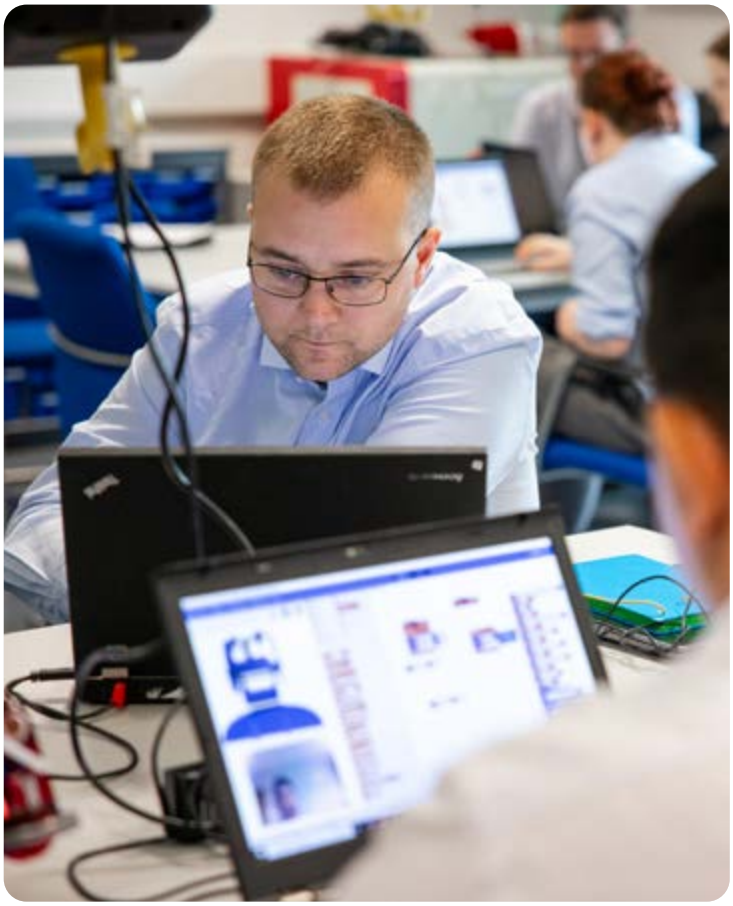
We also respond to the evolving needs of teachers and schools. For example, this year we are strengthening CPD in areas such as SEND and oracy, where we know teachers are looking for evidence-based support. Our role is to identify good practice in STEM subjects and bridge the gap between research and classroom application.

Finally, we build on our strengths: two decades of CPD expertise, specialist Professional Development Leaders with deep subject knowledge, and our ability to connect practice across phases, subjects and industry links. This cross-cutting perspective helps us to surface connections and insights often missed in school settings.

Through this systematic, evidence-informed approach, STEM Learning provides CPD that is trusted, relevant and transformative for teachers and their students.

Digital and AI Conference

STEM Technicians Festival



Digital and AI Conference

Secondary Science Conference

STEM Technicians Festival


Subject Knowledge for Physics Teaching Electricity, Forces and Energy

# Non-specialist teachers of STEM

The UK continues to face a chronic shortage of specialist STEM teachers, particularly in physics and computing. In secondary schools last year, nearly 46% of computing lessons and around 28% of physics lessons were delivered by teachers without a relevant subject background.[29] Meanwhile, at least 600 secondary schools had no specialist physics teacher at all.[30] This gap is especially pronounced in disadvantaged areas, risking the narrowing of young people's access to high-quality STEM learning and long-term opportunities.

A recent publication by the Institute of Physics highlights that shortages are driven not only by recruitment challenges but also by retention and retraining issues.[31] Without targeted support, non-specialists may lack confidence, leading to reduced student engagement and missed opportunities to inspire STEM pathways.

## How we're making a difference

We support non-specialist STEM teachers with high-impact CPD tailored to their needs, including:

- Subject Knowledge for Physics Teaching (SKPT) – a DfE-funded programme to build physics teaching confidence and spark engaging lessons.
- National Centre for Computing Education (NCCE) – a DfE-funded programme transforming computing teaching through CPD, resources and targeted school support.
- Explorify – empowering primary teachers (predominantly non-specialists) to confidently teach science and cultivate enquiry skills.
- STEM Learning CPD for non-specialists – including the popular residential courses Physics for Non-Specialists and Skills for New Technicians – Zero to Hero.

## Evidence of Impact

Our programmes significantly boost teacher capability and retention:

**99%** of SKPT participants report greater subject knowledge, confidence and motivation six weeks after their course; 99% feel better equipped to link physics teaching to real-world careers.[32]

**75%** of Explorify users feel more confident in science knowledge; 72% feel more confident teaching science overall.[8]

Non-specialists report particularly strong gains from STEM Learning CPD in confidence, subject knowledge and observed pupil outcomes (both immediately after training and up to a year later).[27]

## Future / Next Steps

The scale of the non-specialist teaching challenge underscores that even strong government support cannot solve this alone. The IOP research emphasises the need for a combined approach of recruitment, retention, and retraining ("3Rs") to stabilise the physics workforce. Expanding CPD tailored to non-specialists, alongside mentoring, community support, and flexible retraining opportunities, will be critical.

We will continue scaling these programmes, ensuring every young person can experience inspiring, high-quality STEM education delivered through high quality, subject-specific CPD bringing confidence to teachers.

"High-quality STEM teaching isn't just vital for students - it's the foundation of the UK's future workforce. Without sustained investment in teacher development, the nation risks a crisis that affects both education and industry."

Severine Trouillet, STEM Learning CEO

# Education changes are coming

## How we respond to curriculum changes

### STEM Learning and the Curriculum & Assessment Review

The Government's Curriculum and Assessment Review, launched in 2023, is examining how the national curriculum and qualifications can better prepare young people for the future. It recognises the need to balance academic rigour with technical skills, ensure relevance in a rapidly changing world, and make learning more engaging for both teachers and students.

For STEM, this review is critical. Employers continue to highlight a growing shortage of digital, data and technical skills, while young people are reporting falling enjoyment of science, computing and maths at school.[14] If left unaddressed, these trends will deepen skills gaps and limit the UK's ability to remain globally competitive in science, technology and innovation.

### STEM Learning's response

Our submission to the review builds on more than 20 years' work supporting teachers and schools, centred around three principles:

#### Content and structure

- A balanced curriculum from primary onwards, combining academic and applied learning.
- A reduced core of essential content in science and STEM subjects, giving teachers more flexibility to build learning around their students.
- Stronger interconnections across STEM subjects, with digital skills, maths and data literacy acting as bridges.
- Seamless progression in knowledge and capability, including computing education and the responsible use of AI.

#### Engagement and relevance

- Demonstrating local and global relevance of STEM, motivating young people to make a difference.
- Enriching classroom experiences through high-quality subject-specific CPD.
- Making STEM more inclusive and appealing, especially to under-represented groups.

#### Capabilities and skills

- Expanding opportunities for practical and project-based learning, helping young people apply knowledge with confidence.
- Building transferable skills – communication, enquiry, creativity, problem-solving – that employers need.
- Reflecting the growing importance of technology in subject content and teaching approaches.

## Why practical science matters

Practical science is a cornerstone of effective STEM education – it builds problem-solving skills, resilience, teamwork and creativity. Evidence from the Royal Society shows that hands-on investigation improves conceptual understanding and develops transferable capabilities valued in the workplace.[33]

Yet opportunities are declining: the Science Education Tracker found a reduction in practical work since Covid-19, even as students consistently report wanting more practical, investigative activities in lessons.[14] Without this, learners risk leaving school with weaker skills and less enthusiasm for science.

STEM Learning has consistently advocated for evidence-informed, practical, project-based learning in its response. We believe this is essential both for inspiring the next generation and for preparing them with the confidence and skills businesses need.

## Our next steps

As the review progresses, STEM Learning will ensure, through its thorough education and professional development expertise, that its support reflects and strengthens the areas of change:

- **CPD and resources:** we will adapt training, classroom resources and enrichment to reflect new curriculum expectations as well as changes in technical and vocational education, ensuring teachers are equipped to deliver engaging and relevant STEM teaching and learning.
- **STEM Impact Fund alignment:** we will ensure that our programme of support for schools reflects the school curriculum, while also developing the essential STEM skills that businesses are looking for. The Fund, supported by our partners through fundraising, provides schools with a comprehensive solution to engage in a sustained and meaningful way, ensuring the support delivered (teacher CPD, enrichment, role models and student engagement) has the greatest possible impact on young people.

## Why this matters for business

A forward-looking curriculum, supported by effective teacher development and industry engagement, is vital to closing the skills gap. Businesses have a role to play in helping shape, resource and deliver this vision – from providing role models to supporting targeted interventions. By working together, we can create a STEM education system that excites young people, supports teachers, and equips the future workforce with the skills employers need.

# The STEM Impact Fund

In January 2026 we are launching the **STEM Impact Fund.**

The STEM Impact Fund is a new, place-based model of engagement designed to improve STEM teaching and learning in schools – delivering lasting value for young people. Each school will work with a dedicated STEM Learning Advisor on a bespoke assessment of their areas of need using the STEM Leadership Benchmarks. Schools will then be supported on a journey of improvements for up to three years when they can access sustained support and advice - combining teacher development, student enrichment and careers inspiration.

## Why it was set up

Schools experience substantial and complex challenges that create barriers to subject development and improvement: budget pressures, teacher shortages and retention, lack of specialist expertise and limited access to enrichment. Without additional financial support and specialist advice, schools often cannot benchmark performance, identify areas for improvement, or access the high-quality CPD and career role models that make a real difference.

The STEM Impact Fund was created to remove these barriers, ensuring schools can access the sustained, tailored support they need to develop high-quality STEM curricula that empower and inspire young people.

## What impact it will have and how

The Fund will deliver **real, measurable outcomes and long-term impact** by:

- **Strengthening teaching:** Providing CPD, coaching and consultancy linked to Science Leadership Benchmarks, tackling the shortage of specialist teachers and supporting retention.
- **Inspiring students:** Offering pupils meaningful STEM encounters, from Ambassador visits to national competitions, reaching whole year groups and broadening participation.
- **Embedding careers:** Connecting the curriculum to the workplace through role models, projects and careers inspiration, helping young people see STEM's relevance to their futures.
- **Driving improvement:** Each school has access to funding to support activity and ensure that they can be released from the classroom. Support is underpinned by benchmarking and specialist advisors, enabling schools to plan and achieve long-term change.

## How businesses can contribute

By investing in the STEM Impact Fund, businesses can:

- Support schools in their communities with tailored, multi-year improvement programmes.
- Ensure young people gain access to inspiring STEM education and career connections.
- Deliver on CSR and ESG priorities by directly addressing the STEM skills gap.
- See measurable outcomes, with opportunities to engage directly as Ambassadors, hosts and mentors.

## This impact is only possible with your investment.

A contribution of **£180,000 funds a three-year programme for six schools,** transforming the education experience of more than 1,300 pupils. Multi-year or larger commitments scale that impact even further and can be tailored to your geographic or sector priorities.

The STEM Impact Fund offers a practical, evidence-based way for businesses to help transform STEM education - strengthening both schools and the future talent pipeline.

## STEM Impact Fund model of change

**Inputs and activities**

- Evidence informed subject benchmarks and benchmark progression monitoring tools
- Funding from a dedicated funder and facilitation and support of a specialist advisor
- School level needs analysis, resulting in an agreed action plan bespoke to school priorities
- Teachers attend agreed programme of high-quality STEM Learning CPD
- Schools embed careers education, with students accessing enrichment, careers resources and inspiring role models

**Outcomes (teachers)**

- Improved skills and confidence in teaching
- Complements lessons with enrichment and careers
- More able to support students to make choices about progression/careers
- Feel able to apply 'real world' STEM examples in lessons
- Recognise the value of STEM employers and role models in STEM education

**Outcomes (students)**

- More positive attitudes to STEM
- Improved STEM and transferable skills
- Better STEM career awareness
- Feel more engaged with STEM subjects and understand their relevance

**Outcomes (school/dept)**

- Made measurable progress against benchmarks
- Developed tools and resources which can be embedded in school processes and departments
- Subject leadership is more effective

**Key Impact: subject improvement achieved by school**

**Medium term impact (teachers)**

- More competent teachers of STEM subjects
- Confidently and consistently applying 'real world' STEM examples in lessons
- Regularly enhance teaching with enrichment or careers
- Confidently engage with industry role models
- Are more motivated and more likely to remain in a teaching career

**Medium term impact (students)**

- More, and more diverse, young people choose to progress in STEM subjects
- Reduced aspiration and opportunity gaps
- Improved attainment

**Medium term impact (school/dept)**

- Improved leadership
- Increased teacher retention
- Reduced progression and attainment gaps
- Sustained good practice network between schools/departments exists
- Improved community profile
- Active employer relationships

**Contributing to STEM Learning's long term impact**

- Improved diversity in STEM workforce
- Increased social mobility for young people through improved employment prospects
- Reduced skills shortages in UK industry
- Economic growth from a more highly skilled workforce
- The UK becoming a science and technology superpower

# Acknowledgements

## We can't do this without you.

Thank you to the many schools and colleges who have engaged with STEM Learning and trusted us to develop your teachers, technicians and students.

We are immensely grateful to our many supporters and funders. Without your generosity, we would not be able to deliver impactful programmes to schools' year in, year out.

STEM Learning is incredibly privileged to deliver science and computing CPD programmes on behalf of the Department for Education, STEM Ambassadors programme on behalf of UKRI, and ESERO-UK on behalf of the European and UK Space Agencies.

With particular thanks to our incredible delivery partners and expert advisors who support the work of STEM Learning.

## Who we worked with in 2024-25:

### Corporate funders

- Amazon
- Anglo American
- Apax
- Aramco
- AstraZeneca
- Bayer
- bp
- BT (British Telecommunications)
- Caterpillar
- Charles River Laboratories
- CILT - Generation Logistics (Chartered Institute of Logistics and Transport)
- CityFibre
- Cummins
- DeepMind
- DP World
- Drax
- Exeter University
- Google
- G-research
- GSK
- IMCD
- National Grid
- New Scientist LIVE
- Nuclear Waste Services
- Quickline Communications
- Rolls-Royce
- Spectris
- SSE Renewables
- Virgin Atlantic Airways
- Walney Fund (Grantscape)

### Trusts and foundations

- Alstom Foundation
- ERA Foundation
- Gatsby Charitable Foundation
- Goldman Sachs Gives
- IMechE Benevolent Fund
- Millennium Point
- Miller-Multimear Trust
- Nuffield Foundation
- Primary Science Teaching Trust
- Rank Foundation
- Royal Commission for the Exhibition of 1851
- The Duke of Devonshire's Charitable Trust
- The Worshipful Company of Information Technologists
- Vertex Foundation
- Wellcome

### Government and public funders

- Department for Education
- Department for the Economy (NI)
- European Space Agency
- Science and Technology Facilities Council (STFC)
- UK Space Agency
- UKRI

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