Investing in the future: EngineeringUK policy priorities

EngineeringUK
INSPIRING FUTURES TOGETHER

About EngineeringUK

We are a not-for-profit organisation working in partnership with the engineering and technology community to inspire tomorrow's engineers. Our mission is to **enable more young people from all backgrounds to be informed, inspired and progress into engineering and technology**. We work across 4 strategic strands:

Research and evidence
Establishing the composition of the current engineering, technology and technician workforce, future workforce needs and how to address them

Leadership
Leading efforts to grow the collective impact of all engineering and technology inspiration and careers activities with young people of school age

Activities for schools
Expanding EngineeringUK's engagement to encourage more, and more diverse, young people into engineering, technician and technology roles

Advocacy
Providing advocacy and support to address policy and delivery challenges in STEM and careers education as well as workforce planning for engineering and technology

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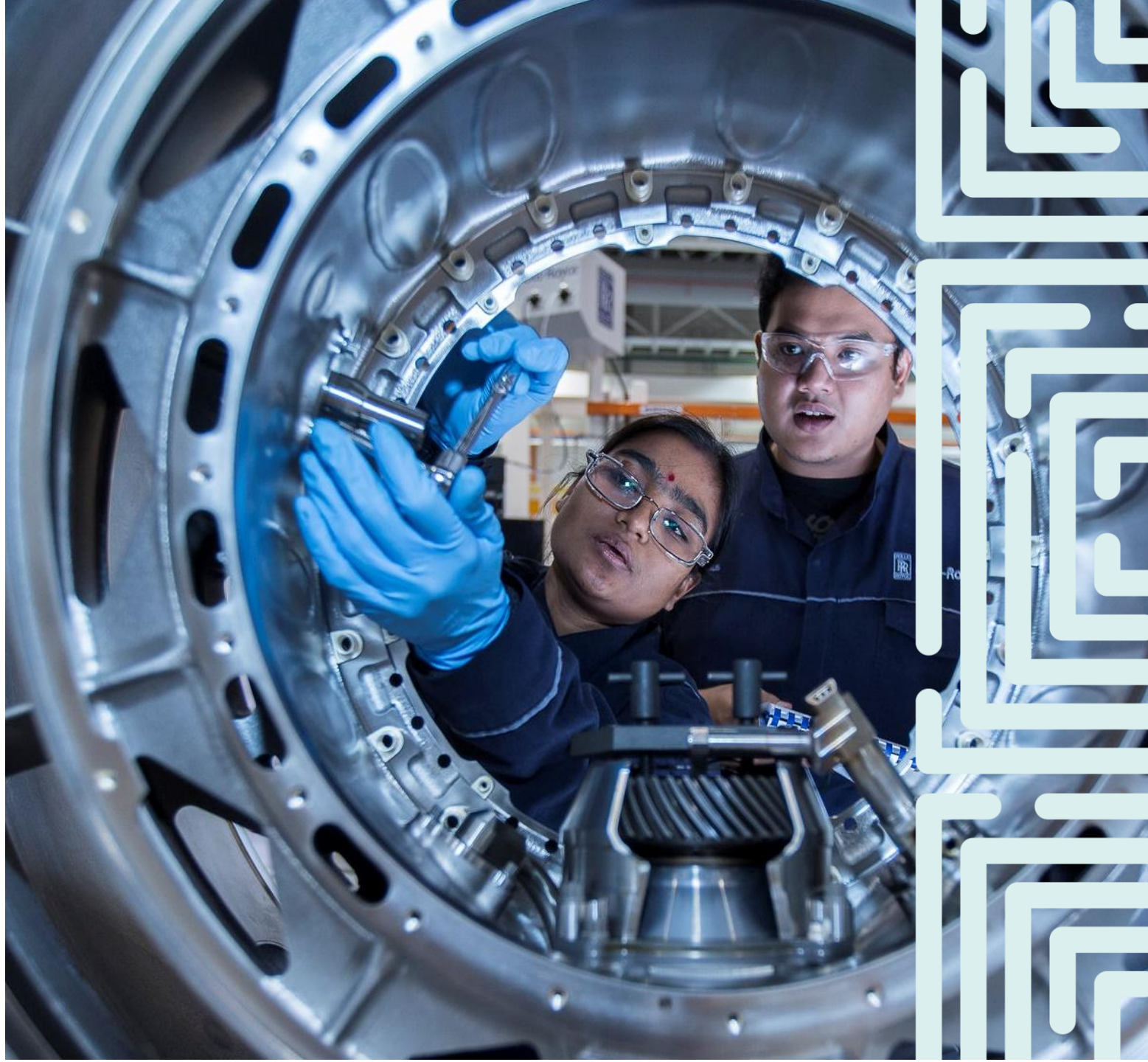
Why do **engineering skills** matter?



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State of the nation

Demand for engineering skills is soaring across all sectors.

But we lack the supply to kickstart economic growth and make Britain a clean energy superpower.

Engineering jobs to grow in all UK regions between **now and 2030 – faster than other occupations**

1 in 5 jobs in the UK are in engineering (19%), yet **engineering vacancies account for 1 in 4 of all job adverts** in UK (25%)

STEM subjects are popular in school, but **engineering barely features on the curriculum**. Entry to D&T GCSEs declined in England by 67% between 2011 and 2023

Up to 725,000 net new jobs could be created by 2030 in low-carbon sectors such as buildings retrofit, renewable energy generation, and the manufacture of electric vehicles

49% of businesses surveyed in 2021 experienced **difficulties in the skills available to them** in the external labour market when they tried to recruit

Engineering and tech skills needed across the Industrial Strategy priority sectors from advanced manufacturing and digital technologies to defence and clean energy

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Who works in engineering and technology?

Despite some improvements, a lack of workforce diversity persists

56% of overall workforce

16.9% of engineering workforce

Percentage of **women** in engineering and technology workforce compared with overall workforce

18% of overall workforce

14% of engineering workforce

Percentage of employees from **UK minority ethnic groups** in engineering and technology workforce compared with overall workforce

18% of overall workforce

14% of engineering workforce

Percentage of employees with a **disability** in engineering and technology workforce compared with overall workforce

26% of overall workforce

24% of engineering workforce

Percentage of employees from **poorer** socioeconomic **backgrounds** in engineering and technology workforce compared with overall workforce

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EngineeringUK's **policy priorities**

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Our policy priorities

STRATEGIC WORKFORCE PLANNING

Take a strategic approach to engineering and technology workforce planning to deliver the diverse workforce of tomorrow

Forthcoming sector skills plans must link to a holistic STEM education and skills strategy that breaks down barriers for under-represented groups, particularly women and girls, with Skills England driving its implementation.

HOLISTIC STEM EDUCATION and SKILLS STRATEGY

Deliver on careers provision

Publish a long-term careers strategy. Commit sufficient funding to improve careers advice infrastructure in schools and colleges across England and implement 2 weeks' work experience for every student.

Breakdown barriers to technical and vocational entry routes for all young people

Grow and sustain the number and diversity of young people taking engineering apprenticeships. Support STEM employers, particularly SMEs, to scale up the supply of apprenticeships and industry placements for T Level students.

Future-proof the curriculum

Develop a curriculum that is inclusive by nature and equips all young people with digital and mathematical skills. It must enable them to keep up with technological advances in an increasingly data-rich world, and to comprehend the science, engineering and technology behind global challenges.

Address STEM teacher shortages and invest in subject-specific CPD

Take decisive action to address the serious STEM teacher shortages facing schools. Alongside recruitment initiatives, there must be strong focus on improving the retention of existing teachers.

Strategic workforce planning overview

We ask government to take a strategic approach to engineering and technology workforce planning. This includes a holistic view across the skills and people elements of the Industrial Strategy sector plans. This would drive evidence-based collaboration on common vocational and academic pathways to grow the workforce we need, rather than competition between the sectors.

We welcome co-operation between Skills England, the Industrial Strategy Council, the Department for Work and Pensions and the Migration Advisory Committee. We ask that they:

- Regularly 'back-cast' to identify the number of students required to enter an engineering and technology pathway
- Focus on enhancing diversity within the STEM workforce
- Align their approach across the devolved nations
- Link sector skills plans with a STEM education and skills strategy to deliver a diverse workforce
- Apply a holistic 'systems approach' that recognises the interdependencies between different industries.

The government has named 8 growth-driving sectors in its November 2024 Industrial strategy green paper. There are synergies between some – including advanced manufacturing, clean energy industries, defence, and digital and technologies.

Previously there were a number of government-led taskforces such as the National Manufacturing Skills Taskforce, UK Shipbuilding Skills Taskforce, the Transport Employment and Skills Taskforce and the Nuclear Skills Taskforce, which led to a fragmented approach.

Our key stats infographic gives an overview of the engineering workforce.

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Strategic workforce planning recommendations

FOR ACTION
By end of 2026

SKILLS ENGLAND PROVIDES

- A regular national labour market forecast with anticipated skills shortages
- Regular 'back-casting' to identify the number of students required to enter an engineering and technology pathway including STEM subject A levels, T Levels, apprenticeships or BTECs
- Insights into the needs for reskilling and upskilling across different sectors of the UK economy

…and uses this information to develop a STEM education and skills strategy.

FOR ACTION
Current Parliament and beyond

ONGOING COLLABORATION

Establish mechanisms to make sure ongoing collaboration on skills shortages across all relevant government departments:

- Treasury to adopt a view of education and skills expenditure as an investment in long-term growth, similar to infrastructure investment
- Department for Education to use Skills England's insights to articulate theories of change to identify how key skills shortages might be addressed. This should include identifying and costing policies to gain Treasury's buy-in.

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Holistic STEM education and skills strategy overview

We call for action in 4 key areas

Deliver on careers provision
Publish a long-term careers strategy. Commit sufficient funding to improve careers advice infrastructure in schools and colleges across England and implement 2 weeks' work experience for every student.

Breakdown barriers to technical and vocational entry routes for all young people
Grow and sustain the number and diversity of young people taking engineering apprenticeships. Support STEM employers, particularly SMEs, to scale up the supply of apprenticeships and industry placements for T Level students.

Future-proof the curriculum
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Address STEM teacher shortages and invest in subject-specific CPD
Take decisive action to address the serious STEM teacher shortages facing schools. Alongside recruitment initiatives, there must be strong focus on improving the retention of existing teachers.

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Technical and vocational entry routes: overview

Breakdown barriers to technical and vocational entry routes into engineering and technology for all young people

Ensure the apprenticeship system is fit for the future by growing and sustaining the number and diversity of young people accessing engineering apprenticeships.
Support STEM employers, particularly SMEs, to scale up the supply of apprenticeships and industry placements for T Level students.

Sources
Lord Willets and Lord Knight with EngineeringUK, Fit for the Future (October 2023); EngineeringUK, Apprenticeships Pathways into Engineering (Nov 2024); EngineeringUK, T Level results 2024 (August 2024); NAO, Investigation into introducing T Levels (Mar 2025)

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Decline in apprenticeship starts
The overall number of engineering-related apprenticeship starts dropped by 9% between 2014/15 and 2023/24 and remain below pre-pandemic levels (-6.3% since 2018/19).

Lower-level apprenticeships
Engineering-related Level 2 apprenticeship starts have fallen by more than half (52%) since 2017/18, and by 8.7% between 2022/23 and 2023/24 alone.

Age
The proportion of engineering-related apprenticeship starts by under-19s continues to drop, falling from 41% of engineering apprentices in 2017/18 to 36% in 2023/24. At the same time, the share of starts by people aged 25 or above increased from 24% in 2017/18 to 33% in 2023/24.

Gender
Female starts accounted for 17% of engineering-related apprenticeships in 2023/24, an increase of 90% since 2017/18. Meanwhile, female students accounted for just 9% of the cohort completing engineering and technology T Levels in 2024, in contrast to 44% across all T Level courses.

Supply of T Level industry placements
98% of students completing a T Level in 2024 fulfilled the 45-day industry placement requirement. However, constraints on teachers and employers grow as enrolment increases, with DfE projecting that there could be around 6,500 students per year without an industry placement by 2027/28, based on employer survey data

Technical and vocational entry routes: recommendations

FOR ACTION
By end of 2026

APPRENTICES

Levy: Improve transparency and trust in the funding framework by publishing clear and accessible data on the Apprenticeship Levy and the Apprenticeships Budget.
Foundation apprenticeships: Provide clarity on which groups foundation apprenticeships are for, what problem they address, how they fit into the wider skills system, and whether they can work for the engineering and tech sector.
Functional skills support: Explore how English and maths assessment routes could be re-shaped for under-19s so young people are sufficiently supported to access apprenticeships.

T LEVELS

Awareness: Build on work with the engineering community to raise awareness of T Levels amongst employers, students and parents.
Alternative pathways: Maintain funding for BTECs and other Level 3 technical pathways as alternative routes to T Levels.
Support for SMEs: Keep under review financial incentives for employers to support their engagement in T Level industry placements, particularly SMEs.
Digital Apprenticeships Service (DAS): Explore how to replicate or expand the DAS to cover T Level placements.

FOR ACTION
Current Parliament and beyond

GOVERNMENT SHOULD PROVIDE

Direct funding for 16- to 18-year-old apprentices: Move towards a new model of directly funding apprenticeship training for young people between the ages of 16 and 18 (as with other FE funding for these ages) by re-directing unallocated apprenticeship levy funding.
Enable businesses: Enable SMEs to play an active role in apprenticeships by reforming the apprenticeship standard system to make sure it works for small and large employers and ensuring the funding system supports the delivery of resource-intensive courses.
Further education: Ensure that colleges and Independent Training Providers (ITPs) have the funding, facilities and workforce needed to deliver high-quality STEM technical education courses.
Support young people: Develop a package of support for apprentices (and T Level students) up to the age of 25 in entry level and low paid work that addresses barriers such as travel and access costs, in partnership with local and combined authorities.
Group Training Associations: Enable the roll-out of more Group Training Associations (GTAs) and continue funding existing GTAs, which support engineering SMEs with the recruitment of apprentices, training and access to levy funds.

Careers provision overview

Deliver on careers provision

Publish a long-term careers strategy, linked to a work experience strategy. Commit sufficient funding to improve careers advice infrastructure in schools and colleges across England and implement meaningful 2 weeks' work experience for every student.

Sources

Advancing STEM careers provision in England report (2024); School report – What teachers know and think about routes into engineering (2025); Careers Education 2022/2023: Now and next (The Careers and Enterprise Company)

- **Time** 91% of schools surveyed have a designated careers leader, but only 22% are given a full week to focus on careers
- **STEM engagement** Only 43% of young people took part in a STEM activity (other than a lesson) at school in 2023 and only 15% of young people of work experience age did STEM-related work experience
- **Careers education** Students in schools with higher quality careers provision are more likely to be interested in areas of labour market need
- **Work experience** 43% of schools need more practical support
- in finding quality STEM placements
- **Employer engagement** Only 57% of schools engage with STEM employers annually, limiting real-world exposure for students
- **Participation gaps** Female students, those from lower socioeconomic backgrounds, and SEND students are less likely to engage in STEM
- **Clarity around pathways** Nearly half of teachers surveyed indicated that they were not confident in advising young people into vocational or technical pathways into engineering

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Careers provision recommendations

FOR ACTION
By end of 2026

Long-term careers and work experience strategies
Commit to publishing a new careers strategy, alongside a clear plan for how to deliver 2 weeks of work experience for every pupil. Reaffirm the £85m budget promised for careers provision and work experience rollout and outline mechanisms for fulfilling the Labour Manifesto commitment to train 1,000 new careers leaders.

Teacher training/Continuous Professional Development (CPD)
Ensure that STEM teacher training and CPD includes a comprehensive package of information and training on careers in modern engineering and technology.

Foster closer collaboration with industry
Establish mechanisms to support closer collaboration between engineering and tech employers and education providers. Increase industry placements, work experience opportunities and outreach activities, and enable more young people to gain insights into the diverse careers opportunities available.

FOR ACTION
Current Parliament and beyond

Careers within the curriculum
Fully embed careers into the STEM curriculum and ensure it highlights the diverse range of roles and people in science, engineering and technology careers

Report annually on progress
Publish annual reports against the actions set out in the new careers and work experience strategies.

Monitor impact on staffing and time constraints
Establish a systematic review of funding to ensure that it is sufficient to enable schools to allocate more time for their designated careers leader to focus on developing a broad range of STEM-focused activities.

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Teacher recruitment, training and retention overview

Address STEM teacher shortages and invest in subject-specific CPD

Take decisive action to address the serious STEM teacher shortages facing schools. Alongside recruitment initiatives, there must be strong focus on improving the retention of existing teachers. Ensure that STEM teachers have the subject-specific training and CPD needed to deliver quality learning for young people.

Sources

DfE, School workforce in England (2024); Wellcome Trust, 'Solving the STEM shortage: CPD improves science teacher retention' (2017); Royal Society, Science education for a research and innovation economy (2022); DfE, 'Specialist teachers in state funded secondary schools' from 'School workforce in England' (2023); School Report, Teacher Recruitment and Retention

Recruitment targets not met

STEM teacher recruitment targets, despite some recent improvements, continue to be missed. For physics, only 31% of the target was met.

ITT bursaries

When asked about the impact of a bursary in becoming a teacher, around 75% of respondents to our School Report survey who had received one said it had positively impacted their decision.

Non-specialists teaching

80% of engineering secondary school teaching hours for engineering were delivered by a non-specialist in the 2022/23 academic year.

Investment in Continuous Professional Development saves on recruitment

As well as supporting specialist and especially non-specialist teachers, Wellcome found STEM-specific CPD increases the odds of STEM teachers staying in the following year by 160%. The Royal Society estimated a 1.5% improvement in teacher retention would mean 8,800 teachers from each annual cohort remain in the profession until retirement. This would save at least £126m in recruitment and training costs.

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Teacher recruitment, training and retention recommendations

FOR ACTION
By end of 2026

Retain ITT Bursaries for STEM subjects
Commit to retaining – and where necessary, increasing – Initial Teacher Training Bursaries for STEM subjects.

Invest in CPD
Reverse cuts to STEM teacher CPD and publish detail on the proposed 'Teacher Training Entitlement' programme at the earliest opportunity.

Pursue initiatives aimed at career switchers
Work closely with the learned societies and the wider STEM sector to develop and improve programmes and campaigns that encourage and enable more STEM professionals to move into teaching.

FOR ACTION
Current Parliament and beyond

Embed flexible working practices and increased support for teachers within the system to improve wellbeing and workload
Government should commit to producing a teacher workload reduction strategy. This should include the commitment to more flexible working arrangements and pilot-testing different ways to improve STEM teacher recruitment and retention, such as pooled teaching resources across schools.

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School curriculum overview

Future-proof the curriculum
Develop a curriculum that is inclusive by nature and equips all young people with digital and mathematical skills. It must enable them to keep up with technological advances in an increasingly data-rich world, and to comprehend the science, engineering and technology behind global challenges.

Sources
Science Education Tracker 2024, The Future of Computing Education, The future of GCSEs (2020)

Stratifying science
There are clear issues with the participation of particular groups of learners in triple science compared with double science, limited study of science post-16.

Practical work
Female students are more likely to be motivated by practical aspects of science learning including having a good teacher (40% vs 33% of males). They are also slightly more motivated by doing practical work (54% vs 50% of males).

Gender inequity
Only 37% of maths A levels 23% of physics and 17% of computer science A levels are taken by young women.

Assessment system
88.5% of respondents to a survey conducted by the Association of School and College Leaders said GCSEs do not work well for all students. Many said these qualifications are not accessible to a significant proportion of lower-attaining pupils, including many with special educational needs.

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School curriculum recommendations

FOR ACTION
By the end of 2026

Government must ensure that the updated curriculum and assessment system:

- Does not perpetuate gender differences in subject uptake, with the content of qualifications tested for appeal across demographic groups careers
- Provides more space for real-world application approaches in teaching and learning, enabling young people to find out more about how physics, maths, computer sciences and Design & Technology link into the world of engineering
- Embeds careers education across the STEM curriculum
- Enables more young people to showcase their knowledge and skills through a reformed assessment system
- Teaches young people the digital skills required for a more digitised world
- Makes sure young people understand the causes, impact and – crucially – the solutions to environmental problems, particularly climate change.

FOR ACTION
Current Parliament and beyond

Government must ensure that schools have the financial means to support a reformed curriculum and the teaching workforce to deliver it. To ensure successful implementation, government must also ensure that there is, and fund, sufficient and good quality continuous professional development to support teachers with these changes.

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Contact us if you'd like to know more about our policy work

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