



Impact 2021

Help us build better futures through STEM

STEM Learning is dedicated to improving young people's lives through the power of STEM. We believe great STEM education builds knowledge and skills that are vital for everyone. They lead to great career opportunities and enable young people to become informed, thoughtful citizens who can help address the extraordinary challenges and opportunities we face.

Thanks to the support of our partners across government, charitable foundations and employers of all sectors and sizes, we were able to continue our work throughout the past year, despite the disruption caused by COVID. Never has our work been more important and it will continue to be crucially important to young people – and their schools, colleges, youth groups and communities – as we emerge from the pandemic and rebuild.

With your support, we will continue to support young people everywhere, but particularly those who need it most – including the schools and young people facing the greatest challenge.

If you already support us, we are deeply grateful – you make a measurable and vital difference, as you can see in this report. If you would like to support us, we would love to talk to you. Together we can change young people's lives, and help our economy and society build back even stronger, utilising the power of STEM.



Baroness Brown
Chair
STEM Learning



Yvonne Baker
Chief Executive
STEM Learning

Our vision...

is a world-leading STEM education for every young person in the UK, combining knowledge-rich and effective teaching; thinking, investigative, creative and practical skills; and experiences that develop a lifelong love for STEM and where it can lead. Great STEM education has economic, social, cultural and ethical value, with positive impacts on social mobility, diversity and inclusion.

STEM Learning makes a difference

We are the
largest provider
of STEM education
and careers
support across
the UK

Students achieve more



Our support reaches **1.7 million** students a year, increasing student engagement, aspiration and attainment. This includes 16,000 more young people achieving good science GCSE grades.

Better teaching

We delivered over **34,000** days of continuing professional development (CPD) in 2020/21, improving teaching and tackling shortages by encouraging teachers to stay in teaching.



Every school in the UK

We connect with over **270,000** teachers, reaching every primary and secondary school, and post-16/FE college in the UK.

Tackling disadvantage

We manage Project ENTHUSE, working with government, charities and businesses. We target support towards those who need it most so that every young person has access to a world-leading STEM education.



Online resources

1.6 million downloads each year from our library of over 14,000 free STEM resources.



Making connections

37,000 Ambassadors volunteered 180,000 hours in 2020/21 – helping STEM employers connect with young people.



Investing in education

We are a not-for-profit organisation – investing all our income into improving STEM education.



The power of investing in teachers

Nothing matters more than the quality of teaching... [we need to] turbocharge teaching improvement and teaching development.

Sir Kevan Collins, 2021

Investing in teachers makes sense: each teacher works with and influences thousands of young people over their career. STEM Learning helps them develop as great teachers. Crucially, our support encourages individuals to remain in teaching and has proven benefits for young people.

Becoming a great teacher takes time and experience, but UK teachers are young: 26% are under 30. Science teaching needs support: secondary science teachers often have to teach outside their specialism and few primary teachers have a science degree.

STEM Learning offers high quality continuing professional development (CPD) to help teachers become even more effective. Evidence from robust quantitative and qualitative analysis demonstrates that our CPD is highly effective – improving outcomes and helping to inspire students.

The UK has a high turnover of teaching staff. It is vital to encourage great teachers to continue teaching – and our CPD does just that. Science teachers are 160% more likely to keep teaching if they engage with our CPD, rising to 190% for newly qualified teachers.

Quantitative evidence shows that our CPD boosts students' knowledge of science in primary schools and gets results in secondary schools. We used the most recent data available to compare schools that do and do not use our science CPD.

Improving young people's outcomes

Over 350,000 GCSE students benefited from better teaching thanks to our CPD – 16,000 more young people achieved two good science GCSEs that year alone.

Nearly 70,000 students took STEM A levels after benefiting from our CPD – helping an additional 2,000 young people progress in STEM.

Student surveys show that our support builds confidence and positive attitudes towards science, with more students considering themselves *"the kind of person who could have a STEM career"*.

"One of my trainees ran a departmental training at her school based on what she had learnt from the amazing day run by you."

Science Tutor

"Physics is my weakest science and this session was brilliantly useful."

Teach First trainee teacher

"For me personally it's renewed my love of teaching. And I know I have an open channel to other teachers I can contact for help and support and vice versa."

Head of Computer Science

We've got children who don't have many life experiences, who don't visit beyond their estates. If they don't know a job exists, they can't set their goals to do that sort of thing... previously 80% wanted to be YouTubers, vets, footballers or gamers but the children were amazed when STEM Ambassadors showed them all these global projects. They suddenly had their horizons broadened and started to consider different careers.

Assistant Headteacher, primary school

STEM Learning delivers the flagship STEM Ambassador programme, on behalf of UK Research and Innovation, connecting schools, colleges and community groups with 37,000 passionate, committed volunteers from over 7,000 STEM employers across the UK.

STEM Ambassadors engage and inspire young people from all backgrounds. They are relatable – 57% are under 35, including over 70% of new Ambassadors. Their diversity challenges stereotypes – nearly half (45%) are female and 15% are from UK minority ethnic backgrounds.

"At least five of the students I engaged with have joined engineering apprenticeships – three have gone to university for engineering degrees."

STEM Ambassador

"STEM Ambassadors have helped me find out about different careers, such as chemical engineering – I now have anecdotes to engage students and relate what we learn to the workplace."

Linda Crouch, Berwick Academy

"It is a wonderful feeling to break down stereotypes and promote opportunities that are available to all, not just the academic students or those attending particular types of schools."

STEM Ambassador

"STEM Ambassadors inspire and engage children to be more outward looking as they progress into their future, supporting them to maximise their life chances."

Kate Sutton, Burlington Junior School

STEM Ambassadors benefit everyone

Young people: Over 90% of schools report increased enjoyment and interest in STEM subjects from young people engaging with STEM Ambassadors.

Teachers: STEM Ambassadors boost teacher knowledge, confidence and enthusiasm, and help them link lessons with careers and real-world contexts.

STEM Ambassadors report increased confidence, communication and collaboration skills – plus strong personal satisfaction from volunteering and supporting their local community.

Employers: Volunteering as a STEM Ambassador boosts staff engagement, job satisfaction and knowledge. The programme helps employers to manage their own outreach – connecting with local communities, teachers and young people.

"A key part of UKRI's guiding vision is fostering a research and innovation system to which everyone can contribute and from which everyone benefits. Inspiring young people with that vision is essential, which is why we are proud and pleased to support the STEM Ambassador programme."

Ottoline Leyser, Chief Executive, UK Research and Innovation



"I am passionate about supporting STEM engagement and the impact that a small amount of my time can have on careers outcomes of students. We see business benefits including encouraging more diverse applicants for our apprenticeships."

Mike Bowen, Associate Director, Jacobs. STEM Ambassador



"Local employers help update your teaching to reflect what is going on in industry and research."

Alison Ackroyd, Lecturer, MidKent College



"As a young person, those volunteering in STEM had an impact on me and inspired me to go into the profession that I am in today."

STEM Ambassador

Careers: the power of working with teachers

Teachers can be very influential in supporting students in making decisions about their future ...they are often integral in exploring careers options with students.

Education Outreach Team, Renishaw

Great education should raise aspirations. STEM Learning works to ensure every young person – whatever their background – understands the opportunities created by STEM.

Over the course of their career, an inspirational teacher will reach thousands of young people. We help teachers develop as inspirational professionals, enriching their teaching with knowledge of real-world STEM.

STEM careers are embedded in all our CPD – enabling teachers to create lessons that include career guidance (Gatsby benchmarks) and essential skills (Skills Builder framework).

STEM Learning links employers with schools – and helps schools take a whole-school approach, providing skills audits, resources and information on STEM pathways and jobs.

"Before I didn't feel I had sufficient knowledge of STEM careers to talk with confidence. Now I am equipped with up-to-date knowledge, real examples and experiences, as well as strong industry links that I can use to benefit the whole school."

Alice Kupara, Thomas Deacon Academy



"I enjoyed talking to the scientists...finding out how their career progression paths had developed... this is probably an area of weakness for most biology teachers...we need to break this image that STEM means you work in a lab...There has been a dramatic change in my capability to discuss careers with students and colleagues, and take an active part in careers education in school."

Iona Martin, Colchester County High School for Girls



"Ensuring that all young people get a broad range of high-quality insights and experiences is vital to our work at The Careers & Enterprise Company. The world of STEM plays a pivotal role across all industries and our work with STEM Learning has been key in improving how our stakeholders access and disseminate many of the brilliant resources that exist, so young people can be informed and inspired."

Oli Hallam, STEM Lead, The Careers & Enterprise Company



Over 27,000 young people visited our virtual careers fair, chatting online with 200 STEM Ambassadors from 25 STEM employers. 74% of young people visiting the fair reported that they learned about a new STEM career that they had not heard of before.

Working together

Schools navigate a huge amount of information to help young people with careers. STEM Learning helps by working collaboratively, developing partnerships that join up support and target it where it is most needed.

We partnered with the Careers & Enterprise Company to create toolkits on STEM careers for employers, teachers and careers leaders – plus My Learning, My Future guides to help teachers inspire students about careers linked to STEM subjects. Our networks are joined up too – budding volunteers, sharing knowledge and reaching out to schools needing extra support.

www.stem.org.uk/stem-careers



Project ENTHUSE is a unique collaboration of government, charities and businesses working together to promote STEM education and provide support for all teachers, schools and colleges, but particularly those who need it most.

Headline sponsors

Our sponsors are the heart of Project ENTHUSE, benefiting hundreds of thousands of young people every year by investing in great teaching through STEM Learning's transformational CPD (see *The power of investing in teachers* on page 2).

Support from headline sponsors allows ENTHUSE to respond rapidly to urgent needs. This enabled STEM Learning to create 150 online science lessons during lockdown and pilot a successful catch-up programme for young people.

Current headline sponsors for science CPD include the Department for Education, Wellcome, Aramco, bp, Allan & Gill Gray Philanthropy, Vertex Foundation and Rolls-Royce. Sponsors supporting computing CPD via the National Centre for Computing Education include Arm, BT, IBM, Microsoft, Nationwide and Rolls-Royce.

Helping those who need it most

Our support is available to all, but schools tackling disadvantage need extra help. ENTHUSE provides enhanced bursaries and tailored support to teachers working in the most challenging schools – ensuring no school, teacher or young person misses out.

"We believe that STEM careers are inspired by enabling teachers and students to connect with scientists hands-on. We are pleased to partner with STEM Learning and Project ENTHUSE to connect scientists to schools and support bursaries for teachers across the UK, including in our community in Oxfordshire."

Katharine Jensen, Head of Corporate Social Responsibility, Vertex Pharmaceuticals

"As a founding member of ENTHUSE, Rolls-Royce has always believed in the reach, ability and expertise of STEM Learning to make a powerful impact on the lives of young people. Now more than ever it is essential that we support all young people from a diverse range of backgrounds to develop a lifelong love of STEM."

Debbie Duro, Community Investment Manager, Rolls-Royce

"One of the great things about ENTHUSE is having the incentive and opportunity to speak to people about their experience and feed that into our lessons. It is really inspiring. ENTHUSE has been a great catalyst for collaboration and support."

Pete Dring, Head of Computer Science, Fulford School

Project ENTHUSE

ENTHUSE Partnerships: lasting impact

ENTHUSE Partnerships bring local schools together to make lasting step-change improvements in STEM education. The schools develop a tailored two-year programme with STEM Learning, building close relationships with their Partnership sponsors and STEM employers.

Evidence from participating schools tracks student attainment and attitudes – showing how Partnerships raise achievement and aspiration. Young people also benefit from inspired teachers with increased knowledge, confidence and tools for teaching STEM.

For example, an ENTHUSE Partnership led by Fulford School boosted attainment by over 50% and increased the number of students taking computer science by over a third.

Over the past year, we have worked with charities and employers to create 73 new ENTHUSE Partnerships, supporting 584 schools and benefiting over 380,000 young people. Current sponsors include charitable foundations, such as Garfield Weston, alongside employers including Schneider Electric, AECOM, SC Johnson, Collins Aerospace – and many more.

How ENTHUSE Partnerships help

Increasing attainment: 92% of girls and 96% of boys meeting / exceeding expectations in STEM.

Closing the gap: 94% of pupil premium students meeting / exceeding expectations in STEM.

ENTHUSE Partnership achievements

Increased attainment: Over 12,500 young people have improved their performance, including over 6,000 students from the most disadvantaged backgrounds.

Increased aspiration: 20,000 more students want a career in STEM.

"Education is key to unlocking potential and inspiring young people about the possibilities ahead of them. Teachers play a major part in the choices they make, so it makes sense to support teachers to be the best that they can be and ENTHUSE Partnerships are an effective way to achieve this. Our Trustees are delighted to support great teachers to have access to high-quality professional development."

**Philippa Charles, Director,
Garfield Weston
Foundation**



"ENTHUSE Partnerships enabled us to reach those schools that need the support most, working with education experts who can respond to the individual needs of the schools ...consulting with experts like STEM Learning is fundamental to our aims of focusing on underrepresented groups, creating partnerships with schools and telling people-centred stories about how engineers are the game-changers of the world."

**Anne Reece,
Reece Foundation**



"We support 32 schools across the UK through Project ENTHUSE. It's not just a pot of money to be spent in a short period of time, it's empowering the teachers to use and share their knowledge going forward."

**Dr Rhiannon Lowe,
Senior Scientist,
GlaxoSmithKline plc**



"We work to inspire our children. If I can create excellent subject knowledge and confidence in my teachers they are going to be so inspiring in the classroom. STEM Learning enabled me to provide teachers within our ENTHUSE Partnership with bespoke CPD that I would not have been able to provide in any other way. To really embed and ensure sustainability my children need to receive that experience weekly, daily, all the time...and the best way that I can do that is by ensuring that my teachers have the best foundations for their subject knowledge."

**Rachel Dance, Headteacher,
Grateley Primary School**



"One of the main benefits of Project ENTHUSE was providing sustained support to students and teachers over time, with CPD playing a major role. When the teacher understands a topic more fully they can speak with greater authority and enthusiasm. They are far more likely to engage their pupils and inspire them."

**Liz Cattley, RA Butler Academy,
lead teacher for AstraZeneca
ENTHUSE Partnership**



Making a difference for those who need it most

With your help we can transform STEM education in our most disadvantaged communities – here’s how...

Great teaching: STEM Learning works with schools to develop their teachers and overcome shortages in STEM subjects – a particular challenge in disadvantaged areas. More of their students get good science GCSEs, with results improving twice as fast compared to neighbouring schools. *“Improvements to the teaching of science were described as dramatic. It had improved throughout the school.” Ofsted*

Inclusion and inspiration: We give teachers the confidence, contacts and knowledge to challenge stereotypes and inspire young people from all backgrounds. One school doubled the number of students taking Triple Science at GCSE by reaching out to low-income families. *“Students developed a sense of aspiration; they don’t draw scientists now in white coats with big hair... like Albert Einstein ...some of them have said to me: ‘But, Miss, what do I draw? Because scientists can be anybody!’” Teacher*

Students want our support: Hundreds gave up their holidays for extra lessons at our STEM summer camps. Host schools helped us reach students whose education had been severely disrupted by the pandemic – they and their teachers enjoyed hands-on sessions with star teachers from our network.

“Students have returned to their lessons enthused. One teacher reported that one student had never had her hand up so often to answer and ask questions.”
Head of Science

“Camp has been really good, really helped them understand the principles through the practical work and how to relate the theory to the practical.”
Science Teacher

“This camp has shown me how fun science can be – I didn’t think physics was relevant to my career choice but now I realise it is.”
STEM Summer Camp student (female)



“STEM Learning knows what works. We know there remains a STEM skills deficit in the UK but these skills are vital if we are to climb the ladder of opportunity. STEM Learning is at the forefront, providing the support that young people, especially those living with disadvantage, need to get the jobs of the future!”
Robert Halfon, Chair of the Education Select Committee and MP for Harlow



“...it has been really good doing practicals and being able to ‘see’ what happens, rather than just being told.”
STEM Summer Camp student (male)



“Goldman Sachs Gives is proud to support the work of STEM Learning. COVID-19 has caused unprecedented disruption to the teaching of children and young people across the UK, and the support these young people have received through STEM Learning’s Summer Camps has been crucial in mitigating the potential long-term impacts of the pandemic. Education is essential to achieving a diverse and inclusive STEM workforce, something Goldman Sachs Gives is incredibly committed to.”
Charlotte Keenan, Head of the Office of Corporate Engagement International, Goldman Sachs

Help every young person get a great STEM education

- £100,000 provides bursaries to 300 teachers, benefiting over 30,000 young people.
- £50,000 helps at least 5,000 young people from disadvantaged backgrounds by training 50 teachers to tackle the attainment gaps in their schools.
- £20,000 sponsors an ENTHUSE Partnership for two years, benefiting over 6,400 young people and their families.
- £12,500 funds a STEM summer camp, providing intensive support to 20 students in one of the UK’s most disadvantaged communities.

Collaboration and partnering is central to STEM Learning's approach
Our partners and supporters include



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