



# Advancing STEM careers provision in England

Key lessons and opportunities



Publication date: September 2024



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# 1. FOREWORD

Engineering and technology sectors have continued to evolve since our last careers report in 2021, with a rising and pressing demand for engineering and technology roles, primarily driven by the UK's net zero goals and the increasing prominence of green jobs

Over the past 5 years alone, job adverts for green engineering roles have surged by

55%<sup>1</sup>



and those mentioning green skills have increased by

48%<sup>1</sup>



This demand is set against lower numbers in apprenticeships and pressures on higher education, creating significant challenges, only made worse by the sector's struggle to attract a diverse workforce. Only 15.7% of the engineering workforce are female compared to 56.1% across other occupations.<sup>2</sup> Wouldn't it be great if we could turn these challenges into opportunities to inspire and equip the next generation of engineers and technologists?

The new government has conveyed its intention to pursue sustainable growth by investing in industry, skills and new technologies, but it is abundantly clear we need a consistent stream of sufficiently skilled individuals to give businesses confidence to invest. A more strategic approach to skilling the UK's workforce is essential for this, linked to an industrial strategy underpinned by a comprehensive STEM education and skills strategy. In light of this, we welcome the government's creation of an Industrial Strategy Council which we hope will develop a clear, long-term industrial strategy. Skills England will also be established during this Parliament and should be charged with delivering the comprehensive approach to the STEM skills planning needed to underpin the government's green and growth ambitions.

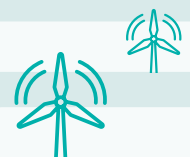
The recent announcement of a curriculum and assessment review, along with an early focus on reducing teacher shortages, shows that new government understands the importance of education and skills to create the workforce of tomorrow. Consistent, high quality careers provision must be a part of this, otherwise we lack the mechanism for students, and indeed the country, to reap the benefits of the resources invested in education.

Young people need to be able to make the connection between their studies and their future careers. We were therefore pleased to see a commitment to work experience for young people and investment in careers advisers in the new government's manifesto.

In this report, we examine how well schools and colleges are engaging with the STEM community and are providing their students with a solid understanding of STEM careers. Our findings underpin calls for a more strategic approach to careers provision in England and for greater investment in the careers system and infrastructure. There are also useful pointers to where improvements can be made.

I am pleased to present this report, '*Advancing STEM careers provision in England*' which arrives at a pivotal moment, as we strive towards a future where every young person is inspired and equipped to pursue a career in engineering and technology.

**Dr Hilary Leever**  
CEO, EngineeringUK



<sup>1</sup> [www.engineeringuk.com/futureskills](http://www.engineeringuk.com/futureskills)

<sup>2</sup> [www.engineeringuk.com/women](http://www.engineeringuk.com/women)



## 2. EXECUTIVE SUMMARY

**Careers provision in schools and colleges is an important, integral part of the education system. With the demand for skilled workers in the engineering and technology sector on the rise, it is vital that careers provision supports young people in making informed career choices**

This report, 'Advancing STEM careers provision in England' by EngineeringUK (endorsed by Careers England, The Career Development Institute (CDI), The Institution of Civil Engineers (ICE), The Institution of Mechanical Engineers (IMechE), The Institution of Engineering and Technology (IET), The Royal Academy of Engineering and The Campaign for Science & Engineering (CaSE) reviews the current state of Science, Technology, Engineering and Maths (STEM) careers provision in schools and colleges across England based on data collected in April 2024. The findings underscore EngineeringUK's calls for a strategic approach to careers provision and work experience, as well as greater investment in careers education in schools and colleges across England. Such efforts are essential to growing the diverse STEM workforce needed to meet future demand.

As we enter a period of new governmental initiatives and educational reforms, this report highlights what's working well and identifies areas requiring urgent attention. These insights are crucial to ensuring that STEM careers provision in schools and colleges across England is robust and inclusive, aligning with the government's strategic approach to skilling the next generation.

Careers provision in England has evolved significantly over the last few years. According to recently published data from the Careers & Enterprise Company (CEC), national school performance against the Gatsby Benchmarks for good career guidance has more than doubled in the last 5 years.<sup>3</sup> Schools have made substantial progress, with the average number of benchmarks met rising from 2.1 to 5.5 out of 8. This data, along with robust datasets from young people and employers, shows a continuing trend towards broad, structured, and inclusive career guidance programmes that are helping young people feel better prepared for their futures.<sup>4</sup> EngineeringUK's own research, which informed this report, echoes this progress, indicating a strong institutional commitment to deliver a careers provision for young people.

However, despite these positive developments, our research as detailed in this report, finds that challenges remain. For example,

**only 26%**

**of respondents say that their school offers personal guidance interviews with a careers professional before Key Stage 4**



raising questions as to whether advice is available to students at the right time for them to make informed choices.

**only 61%**

**of respondents say students of work experience age at their school take part in STEM work experience each year**



There are also noticeable disparities in participation in careers provision between male and female pupils.

<sup>3</sup> <https://www.gatsby.org.uk/education/latest/new-national-data-reinforces-the-impact-of-the-gatsby-benchmarks-on-young-people-s-futures>

<sup>4</sup> <https://www.careersandenterprise.co.uk/media/14cdf11b/cec-now-next-report.pdf>

It is clear while progress has been made, there is still significant work to be done to ensure that all students receive the guidance and opportunities they need. To address these challenges and further enhance STEM careers provision, this report makes the following recommendations

## We recommend government

### 1. Publishes a new long-term careers strategy for England with sufficient funding attached to enable schools and colleges to bring it to life.

This strategy should continue to build on the Gatsby Benchmarks, look to address persistent inequalities in careers provision, and ensure sufficient funding for comprehensive careers provision.

### 2. Embeds careers into the subject content of the STEM curriculum and ensures that it highlights the diverse range of roles and people working in science, technology and engineering.

Specifically, we recommend embedding STEM careers within the curriculum from Year 7 (Key Stage 3), with a focus on diverse role models and real-world applications, in alignment with the Career Development Institute (CDI) framework. This should provide teachers with more time to link curriculum learning with careers as stipulated by Gatsby Benchmark 4 and ensure that all young people are offered opportunities to be inspired.

### 3. Ensures that careers advisers have the continuous professional development (CPD) necessary to have, and be able to convey, up-to-date knowledge of modern engineering and technology careers. We encourage government to learn from existing programmes, which allow teachers to gain firsthand experience and insights into current industry practices.<sup>5</sup>

### 4. Develops a work experience strategy that links into and sits alongside a wider careers strategy. To ensure that the government can deliver on its ambition of providing 2 weeks of work experience for every child and for this to be meaningful for young people and employers alike, the government must take a strategic approach and ensure the right infrastructure and connections exist between employers, schools and the wider careers network.

## We ask that schools and colleges

### 5. Adopt an inclusive whole-school approach to careers provision led and guided by the Careers Leader. We want to see Careers Leaders enabled to drive a holistic approach to careers provision that draws on the CDI framework to challenge stereotypes and link subject content to real-world careers.

### 6. Adopt a targeted approach to STEM careers provision. We want to see schools implement strategies to engage more students from specific groups underrepresented in certain areas of the STEM workforce.

### 7. Draw on support from local Careers Hubs to more consistently link careers programmes with local and national labour market information, strengthening the connection between students' learning and future career opportunities.

This is to ensure young people better understand their local labour market and are enabled to make informed decisions and draw on information in Local Skills Improvement Plans where available (LSIP).

## We ask that STEM employers

### 8. Continue to build out their engagement activities aimed at young people in KS3 alongside an improved offer of work experience opportunities.

Using the tools available to them, such as the Careers and Enterprise Company's Employer Standards or the Tomorrow's Engineers Code, employers in the engineering and technology sector should look to embed school engagement activities and work experience within their workforce and recruitment strategies, focusing on diversity and inclusion to reach underrepresented groups.<sup>6</sup>

## We ask that Careers Hubs

### 9. Focus on recruiting more local STEM employers to complete the Employer Standards and get actively involved in programmes such as Equalex and Teacher Encounters.<sup>7</sup> This will ensure that teachers will have a better understanding of what jobs are available to young people in the STEM sector, ensure that more young people will get meaningful STEM work experience opportunities, and that schools as well as local employers are better connected and are able to offer them. To support Careers Hubs with this, we recommend Careers Hubs assign an Enterprise Adviser to lead on STEM in their area.

<sup>5</sup> Government should consider for example the Careers and Enterprise Company's 'Teacher encounters', the Education and Training Foundation's Industry Insight's, STEM Learning's Enthuse or the Design and Technology Association's 'Teachers in Residence' programme.

<sup>6</sup> Employer Standards: Shaping your workforce of tomorrow | The Careers and Enterprise Company

<sup>7</sup> Equalex is a new approach, that sits alongside other proven activity, designed to support two weeks' worth of high-quality work experience for every young person. It is currently being piloted in Greater Manchester. For more information, please visit: [equalex](https://www.equalex.co.uk) | The Careers and Enterprise Company



## 3. INTRODUCTION

### This report marks the third in a series by EngineeringUK exploring STEM careers provision in England

Our journey began with 'Our Careers, Our Future' in September 2020, followed by 'Securing the Future - STEM Careers Provision in Schools and Colleges in England' which was published together with several engineering and careers organisations, in 2021.<sup>8,9,10</sup> Each report provided insights into the state of STEM careers provision, particularly during the challenging times of the COVID-19 pandemic when schools and colleges were adapting to remote delivery. Now, as we release this updated report, the environment has evolved significantly. The challenges of the past few years have reshaped educational practices, creating fresh opportunities for the new government to implement transformative policies. This report arrives at a pivotal moment, offering insights and recommendations on how to enhance STEM careers provision throughout schools and colleges in England.

Additional context comes from the **Science Education Tracker 2023**, which we published earlier this year alongside the Royal Society and with funding from Wellcome, which revealed some areas for serious concern.<sup>11</sup> The analysis of over 7,200 young people's attitudes towards STEM education and careers, reveals only 12% of girls believe being an engineer fits well with who they are, and just 16% think engineering is suitable for them. Interest in science has declined since 2019, particularly among girls, with 36% stating that science is not for them. Additionally, the data highlights a significant gender gap in career interest in engineering (63% of boys vs. 29% of girls) and technology (52% of boys vs. 23% of girls) and that a quarter (26%) of students reported they had wanted to secure STEM-related work experience but had been unable to do so.

These findings underscore that despite the positive trends in careers provision as outlined below, there is still a real urgency to improve STEM education and career guidance to make these fields more accessible and appealing to all students and for targeted efforts to engage girls.

Moreover, insights from the Careers & Enterprise Company (CEC) suggest young people with the highest career readiness are more likely to want to work in areas of workforce need and are less influenced by gender stereotypes.<sup>12</sup> Notably, the data indicates that female students with the highest career readiness scores are twice as likely to show interest in engineering careers.<sup>13</sup> This further highlights the importance of enhancing career readiness programs to also bridge the gender gap in STEM career interests.

Given this backdrop, as well as the government's desire to develop home grown skills to meet the needs of the industry and economy, this report makes the case for a continued and enhanced strategic focus and greater investment in careers provision, and STEM related careers provision in particular. It aims to highlight progress made to date, identify persistent challenges, and offer recommendations to guide the new government in enhancing STEM careers provision and meeting their commitments with regards to work experience. This in turn will help secure the skilled workforce we so urgently need.

<sup>8</sup> <https://www.engineeringuk.com/research-policy/provision-outreach/careers-provision/our-careers-our-future-stem-careers-provision-and-young-people/>

<sup>9</sup> <https://www.engineeringuk.com/research-policy/provision-outreach/careers-provision/securing-the-future-stem-careers-provision-in-schools-and-colleges-in-england/>

<sup>10</sup> The Campaign for Science and Engineering, the Career Development Institute, Careers England, the Careers Research and Advisory Centre Ltd (CRAC), Andrew Stanley from the Institution of Civil Engineers, the Institution of Engineering and Technology, the Institution of Mechanical Engineers, the Royal Academy of Engineering, STEM Learning.

<sup>11</sup> [www.engineeringuk.com/set](http://www.engineeringuk.com/set)

<sup>12</sup> <https://www.careersandenterprise.co.uk/media/14cdf1b/cec-now-next-report.pdf>

<sup>13</sup> <https://www.careersandenterprise.co.uk/media/14cdf1b/cec-now-next-report.pdf>





## 4. METHODOLOGY

**The findings used in this report are based primarily on a survey conducted for EngineeringUK on STEM careers provision between 8 to 30 April 2024. The survey was designed by the EngineeringUK research team with input from our research partners**

The survey was open to careers leaders and staff working on careers provision in secondary schools and colleges in England. Respondents were recruited through the YouGov panel and Sprint Education. Fieldwork was carried out by YouGov, both on their panel and via an open link distributed by Sprint Education on behalf of EngineeringUK. Analysis for this report was carried out by the EngineeringUK team.

Among the 188 respondents, 55% were Careers Leaders or Advisers, 43% were subject teachers or heads of subjects, and the remaining 30% included senior leadership, teaching assistants, and other career-related roles.

Our survey focused on several key themes: careers provision in schools, including STEM careers provision; resources used for careers guidance; and barriers to delivering effective careers provision and participation in careers activities.

While the survey provides valuable insights, it is important to acknowledge the limitations of the sample size. With 188 respondents, the findings reflect the views of those who participated and may not be fully representative of all staff with careers responsibility in schools and colleges across England.

This data gives us new insight of the current state of STEM careers provision and the perceptions of those providing careers information, advice and guidance in schools allowing us to identify key trends, challenges, and opportunities for improvement. The insights gathered inform the recommendations presented in this report, with the aim of enhancing STEM careers provision for all young people in England.





## 5. CHANGES IN THE POLICY ENVIRONMENT SINCE THE LAST CAREERS REPORT IN 2021

Since EngineeringUK's 2021 report, there have been several developments and announcements in the policy environment surrounding careers guidance. Recognising the ongoing need for reform, the government and educational bodies have focused on addressing existing shortcomings within the system. Numerous reports have been published, offering recommendations on how to strengthen careers guidance

**The Independent Review of Careers Guidance in Schools and Further Education and Skills Providers**, published by Ofsted in September 2023, was a significant milestone.<sup>14</sup> This review highlighted several critical areas for improvement, including eliminating the persistent bias towards academic routes in careers advice and guidance provided to young people, the need for earlier intervention in careers guidance for younger students, and the challenges posed by the continued prevalence of home-working, which affected the provision of work experience opportunities. The review also underscored the importance of Careers Hubs and the Gatsby Benchmarks in developing careers provision, though it noted that more awareness and integration of these tools were needed.

Similarly, **The Careers Provision, Information, Advice and Guidance: Fourth Report of Session 2022-23** by the House of Commons Education Committee, also published in September 2023, urged the government to update its careers strategy.<sup>15</sup> The report emphasised the importance of the 8 Gatsby Benchmarks, which were developed in 2014 by Professor Sir John Holman on behalf of the Gatsby Charitable Foundation to define what good career guidance looks like. Although the benchmarks are non-statutory, the Department for Education's guidance expects schools and colleges to use these benchmarks to develop their careers programmes. This approach was introduced as part of the 2017 Careers Strategy.

**The Careers Education 2022/23: Now & Next Report**, published by The Careers and Enterprise Company in March 2024, provides a comprehensive insight into the evolving careers landscape.<sup>16</sup> The report highlights that careers provision should start early and focus on developing essential skills. It also notes the importance of greater involvement from teachers and parents in aiding young people with their career decisions. Despite these efforts, the report acknowledged that barriers to participation still exist, particularly for underrepresented groups, and these need to be addressed more effectively.

**The Skills and Post-16 Education Act**, introduced in 2022, also brought about notable changes to the requirements on schools in relation to careers guidance.<sup>17</sup> This Act mandated that all secondary schools provide independent careers guidance to pupils from Year 7 onwards, a shift from the previous requirement that started from Year 8. Additionally, the Act emphasised the need for schools to provide information on a range of career paths, including technical and vocational routes, alongside traditional academic options. The legislation aims to ensure students are better informed and prepared for the diverse opportunities available in the workforce, thus supporting a more balanced and inclusive approach to career education. The Act also reinforces the importance of aligning careers guidance with local labour market information, ensuring that advice given is relevant and tailored to the economic context of the students' local area.

The Department for Education also launched the **Apprenticeship Support and Knowledge Programme (ASK)** in September 2023.<sup>18</sup> This programme aims to improve awareness of apprenticeships, T-Levels and progression routes, offering students more comprehensive insights into vocational pathways and career opportunities. Additionally, the programme supports compliance with the Baker Clause, a legal requirement for schools to provide students with information about all post-16 education and training options, ensuring they are well-informed about various pathways available to them.

<sup>14</sup> <https://www.gov.uk/government/publications/independent-review-of-careers-guidance-in-schools-and-further-education-and-skills-providers>

<sup>15</sup> <https://committees.parliament.uk/publications/40610/documents/198034/default/>

<sup>16</sup> <https://www.careersandenterprise.co.uk/our-evidence/evidence-and-reports/careers-education-2022-23-now-next/>

<sup>17</sup> <https://www.gov.uk/government/news/skills-bill-becomes-law>

<sup>18</sup> <https://amazingapprenticeships.com/about-ask/#::-:text=Launched%20>

Further reinforcing the focus on early careers guidance, the government also launched a **Primary Careers Programme** in January 2023, targeting 55 schools.<sup>19</sup> This pilot initiative aims to link early learning in primary schools to future skills, training, jobs, and careers, providing young students with opportunities to meet employers and role models.

In February 2024, Ofsted's **Independent Review of Careers Guidance in Specialist Settings** brought attention to the unique challenges faced within specialist settings (special schools, independent specialist colleges (ISCs) and pupil referral units).<sup>20</sup> The report raised concerns over the reduction in qualification options for learners with special educational needs and/or disabilities (SEND), particularly the removal of funding for BTECs and the stringent entry requirements for apprenticeships and T Levels. It also highlighted significant variation in the effectiveness of careers information, advice and guidance across providers, with some lacking strategic planning. The review recommended more support for employers to ensure high-quality work experience opportunities for SEND learners.

**The House of Lords Public Services Committee Inquiry into the transition from education to employment for young disabled people**, launched in August 2023, found that the lack of career opportunities for SEND individuals is linked to significant wasted potential.<sup>21</sup> Oral evidence sessions highlighted that young disabled people often lack assertiveness to secure necessary workplace adjustments, emphasising the need for careers education to strengthen mandated disability and accessibility training. The inquiry also noted high self-employment rates among disabled individuals due to negative experiences in traditional jobs and suggested a 'tech for life' scheme to ensure continuous access to necessary technologies. The effectiveness of government programmes like Disability Confident and Access to Work was critiqued, with recommendations for faster processing and increased awareness.

**Most recently Labour's 2024 manifesto emphasised the need to improve careers guidance by pledging**

**£85 million** 

**for guaranteeing 2 weeks of work experience for every young person**

This is with the aim to bridge the gap between education and employment, offer students practical insights into various career paths and to enhance their employability skills.<sup>22</sup>

**Labour also announced it would train**

**1,000 new careers advisers** 

**and ensure all careers advisers have up-to-date knowledge of post-16 pathways**

These initiatives are all part of Labour's focus on improving the training of British workers and reducing reliance on foreign workers in key sectors like construction, IT, social care, health, and engineering.

The Labour Party in its manifesto proposed the establishment of Skills England, a new body designed to bring together businesses, training providers, and unions with regional and national government to create a highly trained national workforce that meets the economy's needs.<sup>23</sup> This initiative, now in progress, is expected to streamline the process of skills development across the country, ensuring that training programmes are better aligned with industry demands.

These collective efforts and policy advancements signal a pivotal moment for STEM careers provision in England. By addressing the identified barriers and leveraging new initiatives like Skills England and the enhanced focus on creating more work experience opportunities, there is significant potential to create a more inclusive, dynamic, and effective careers information, advice and guidance system. This will not only prepare the next generation for future careers in STEM but also support the broader goals of economic growth, innovation, and sustainability in the UK.

<sup>19</sup> <https://www.gov.uk/government/news/careers-boost-for-young-people>

<sup>20</sup> <https://www.gov.uk/government/publications/independent-review-of-careers-guidance-in-specialist-settings>

<sup>21</sup> <https://committees.parliament.uk/work/7738/the-transition-from-education-to-employment-for-young-disabled-people/>

<sup>22</sup> <https://feweek.co.uk/labour-manifesto-2024-the-fe-pledges/>

<sup>23</sup> Skills England was launched on 22 July 2024.



## 6. CURRENT STATE OF STEM CAREERS PROVISION IN SCHOOLS AND COLLEGES

There have been several reports about developments in careers provision in schools, yet few have provided a deep dive into STEM careers provision. EngineeringUK's survey, conducted in April 2024, and previously in 2021, sought to rectify this and understand how secondary education providers are currently delivering STEM careers provision to students, and the challenges and opportunities they face in doing so. This data, which should be seen as complementary to the insights provided by the Careers and Enterprise Company, highlights several positive trends and effective strategies with regards to STEM careers provision in schools and colleges across England, as well as some of the ongoing challenges.<sup>24</sup> The analysis provided in this report also reflects on the progress made since the 2021 report, 'Securing the Future: STEM Careers Provision in Schools and Colleges in England.' Additionally, insights from the Science Education Tracker 2023 have been incorporated to provide a more holistic view of STEM engagement among young people.

### Embedding careers provision in schools

Careers provision and outreach are now firmly established in schools and colleges across England. All schools and colleges are expected to have a designated Careers Leader who has protected time that enables them to carry out their function effectively.<sup>25</sup> Data from the Careers and Enterprise Companies Insight Briefing 2022/2023 showed that 100% of schools and colleges who completed Compass now have a Careers Leader and our data confirms this commitment.<sup>26</sup> 91% of respondents to our survey said that their school has a designated Careers Leader, demonstrating strong institutional commitment to careers information, advice and guidance. The integration of the Gatsby Benchmarks across schools in England has significantly contributed to this progress, with the average number of benchmarks achieved rising from 2.1 to 5.5 out of 8 over the past 5 years.<sup>27</sup>



<sup>24</sup> <https://www.careersandenterprise.co.uk/media/14cdf1b/cec-now-next-report.pdf>

<sup>25</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1127489/Careers\\_guidance\\_and\\_access\\_for\\_education\\_and\\_training\\_providers\\_.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1127489/Careers_guidance_and_access_for_education_and_training_providers_.pdf)

<sup>26</sup> <https://www.careersandenterprise.co.uk/our-evidence/evidence-and-reports/insight-briefing-gatsby-benchmark-results-2022-2023/>

<sup>27</sup> <https://www.gatsby.org.uk/education/latest/new-national-data-reinforces-the-impact-of-the-gatsby-benchmarks-on-young-people-s-futures>

## Personal guidance interviews

Gatsby Benchmark 8 states that every pupil should have opportunities for guidance interviews with a careers adviser. These interviews should be available whenever significant study or career choices are being made, are expected for all pupils, and timed to meet their individual needs. Every pupil should have at least one such interview by the age of 16, with the opportunity for a further interview by the age of 18.

## The vast majority (90%) of respondents to our survey say their students have the opportunity for personal guidance interviews



Of those offering such interviews, however, only 26% say that their school offers this before Key Stage 4, with 78% saying that students have access at Key Stage 4 and 46% at Key Stage 5. This would suggest that there is more work to do to make these interviews available at an earlier stage when young people make decisions about GCSE options.

## School engagement with STEM careers

One of the most encouraging trends since our last survey is the increase in the explicit recognition of STEM careers in schools' careers programmes.

**65%**



## of respondents to this year's survey highlight that their school explicitly references STEM careers in their programmes

This marks a substantial improvement from the 50% reported in 2021. This growth underscores the increasing recognition of the importance of the STEM sector and the role the education setting plays in fostering long-term interest and engagement among students.

Furthermore, the majority of respondents report that their school engages in one or more STEM-related career activities at least once per year. Gatsby Benchmark 4 requires that all teachers should link curriculum learning with careers. For example, STEM subject teachers should highlight the relevance of STEM subjects for a wide range of career pathways. In addition, Gatsby Benchmarks 5 and 6 outline the importance of student encounters with employers and workplaces. It is therefore encouraging that the majority of respondents report that their school engages in various STEM-related career activities at least once per year. These activities include curriculum-based learning (73%), STEM clubs (64%), accessing the STEM Ambassadors programme (34%), offering careers fairs (79%), work experience opportunities (68%), as well as careers talks or events with STEM employers (81%).

However, we know from the Science Education Tracker that only 43% of young people report taking part in a STEM activity (other than a lesson) at school in the last year. In addition, only 15% of young people of work experience age report having done STEM-related work experience. This mismatch of reported activities could indicate a lack of knowledge by young people or Careers Leaders, but it is more likely the result of only some students in each school getting access to these activities and opportunities as a result of how STEM engagement opportunities are offered in schools. Engaging young people early, especially around STEM, provides them with opportunities to explore these fields and develop a strong foundation. Early exposure to STEM can spark interest and enthusiasm, which is crucial for building the skills needed for future careers in these areas. Schools should consider integrating STEM activities and guidance earlier in the educational journey to ensure all students are well-informed and inspired by the possibilities these fields offer.



## BARRIERS AND CHALLENGES IN STEM CAREERS PROVISION

### Staffing and time constraints

A major barrier to inclusive and good quality careers provision in schools and colleges is the lack of dedicated time for careers leaders. While 91% of respondents report having a designated Careers Leader in their school,



**25%** report Careers Leaders in their school are being allocated less than 1 day a week to fulfil their roles

(12% report between 1 and 2 days, 7% between 2 and 3 days, and 8% between 3 and 4 days). Only 22% report that their Careers Leaders have the equivalent of a full week dedicated to careers leadership. This limited time allocation is likely to significantly impact the ability of schools to provide comprehensive careers guidance and support.

One respondent highlights this challenge by stating, **'lack of time is always our biggest challenge, I work full time as does a lady I work with who takes care of arranging work experience for Year 10 and 12 students. If there was more funding available from DFE for careers provision, a school of our size (1500 students) could do with another one of me i.e. Level 6 qualified to deliver all that we should be delivering.'**

Additionally, around



**56%** of respondents cite lack of staff time as a major barrier to delivering STEM careers provision,

a figure that aligns with our 2021 report. This underscores the need for structural changes within schools to enable them to prioritise and adequately staff STEM careers provision. Moreover, a lack of staff time is also the biggest barrier to engaging with further education providers, as reported by 51% of respondents. This includes time shortages within the school timetable, within the careers team, and/or among staff at further education providers. The issue of staffing is also likely to be further compounded by the impact of teacher vacancies. According to our survey, 26% of respondents report that STEM teacher vacancies have affected the STEM careers activities on offer.

One respondent reflect on the impact of time constraints,

**'we could do more if teachers had more time, and if it fitted with the curriculum. There's a lot that falls between the gaps - e.g., engineering - is it the responsibility of maths, science or DT? We used to have a STEM coordinator, which worked well, but the funding fell away.'**

This sentiment underscores the need for structural changes within schools to enable them to prioritise and adequately staff STEM careers provision.

### Funding

Our survey also suggests insufficient funding remains a critical obstacle.



**46%** of survey respondents say that funding is a significant barrier to STEM careers provision in their school

They report the lack of financial resources restricts their school from covering essential costs for STEM activities, resources, and external engagements for example with employers. In addition, the limited time many Careers Leaders have in their role suggests that funding is an issue affecting the consistency with which careers provision is managed across schools in England.

As one respondent notes:

**'There is not enough funding, qualified staff or time allocated to it, and yet so much is expected in terms of impact, results and reaching targets. It is often sidelined in schools or bolted on to another job, so not always given priority.'**

## Engagement with employers

Gatsby Benchmark 5 emphasises the importance of students having multiple opportunities to learn from employers about work, employment, and the skills valued in the workplace. This benchmark supports the need for at least one meaningful encounter with an employer per year, from years 7-13. These engagements are crucial for providing students with real-world insights into STEM careers and fostering valuable industry connections.

Concerningly,

**only 59%**  
of respondents to our survey say that their school engages with employers annually, and



specifically with STEM employers

According to a recent Careers and Enterprise Company (CEC) report, there were at least 39,778 employer relationships with schools and colleges nationally last year.<sup>28</sup> The CEC data also suggests that schools that had been part of Careers Hubs for longer have established more employer connections. Those employers deeply engaged with the Careers Hub, known as Cornerstone Employers, were significantly more likely to offer a wide range of activities for students, including careers talks, STEM activities, and mock interviews.

Our survey also looked at reasons for limited engagement with STEM employers and found engaging with them is challenging partly due to financial constraints. According to 37% of respondents, insufficient funding allocated to their careers programme prevents them from engaging more with STEM employers. Additionally, 33% cite a lack of capacity within schools, and 24% mention a shortage of local STEM employers. These challenges underscore the urgent need for increased government support and funding to improve STEM careers provision in schools.

## Work experience with STEM employers

Work experience is a critical component in the journey of getting young people work ready and Gatsby Benchmark 6 highlights the importance of this in the context of a careers programme in an education setting. It gives young people a chance to find out more about a particular sector, and at the same time provides an opportunity for businesses to showcase the many roles available in their business and field.

According to the Careers & Enterprise Company (CEC) data for 2022/23, 64% of institutions fully achieved Benchmark 6 (experiences of workplaces). Within this, 68% of schools reported the majority of students had workplace experiences by the end of Year 11, and 77% by the end of Year 13. Additionally, 87% of SEND/Alternative Provision (AP) institutions reported the majority of their students had experiences of workplaces or community-based settings during Years 12, 13, or above, and 63% of colleges reported that most learners had such experiences by the end of their programmes of study.

Our survey finds a similar picture, with 77% respondents reporting their students take part in work experience with any employer. However, only 54% say that over half their students get this opportunity. Our data tells us that 61% of respondents say that students of work experience age at their school take part in STEM work experience each year.<sup>29</sup>

Our survey also provides some insights into the reasons of why some schools may have difficulties with enabling more work experience opportunities, especially in STEM. Over a third of respondents (36%) who highlight funding as a barrier to delivering STEM careers provision tell us the lack of funding means that they are unable to support STEM work experience in their school, and 43% of all respondents say that practical help in finding good quality STEM work experience for students could be improved. This should be seen in the context of 17% of respondents saying there was a lack of interest from local STEM employers in engaging with them, and a lack of capacity within the school was a barrier for 33%.

**'Getting students out of school to visit workplaces is essential. We are increasingly less able to do this due to rising transport costs as parents cannot afford to keep contributing substantial amounts of money. The funding for this needs urgent review.'**  
(Survey respondent)

<sup>28</sup> <https://www.careersandenterprise.co.uk/media/14cdf1b/cec-now-next-report.pdf>

<sup>29</sup> <https://www.careersandenterprise.co.uk/media/14cdf1b/cec-now-next-report.pdf>

Although many young people now get the opportunity of a work experience placement, the data makes clear that there is more work to do, particularly in relation to opportunities in STEM sectors. Challenges with work experience are compounded by locality issues, with some areas having no local STEM employers or being heavily condensed in specific industries. Addressing these challenges to ensure that young people can access meaningful work experience opportunities wherever they are, requires innovative solutions including meaningful virtual work experience programmes, partnerships with industries in nearby regions, and targeted funding to support transportation and logistical needs.

### Participation disparities

The survey reveals significant participation gaps among various demographic groups, highlighting lower engagement with STEM careers provision among students from lower socioeconomic backgrounds, SEND (Special Educational Needs and/or Disabilities) and female students. 39% of respondents identify students from lower socioeconomic backgrounds and 37% SEND students as being less likely to engage in careers provision overall with this trend being mirrored in STEM careers provision, with 36% identifying those from lower socioeconomic backgrounds as less likely to engage and 38% for SEND students. Additionally, almost a third of respondents (30%) report that female students have a lower take-up in STEM-related careers activities compared to their peers, something not reported for general careers provision take-up.

Respondents to our survey also report that female students face particular barriers such as a lack of visible role models (61% v 56% in 2021) and pervasive stereotypes and that students from lower socioeconomic backgrounds and those with SEND often lack confidence, further inhibiting their participation in STEM careers education. In addition, 47% of respondents highlight that the lack of visible role models in STEM professions also serves as a barrier both for students from lower socioeconomic backgrounds, as well as for students with Special Educational Needs and/or Disabilities (SEND). This represents an increase from our 2021 survey, when this was reported for 38% for students with SEND, and about one-third for students from lower socioeconomic backgrounds.<sup>30</sup>

These insights are supported by data collected for the Science Education Tracker (SET) 2023 which reveals that girls are less likely to engage in STEM-related activities at school, especially in clubs and projects outside of lesson time.<sup>31</sup> Specifically, 52% of girls report not participating in any such activities, compared to 47% of boys.



<sup>30</sup> The guidance 'Careers guidance and access for education and training providers', published by the Department for Education in January 2023, specifies that careers education and training provider encounters are required for all students in school from year 7 to year 13, ensuring that students in these year groups are informed about the full range of academic and technical education opportunities available to them. These encounters must include information about the provider, the technical education qualifications and apprenticeships offered, and potential career routes.

<sup>31</sup> [www.engineeringuk.com/set](http://www.engineeringuk.com/set)



## 7. LESSONS FOR STEM CAREERS PROVISION

### The government has committed to developing home grown skills to meet the needs of industry and the economy

Effective careers provision is essential for helping young people navigate their career choices by balancing their personal aspirations with the needs of the labour market. As such it is an essential part not only of the education system but also plays a vital role in the strategic approach to solving the UK's skills crisis. This makes a powerful case for the government to invest more in the careers system as an intervention to increase young people's progression into areas of labour market need.

Analysis of student data by the Careers & Enterprise Company shows that higher career readiness correlates strongly with better alignment with the labour market. Students who demonstrated the highest levels of career readiness were more than twice as likely to have clear ideas about the industries they wanted to work in. Their interests were less influenced by gender biases and were less likely to be in oversubscribed sectors.<sup>32</sup>

Our research underscores that the continuous efforts to improve careers provision in schools and colleges across England are yielding some positive outcomes. However, it also highlights some persistent challenges and areas for improvement that require targeted intervention.

In light of this and substantiated by the findings in our survey, this report makes the following recommendations. These are designed to overcome some of the systemic barriers in the way of more consistent and effective STEM careers provision across England.

## RECOMMENDATIONS

### We recommend that government

#### 1. Publishes a new long-term careers strategy for England with sufficient funding attached to enable schools and colleges to bring it to life.

An ambitious new careers strategy that builds on the previous strategy and the Gatsby Benchmarks is urgently needed. Given the clear financial challenges identified throughout the survey, it is vital that this new strategy is underpinned by sufficient funding to enable schools and colleges across the country to offer meaningful interactions with STEM businesses and a range of STEM experiences to all students across their school years. This must include sufficient funding to enable schools to free up more time for Careers Leaders to fulfil their role. The Career Development Institute (CDI) estimates that to achieve good quality careers guidance for all young people will cost around £115 per pupil.<sup>33</sup>

The new strategy must take account of the changing school environment post-pandemic and address the disparity in uptake of careers provision as well as the underlying reasons for this. It needs to focus on how schools can deliver more inclusive and targeted approaches that will ensure that female students, those with special educational needs and those from lower socio-economic backgrounds equally access and are included in STEM careers provision. Careers Leaders as well as others working on careers provision in schools need to have up-to-date knowledge of science, engineering and technology careers now and into the future so that they can provide relevant and accurate support through careers information, advice and guidance. This will require a recognition of the importance of Continuous Professional Development (CPD) of Careers Leaders in the strategy.

<sup>32</sup> <https://www.careersandenterprise.co.uk/media/14cdf1b/cec-now-next-report.pdf>

<sup>33</sup> <https://www.thecdi.net/>

**2. Embeds careers into the subject content of the STEM curriculum and ensures that it highlights the diverse range of roles and people working in science, technology and engineering.**

STEM employers and ambassadors need to be brought into the classroom more, ensuring a focus on representation from diverse groups and different careers paths to ensure all young people get the opportunity to be inspired by what a career in STEM, including engineering and technology, can offer them. Our survey has highlighted the importance attributed to role models in inspiring young people from diverse backgrounds to go into engineering and more widely into STEM careers. This will ensure that any young person, whatever their background, gender or ethnicity, will be able to see what a career in STEM could look like for them, have the opportunity to be inspired and become informed about how to get there.

STEM careers provision often takes place as an extracurricular activity fitted in during lunchtimes or after school where time and resources allow it, which means that young people often self-select or are selected by their teachers to participate. Introducing STEM careers into the curriculum will provide subject teachers with more opportunities to connect classroom learning to the real world of work for all their students and give them the time to do so more easily. Specifically, we recommend embedding STEM careers within the curriculum from Year 7 (Key Stage 3), with a focus on diverse role models and real-world applications, in alignment with the Career Development Institute (CDI) framework. In fact, we would ask the government to explore how to include primary schools within their new careers strategy.

If taken forward, this should provide teachers with more time to link curriculum learning with careers as stipulated by Gatsby Benchmark 4 and ensure that all young people are offered the opportunities to be inspired. We urge the government to consider this recommendation in light of the recently announced Curriculum and Assessment Review.

**3. Ensures that careers advisers have the continuous professional development (CPD) necessary to have, and be able to convey, up-to-date knowledge of modern engineering and technology careers.**

The new government promised that they would train over 1,000 new careers advisers and ensure all careers advisers have up-to-date knowledge of post-16 pathways, to give every young person access to qualified advice and guidance at their school or college. EngineeringUK welcomes this commitment. To meet the critical engineering and technology workforce needs underpinning a range of the government's manifesto commitments, the government should ensure that all careers advisers understand the breadth and social

and environmental impact of modern careers in these areas and the different routes into relevant sectors. Advisers must also be able to effectively convey this to their students.

Additionally, CPD should highlight areas of workforce need and train advisers on Equality, diversity and inclusion (EDI) to work against biases and misconceptions about what sort of person works in the engineering and technology sectors. This CPD could also benefit careers advisers in supporting school leadership and Careers Leaders with approaches on how to embed careers information into careers programmes to realise the most value from advice and guidance appointments.

We encourage government to learn from existing programmes, which allow teachers to gain first-hand experience and insights into current industry practices, and develop something similar for Careers Advisers.<sup>34</sup>

**4. Develops a work experience strategy that links into and sits alongside a wider careers strategy.**

To ensure that the government can deliver on their ambition of providing 2 weeks of work experience for every child and for this to comprise meaningful encounters for young people and employers alike, the government must take a strategic approach to achieving this and build and invest in the right infrastructure and connections between employers, schools and the wider careers network. The government must look to work with these stakeholders to address any systemic barriers in the way of making this a reality.

## We ask that schools and colleges

**5. Adopt an inclusive whole-school approach to careers provision led and guided by the Careers Leader.** Careers Leaders need more time in their roles to be able to drive a whole-school approach to embedding careers information into every subject. With additional time and resource, Careers Leaders would be able to support educators to link their subject content to the real world of work, drawing on students' interests and aptitudes to make meaningful connections between what they are learning at school and where this could lead. Access to CPD would further empower educators to integrate careers inspiration and information into their teaching, building on the existing training and CPD available for Careers Leaders. We want to see Careers Leaders enabled to drive a holistic approach to careers provision that challenges stereotypes and links subject content to real-world careers.

<sup>34</sup> Government should consider for example the Careers and Enterprise Company's 'Teacher encounters', the Education and Training Foundation's 'Industry Insight's', STEM Learning's 'Enthuse' or the Design and Technology Association's 'Teachers in Residence' programme.

## 6. Adopt a targeted approach to STEM

**careers provision.** In light of the participation discrepancies in relation to STEM careers and engagement activities as identified by our survey, school and Careers Leaders should work together to implement strategies aimed at identifying and engaging under-represented groups in these activities and look to address the barriers in the way of their engagement with what is on offer.

By recognising that some students may benefit from specific or sustained careers outreach and targeted interventions, these efforts can help students explore their aspirations, realise their potential, and understand the diverse pathways available to them after they leave school or college.

## 7. Draw on support from local Careers Hubs to more consistently link careers programmes with local and national labour market information, strengthening the connection between students' learning and future career opportunities.

We recommend that schools work closely with local Careers Hubs to align the strategic approach to the careers programme (Gatsby Benchmark 1) with local and national labour market information, linking in with Department for Education-approved Local Skills Improvement Plans (LSIPs), where available. This ensures that the careers information, advice and guidance provided to students is relevant to local as well as national labour markets and industry needs and demands (Gatsby Benchmark 2). Applying this knowledge to their own life context will assist young people and their key influencers in understanding and accessing potential future learning and employment pathways. By linking the strategic intent of a school's careers programme with LSIPs, schools can provide students and their parents/carers with clear pathways to local career opportunities, supporting regional economic growth and development and reducing likelihood of students becoming NEET.

## We ask that STEM employers

### 8. Continue to build out their engagement activities aimed at young people in KS3 alongside an improved offer of work experience opportunities.

Using the tools available to them, such as the Careers and Enterprise Companies Employer Standards or the Tomorrow's Engineers Code, employers in the engineering and technology sector should look to embed school engagement activities and work experience within their overall workforce planning and recruitment strategies, focusing on diversity and inclusion to reach underrepresented groups.

We recommend that employers embed a work experience strategy within their future workforce strategies, including setting targets for work experience placements, acknowledging its value in the recruitment process. Employers should consider pre-work experience activities, such as virtual sessions, to prepare students, broaden participation, and reach underrepresented groups and support the experiences to be inclusive.

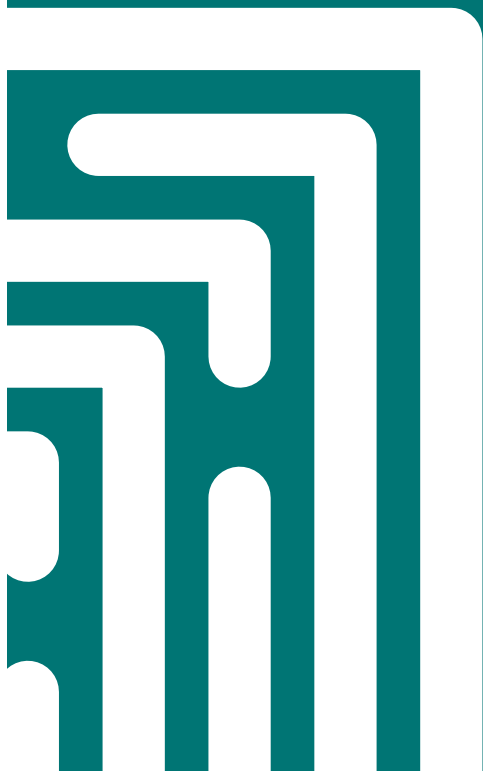
Employers should also implement targeted initiatives to address reported gaps in STEM careers activities among girls, students from lower socioeconomic backgrounds, and SEND students. Programmes should provide visible role models, combat stereotypes, and build confidence among under-represented groups. These initiatives should be a cornerstone of a new careers strategy for England, ensuring equitable access to STEM opportunities for all students.

## We ask that Careers Hubs

### 9. Focus on recruiting more local STEM employers to complete the Employer Standards and get actively involved in programmes such as Equalex and Teacher Encounters.<sup>35</sup>

Our findings indicate schools would welcome more help finding good quality STEM work experience opportunities for their students and that teachers could benefit from more engagement with STEM employers, helping them better understand what jobs are available to young people in the STEM sector. Careers Hubs have a crucial role to play in enabling this and ensuring that schools and local STEM employers are better connected. To support Careers Hubs with this, we recommend that they assign an Enterprise Coordinator to lead on STEM in their area.

<sup>35</sup> Government should consider for example the Careers and Enterprise Company's 'Teacher encounters', the Education and Training Foundation's **Industry Insight's**, STEM Learning's **Enthuse** or the Design and Technology Association's 'Teachers in Residence' programme.





## 8. CONCLUSION

**The state of STEM careers provision in England has seen notable developments since 2021, with significant advancements in engagement and curriculum integration**

The presence of designated Careers Leaders in the vast majority of schools and the increased reference to STEM careers in school programmes are commendable. However, challenges such as staffing and time constraints, funding issues, and demographic participation gaps persist, highlighting areas that require targeted intervention and sustained support.

Our findings underscore the importance of a robust and inclusive approach to STEM careers provision to prepare young people for future careers in STEM fields. The recommendations outlined in this report provide a strategic framework for addressing these challenges and leveraging opportunities to enhance STEM education and careers information. By implementing these recommendations, the new government, schools, employers and Careers Hubs, supported by the engineering community, can collaboratively work towards creating a more dynamic, inclusive, and effective approach to STEM careers provision.

This collaborative effort is essential for nurturing the next generation of skilled professionals, driving economic growth, achieving technological advancements and reaching net zero. Effective STEM careers provision not only inspires young minds but also ensures that the UK remains competitive in the global market. By fostering an environment where every young person has access to comprehensive, up-to-date STEM education and careers information, advice and guidance, we can build a future workforce that is well-equipped to meet the demands of an ever-evolving world.



## 9. GLOSSARY

**Gatsby Benchmarks:** The Gatsby Benchmarks are a set of 8 guidelines that define what good career guidance looks like in schools and colleges. They are designed to ensure that students receive high-quality career education, advice, and guidance, preparing them for the world of work. These benchmarks are statutory requirements for schools to follow.

The 8 Benchmarks are:

1. A stable careers programme
2. Learning from career and labour market information
3. Addressing the needs of each pupil
4. Linking curriculum learning to careers
5. Encounters with employers and employees
6. Experiences of workplaces
7. Encounters with further and higher education
8. Personal guidance

**Careers Provision:** Careers provision refers to the range of services, programmes, and resources provided by schools and colleges to support students in making informed decisions about their future careers. This includes career education, information, advice, and guidance, ensuring students are well-equipped to enter the workforce or pursue further education.



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