

40 by 40: Gender equity in engineering and technology education



A blueprint for action





About this paper

Women¹ are grossly underrepresented in the engineering and technology workforce and the pathways into those sectors. The reasons for this are complex. Potential solutions stretch into family life, the workplace, and businesses, including media and technology companies.

This paper focuses on solutions within the education system as a crucial starting point for equity. It presents a blueprint for action by government to address educational barriers that limit girls' and young women's access to, interest in and enjoyment of the subjects that open pathways into engineering and technology careers. Our policy analysis is focused on England, but many themes will be transferrable to Scotland, Wales, and/or Northern Ireland.

This paper was written by EngineeringUK on behalf of the Gender Pathways collective². The collective is a group of around 60 organisations founded by EngineeringUK, BCS, The Chartered Institute for IT, the Royal Academy of Engineering, Women in Science and Engineering (WISE), and the Women's Engineering Society (WES). The core group that currently leads the collective also includes the British Science Association, Capital City College, Digit<all>, Orbyts, Tech She Can, and UCL.

Together we are working to significantly increase the number of girls and young women in education pathways to engineering and technology.

By 2040, we want to see young women making up at least 40% of young people on these pathways³ by the age of 18

¹ We write about female pupils and learners, or girls and women – as compared with male pupils and learners, or boys and men. We recognise that gender is not binary. However, this language reflects the categories captured in the majority of studies we cite.

² [More information about the Gender Pathways collective](#)

³ The education pathways into engineering and technology we refer to include:

- Relevant optional STEM subjects at GCSE level
- post-16 education up to the age of 18 including relevant STEM A Levels, T Levels and vocational qualifications
- further detail can be found in the supporting [evidence paper](#)



Only 17%
of the UK workforce
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and technology-
related occupations
are women⁸

Change is needed

Almost every part of our economy and society benefits from a thriving engineering and technology sector. Many of the government's ambitions, and related regional growth areas and growth sectors, rely on it for their success. However, workforce shortages risk the delivery and quality of projects and increase their costs.

Raising the number of women in the engineering and technology workforce will help bring the innovation and productivity dividend that comes with increased diversity. Research commissioned by the Women in Tech Taskforce estimates that fully addressing the underrepresentation of women in the digital economy could increase UK GDP by around £4 billion a year⁴. It would also correct an inequity in earnings and help close the gender pay gap.

Across the economy, women are concentrated in lower paid sectors⁵. Engineering and technology related occupations yield almost 29% higher salaries than average⁶, equivalent to £9,000 per year.

We estimate that 240,000 people are needed to join the engineering and technology workforce each year up to 2030. If 50% of workforce entrants were women, they would collectively earn around £1 billion more every year, compared with them going into other roles⁷.

However, 2026 analysis finds that only 17% of the UK workforce in engineering and technology-related occupations are women⁸.

Improving women's participation in engineering and technology is vital for the health of these sectors and consequently the UK economy. And ensuring that more young women are on relevant pathways into careers in engineering and technology will be the first measure of success.

"We estimate that 240,000 people are needed to join the engineering and technology workforce each year up to 2030."

⁴ [The Economic Impact of Equal Opportunities in the Digital Economy report](#)

⁵ [Women and Employment briefing 2026](#)

⁶ [Engineering skills needs, Lightcast and EngineeringUK, 2023](#)

⁷ [How much could women earn in engineering and technology roles if they were employed in equal numbers to men, EngineeringUK 2026](#)

⁸ [Women in engineering and technology infographic dashboard, EngineeringUK](#)

Inequities in the education system

Girls are significantly underrepresented in academic and vocational pathways into engineering and technology⁹. In 2026, only:

- **22.8%** of Computing GCSE entries were by girls (England, Wales and Northern Ireland, 2026)¹⁰
- **23.7%** of Physics A Level entries were by girls (England, Wales and Northern Ireland, 2026)¹¹
- **18.9%** of Computer Science A Level entries were girls (England, Northern Ireland and Wales, 2026)¹²

Gender imbalances are particularly pronounced in many vocational pathways:

- Among 16- to 18-year-olds taking engineering and technology-related vocational qualifications (other than T Levels) in England in 2024/25, **12.5%** were girls¹³

- **13%** of engineering and tech-related T Level students were female (England 2026). This varied by course: from 2% for Building Services Engineering for Construction and 5% for Onsite Construction, to 33% for Agriculture, Land Management and Production and 87% for Craft and Design¹⁴
- **10.5%** of 2024/25 engineering and technology apprenticeship starters up to 24 years old were young women (England, 2025), highest in Digital Technology (24%) and lowest in Engineering and Manufacturing and Construction (8 to 9%)¹⁵

There are also signs that girls' needs are not being met in the education system more broadly. **Girls' pass rates for English and maths GCSEs fell between 2019 and 2025, while boys' pass rates in the same subjects rose during this period** – albeit pass rates for girls are still higher than boys. The fall in pass rates was greater

for socio-economically disadvantaged¹⁶ girls, and most of all for those in the same group who are also white British¹⁷.

Evidence suggests that inequities set in early. Gender differences in interest in engineering careers start in primary schools¹⁸. **Among 11- to 18-year-olds, only 29% of girls as compared with 63% of boys said they were interested in a future career involving engineering**¹⁹.

Girls also report lower awareness of the variety of engineering careers, and show signs of lower confidence compared to boys – despite good attainment in engineering and technology-related subjects. Sexism, stereotypes and misogyny can play into this. A 2025 survey found that **43% of girls aged 11 to 16 expected it would be hard to progress in male-dominated industries. This rose to 66% among 17- to 21-year-olds**²⁰.

Only 13%
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⁹ See footnote 3

¹⁰ GCSE, VET and Scottish National 5 results day briefing 2026, EngineeringUK

¹¹ A Level and Scottish Highers results report 2026, EngineeringUK

¹² See footnote 11

¹³ Context setting paper: gender pathways into engineering and technology, EngineeringUK

¹⁴ T Levels and VET results 2026, EngineeringUK

¹⁵ EngineeringUK analysis of the Department for Education's apprenticeships data

¹⁶ Defined as those accessing free school meals in the 6 years prior to the data collection, or those in care

¹⁷ Warning over grades for white working class girls, BBC File on 4 Investigates, 2026

¹⁸ ASPIRES 2: Young people's science and career aspirations, age 10 to 19, Archer, L., Moote, J., MacLeod, E., Francis, B., & DeWitt, J., 2020, UCL Institute of Education

¹⁹ Science Education Tracker 2023, The Royal Society and EngineeringUK, 2024

²⁰ Girls' Attitudes Survey 2025, Girlguiding

Making change happen



Change is possible

Representation of women has noticeably increased in other sectors, such as medicine²¹ and law²². There is great potential to challenge narrow stereotypes and widen the pool of people who are interested in engineering and technology careers²³, making it a sector that appeals to young women as well as young men.

Engineering and technology roles are extremely varied²⁴, requiring a wide range of skills, and can therefore provide a rewarding career for

many different people. From robotics in healthcare to the design and maintenance of physical infrastructure, many engineering and technology roles have great social value.

Engineering and technology sectors are also evolving rapidly²⁵. For example, there is reduced need for in-person delivery, and many roles are less physically demanding than in the past²⁶. This increases the potential for a greater variety of people to move into these roles.



²¹ Effect of sex on specialty training application outcomes: a longitudinal administrative data study of UK medical graduates, Woolf K, Jayaweera H, Unwin E, et al. (2019)

²² Diversity in law firms' workforce, Solicitors Regulation Authority, 2026

²³ Exploring the Impact of Social, Cultural, and Science Factors on Students' STEM Career Preferences, Research in Science Education, Springer Nature Link, 2024

²⁴ This is Engineering

²⁵ Old Skills, New Skills – what is changing in the UK labour market? Institute for the Future of Work, 2024

²⁶ Women in construction: Striving for equality on site, Ground Engineering, 2026

Our recommendations to government

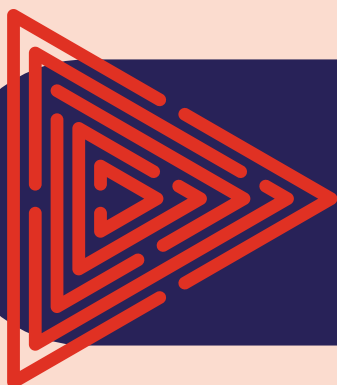
Recent announcements suggest that government is aware of the need to address ongoing gender imbalances across the workforce. For example, the Department for Business and Trade's (DBT's) 2025 Modern Industrial Strategy promised initiatives to improve workforce diversity. And in December 2025, the Department for Science, Innovation and Technology (DSIT) set up the Women in Tech Taskforce to drive action to improve diversity in the UK technology sector. There are a small number of government-funded programmes that look to address the unequal take-up of maths and computing at GCSE and A Level, such as I Belong, run by the National Centre for Computing Education (NCCE), and the Advanced Mathematics Support Programme, led by MEI.

However, overall policy emerging from the Department for Education (DfE) has lacked focus on the issue of gender equity²⁷ in STEM (science, technology, engineering and maths) education pathways, the first steps on the ladder to a career in engineering and technology.

Government must embed long-term, sustainable interventions to improve gender equity in the education and skills system and youth support more widely²⁸.

The Women and Equalities Unit, within the Office for Equality and Opportunity leads on policy relating to gender equality and is well positioned to co-ordinate work by the many departments with engineering and technology education and workforce interests.

The DfE meanwhile, holds many of the policy levers relating to schools and colleges, including oversight of the teaching workforce, curriculum and careers provision.



We recommend that the Office for Equality and Opportunity and DfE together lead the multiple government departments with critical interests in workforce development²⁹ to ensure gender equity

²⁷ For example, *Every child achieving and thriving*

²⁸ We feel these recommendations align with those by the APPG on diversity and inclusion in STEM in their 2020 *Inquiry on equity in STEM education: final report*

²⁹ This includes the Department for Business and Trade as lead department for the Industrial Strategy, the Department for Science, Innovation and Technology given its responsibility for advancing science, innovation and productivity, as well as those with high dependence on the engineering and technology workforce – including the Department for Energy Security and Net Zero, the Ministry of Defence, the Department for Transport and the Department for Environment, Food and Rural Affairs

1. DfE must ensure that teaching and pedagogy support girls on STEM pathways

Teachers influence young people directly every day. Evidence shows that girls are more affected by teaching quality than boys. Teacher shortages are particularly acute in some STEM subjects such as physics. DfE must go further to ensure there are enough specialist STEM teachers, and that teachers can access training and resources to teach STEM subjects in an engaging, gender-inclusive way.

1.1. DfE should require organisations that it funds to develop STEM teaching materials, as well as the awarding organisations, to ensure materials are gender-inclusive and enable engaging pedagogy

There will be an opportunity to refresh teaching materials in light of newly re-written curriculum documents following the Curriculum and Assessment Review, and new content for V Levels and post-16 Level 2 pathways. DfE should ensure that pedagogical resources build on evidence about what engages a variety of learners, including girls. They should encourage organisations developing materials to test them to ensure their appeal and impact across various demographic groups.

1.2. DfE must provide adequate funding and support to recruit, develop and retain STEM teachers, addressing ongoing teacher shortages in STEM subject areas

DfE should commit to retaining Initial Teacher Training bursaries for STEM subjects and work with subject-specific organisations, such as the Institute of Physics (IOP) or the Association for Science Education (ASE), to identify further action needed to attract and support teachers. This includes reversing DfE's decision to cut its funding of STEM specific continuing professional development (CPD) for teachers.

1.3. DfE must develop and invest in initial teacher training, school leadership development and CPD that enables teachers and leaders to recognise and challenge gender stereotypes, sexism and misogyny

Initial teacher training as well as ongoing CPD programmes must provide teachers with the tools to enable them to use more equitable pedagogical approaches in their teaching, including unconscious bias training. In light of this, we welcome funding to support teachers to tackle misogyny, announced in the Home Office's December 2025 cross-government strategy, 'Freedom from violence and abuse'. We ask that this funding and approach to tackling violence and abuse is extended (assuming evaluation results demonstrate impact).

1.4. DfE must ensure that the curriculum and assessment arrangements for STEM subjects create greater opportunities for high quality practical and project-based learning, and provide schools with the time, resources and professional development needed to deliver these effectively

Practical STEM activities are a major attractor for children, with slightly more girls (54%) than boys (50%) selecting practical work as the most likely reason for feeling encouraged to learn science at school³⁰. However, there has been a decline in hands-

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³⁰ See footnote 19

on practical work in science in England: 26% of students in years 10 to 11 reported doing hands-on practical work at least fortnightly in 2023, down from 44% in 2016³¹. The crowded curriculum, combined with the size of GCSE courses and their focus on end-of-course assessments, has reduced opportunities for practical work, laboratory activities, and project-based learning across STEM subjects.

2. DfE must work with other relevant departments to ensure gender-equitable delivery of engineering and technology careers guidance, enrichment and work experience

Evidence shows that sustained engagement with STEM activities throughout education benefits young people – from early associations with STEM in primary school, through identity formation in adolescence, to making informed career decisions³². Yet, 30% of school or college careers leads responding to an EngineeringUK survey in 2024, reported that girls have a lower take-up of STEM-related careers activities compared to their peers³³ and generally score lower than boys in terms of their career readiness³⁴. To ensure that all young people benefit from careers education that challenges gender (and other) stereotypes, we ask the government to consider the following actions.

2.1. DfE and the Department for Digital, Culture, Media and Sport (DDCMS) should work with schools and other organisations delivering government-funded enrichment activities, to ensure high-quality STEM activities are equally accessible by all students, making sure that under-represented groups, including girls, are not excluded

Government announced in June 2026 that the £132.5 million Every Child Can programme will fund enrichment activities within schools and in communities including those relating to 'life and future skills'. We welcome DfE's Enrichment Framework, which makes clear that enrichment activities should include STEM activities and that schools must ensure these are accessible and engaging for all pupils. These opportunities have great potential to engage young people who might not otherwise have access to STEM activities. They can also help spark girls' interest in STEM subjects and careers. There is a risk, however, that without clear communication and oversight, STEM activities, especially those relating to engineering and technology, are not selected for or by young people from groups under-represented in the sector, including girls. Government must ensure that activities are inclusive by design, monitor uptake and test them to ensure appeal and impact across demographic groups³⁵.

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³¹ See footnote 19

³² Sustained STEM Engagement framework, EngineeringUK, 2026

³³ Advancing STEM careers provision in England, EngineeringUK, 2025

³⁴ Careers Education 2022/23: Now & Next, The Careers & Enterprise Company, 2024

³⁵ See EUK Education for free accessible STEM career resources

³⁶ First Clean Energy Jobs Fair held at Port of Tyne, GOV.UK press release, 2025

2.2. Alongside DfE and DDCMS, other relevant departments should be investing in high-quality STEM enrichment and careers activities and work with their stakeholder employers to support projects which promote gender balance in the education pipeline into engineering and technology

DSIT's investment in TechFirst and the Ministry of Defence's investment in regional STEM projects are exemplars for other departments. We believe that government provision across departments should enable sustained engagement of STEM enrichment and careers activity and include a baseline that guarantees a Key Stage 3 STEM enrichment and careers day in all schools to ensure that every student is reached. It is also essential that UK Research and Innovation funds the STEM Ambassadors programme with a £5m per annum investment, reversing recent cuts in funding to £4m. We welcome the government's support for careers fairs for older groups, such as recent Clean Energy Jobs Fairs³⁶ and Youth Guarantee Fairs³⁷, and ask that these are designed to be gender-inclusive and convey the breadth of roles and workforce growth in engineering and technology. Engineering and technology content should be tested to ensure its appeal and impact across demographic groups³⁸. Existing structures like the Construction Skills Mission Board and the Advanced Manufacturing Equality Charter and associated Make UK led taskforce should consider gender balance in education pathways as part of their work.

2.3. DfE must continue to support Careers Hubs and extend the support they provide into primary schools to ensure children have careers information that helps tackle gender (and other) stereotypes at an early age

Girls in secondary schools typically score lower than boys on measures of career readiness. This is concerning because careers information has been shown to reduce gender stereotypes, with girls with the highest career readiness being twice as likely to be interested in an engineering career³⁹. Primary school careers activity should build on findings from the Careers & Enterprise Company's 'Start Small, Dream Big' programme⁴⁰.

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2.4. DfE, the Department for Work and Pensions (DWP) and DDCMS must ensure careers advisors working inside and outside schools and colleges have the CPD necessary to convey the breadth of modern engineering and technology careers effectively to girls and boys

DfE funds the Careers & Enterprise Company to support careers infrastructure and to train careers leaders in schools and colleges. Government-funded careers guidance for young people outside schools includes that given at DWP's Youth Hubs and at Young Futures Hubs. It is vital that careers advisors and leaders have the training necessary to engage under-represented groups, including girls and young women, effectively and provide advice without bias.

³⁷ First Youth Guarantee jobs fair brings big employers together to unlock opportunities for young people, [www.gov.uk press release, 2026](https://www.gov.uk/press-releases/2026)

³⁸ See EUK Education for free accessible STEM career resources

³⁹ See footnote 32

3. DfE must work with other departments, including the Office for Equality and Opportunity, to foster a culture of gender equity in schools and colleges

Achieving greater gender balance in the uptake of STEM subjects in schools relies on the culture of a whole school or college being equitable. Environments where stereotypes are challenged should result in more young people making a non-gendered choice, including more girls taking engineering and technology related subjects or courses. Additionally, building a stronger evidence base about interventions would help improve the cost-effectiveness and impact of government (and other) spending⁴¹.

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3.1. We recommend that government funds the creation of a new STEM-focused Research and Change Centre. The Centre would increase the evidence and provide capacity-building activities that deliver more diverse young people entering and progressing on pathways into engineering and technology careers. The estimated cost would be £2 million per year for 5 years

A dedicated research and change centre would conduct, synthesise and translate critical research and impact to improve diversity in STEM participation and progression. For example, the research and change centre would identify how, where and when interventions might be most usefully targeted. It would develop and test delivery resources and models and coordinate, disseminate and scale best practice across the sector.

3.2. DfE should work with the Gender Pathways collective and other relevant partners to roll out a whole-school gender equity programme for schools

DfE should build on the Improving Gender Balance trial it funded – a cluster-randomised controlled trial which found a whole-school approach increased the number of girls who took Physics A Level. We recommend that DfE roll out the approach to a broad sample of primary and secondary schools at an associated cost of £6-8 million, evaluating for wider effects on subject and enrichment activity uptake as well as school culture.

3.3. We urge DfE, as it develops the Pupil Engagement Framework, to include guidance to schools about a whole-school approach to gender equity

A feeling of safety and belonging at school is crucial and evidence shows this is missing for many girls. Many organisations⁴² are looking at the value of whole-school approaches to improve school culture in every aspect, including leadership, teaching and extra-curricular activities. We urge DfE to embed the learnings from the Improving Gender Balance Randomised Control Trial into the framework and provide guidance to schools about a whole-school approach to gender equity alongside this.

⁴⁰ Start Small; Dream Big Primary Pilot Final evaluation report, Department for Education and The Careers & Enterprise Company, ImpactEd Evaluation, 2025

⁴¹ EngineeringUK's Tomorrow's Engineers Code check-in findings 2024/2025. Only 17% of 168 organisations involved in engineering and technology activities in 2024/25 said they used trained independent evaluators to monitor and evaluate their STEM outreach activities. Many identified improving their impact as something that they would like more support with

⁴² This includes the End Violence Against Women Coalition, UK Feminista, The Children's Society and more

3.4. DfE should work with the Office for Equality and Opportunity to develop a single updated set of guidance to schools and colleges about how they should fulfil the requirements of the Equality Act, including the Public Sector Equality Duty

DfE's guidance to schools about the Equality Act, which Ofsted's Inspection Toolkits link to, was last updated in 2014. Guidance from other bodies, such as the Equality and Human Rights Commission, is dispersed and does not appear to be easily accessible to schools. A single set of guidance would be more digestible. Updates could showcase current best practice and the latest evidence, and would signal that government sees this as a priority.

3.5. We urge DDCMS and the Women in Tech Taskforce to review these recommendations as part of their forthcoming work, ensuring they are considered alongside the Taskforce's wider ambitions and objectives

The Women in Tech Taskforce's remit is to examine and address the systemic barriers to women's participation in the tech sector, shaping government action and driving industry commitment. The work of the group is structured around 3 pillars: leading in tech, staying in tech, and getting into tech. The latter includes a focus on education, training and outreach, and is scheduled to be addressed later this year.

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The organisations who have supported the development of this blueprint for action include:

- Apps for Good
- Association for Science Education (ASE)
- BCS, the Chartered Institute for IT
- British Science Association
- Capital City College
- Digit<all>
- EDT (Engineering Development Trust)
- EngineeringUK
- EqualEngineers
- Equinor
- Gender Action (DECSY)
- Get with the Program
- The Harris Federation
- The Institution of Mechanical Engineers (IMechE)
- IRIS the Institute for Research in Schools
- Institute of Physics (IoP)
- Mathematics in Education and Industry (MEI)
- National Grid
- North East Institute of Technology (NEIoT)
- The Ogden Trust
- Orbyts
- Pearson
- Project Earth
- Royal Academy of Engineering
- SheCanEngineer
- SSERC
- STEM Learning
- STEMAZING
- Stemettes
- Tech She Can
- The Challenge Academy Trust (TCAT)
- The Institution of Engineering and Technology (IET)
- Towards Vision
- UCL Institute of Education
- UK Electronics Skills Foundation (UKESF)
- The Women's Engineering Society (WES)
- WISE, Women into Science and Engineering



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