

Evidence from the Royal Society of Chemistry to the Education Select Committee concerning the 'Every Child Achieving and Thriving' White Paper

July 2026

Introduction

1. The Royal Society of Chemistry is an international organisation connecting chemical scientists with each other, with other scientists, and with society as a whole. Founded in 1841 and based in London, UK, we have an international membership of around 50,000. We use the surplus from our global publishing and knowledge business to give thousands of chemical scientists the support and resources required to make vital advances in chemical knowledge. We bring people together to spark new ideas and new partnerships and we support teachers to inspire future generations of scientists.
2. The Royal Society of Chemistry is submitting this evidence because an excellent chemistry education is vital for the future of the chemical sciences as well as other sectors. It sets the foundations for progression into further learning and the profession and can be a valuable experience for young people regardless of their career aspirations.
3. This response has been informed by our established policy positions, our own and others' research, discussions with the science learned societies, and members of our wider community of initial teacher trainers and subject knowledge enhancement course providers.

Raising attainment

The Government's ambition to raise attainment, including reducing the disadvantage gap.

4. In our most recent Science Teaching Survey 2026, we asked teachers and technicians what factors have had a detrimental effect on student learning outcomes in the last year (since February 2025). 51% of those in schools with greater than 30% free school meals (FSM) cited a lack of specialist teachers within the sciences, compared to 38% in schools with less than 30% FSM.
5. Teaching requires a complex set of skills and an individual teacher's effectiveness is dependent on a wide range of factors. However, it's vital that teachers have adequate subject-specific expertise for the curriculums they are required to teach. Specialist chemistry teachers are well placed to address students' misconceptions about abstract chemical concepts and effectively incorporate practical activities into their lessons. They can also help students see the relevance of chemistry beyond the classroom, connecting abstract concepts to real-world applications and future opportunities. This can increase engagement, strengthen students' sense of purpose in their learning and support progression into further study and a wide range of careers.

6. Key stage 3 students in schools with greater than 30% FSM are also less likely to experience hands-on practical work experiences compared to their peers in schools with less than 30% FSM (28% vs 19%). Participation in hands-on practical experiences and activities supports students in developing their practical skills, their understanding of theoretical concepts and increase their motivation and enjoyment of chemistry.¹

The proposed reforms to accountability measures, including Progress 8, Attainment 8, and new measures for low and high attainers.

7. The Royal Society of Chemistry has a shared position on broader issues around science education with other partner learned societies, known as the Science Education Policy Alliance (SEPA).² SEPA recognises the inclusion of two dedicated science slots within the new Progress 8 measure as a positive step in strengthening the prominence of the sciences within the curriculum, given the removal of the EBacc measure as recommended in the Curriculum and Assessment Review.
8. Offering only two dedicated science slots within Progress 8 appears difficult to reconcile with the expectation that all schools will provide a triple science entitlement. Without further clarification, schools may receive mixed signals about the relative importance of triple science within accountability measures.
9. We have been working to explore the implications of an entitlement to triple science and explore the barriers to schools – including any implications for accountability as reflected in the Progress 8 proposals.
10. In our most recent Science Teaching Survey 2026, 34% of respondents from schools with greater than 30% free school meals (FSM) anticipate they will need to recruit additional chemistry teachers to provide the triple science entitlement, compared to 20% of those from schools with less than 30% FSM.³ 30% of those from schools with greater than 30% FSM anticipate offering a genuine entitlement to triple science compared to 50% of those from schools with less than 30% FSM. (Note: a 'genuine entitlement' in this case was defined as having no prior attainment barrier, allowing free choice of pathway by students)
11. The potential barriers to offering the triple science entitlement are also exacerbated in areas of socioeconomic deprivation with those in schools with greater than 30% FSM anticipating larger barriers including understaffing of technicians (41 vs 26%), teaching outside of specialism (52 vs 37%) and insufficient funding (48 vs 35%), compared to those in schools with less than 30% FSM.
12. While we support greater access to triple science, we do not consider it the only effective route into post-16 science study. We have previously supported a simplified and more equitable route through GCSE sciences to improve progression opportunities for all students.

¹ Royal Society of Chemistry (2024), [Position statement, Practical Chemistry Education: A vision for practical chemistry in 5-19 education](#)

² [Science Education Policy Alliance \(SEPA\) | RSC Education](#)

³ Unpublished data from the *Science Teaching Survey 2026*, due to be published September 2026. Previous years result can be viewed here: [The Science Teaching Survey 2025](#)

Whether changes to accountability measures will support a broad and balanced curriculum.

13. We would like to understand how the government intends to ensure that choice and breadth are balanced across all disciplines through the proposed changes, and to seek clarity on the rationale for reflecting the triple science entitlement in the Progress 8 measure through the implied third 'breadth' slot. On the latter point, we are concerned about the disconnect between the proposal for two dedicated science slots in the Progress 8 measure, and DfE's intention for all schools to provide a triple science entitlement for students.

How essential skills can be more effectively integrated into the curriculum in order to raise attainment and reduce the number of young people not in education, employment or training (NEET).

14. The Royal Society of Chemistry's *Future Workforce and educational pathways* research started in 2022 as an examination of the workforce involved in the chemical sciences throughout the UK. Since then, we have used quantitative and qualitative data to identify the skills and capabilities needed by the chemical sciences workforce, and the changes required across education and training to ensure a strong pipeline of talent for the future. Our report explains that the number of jobs in the chemistry sector in the UK could grow by 6.5% over the next decade, outstripping the wider labour market by 30%.⁴
15. With such future opportunity likely in the chemical science sector, making sure young people have the skills and knowledge valued by chemistry (and STEM) employers, alongside ensuring appropriate pathways into further study and employment, should contribute towards reducing the number of NEETS. The key skill areas employers want to see in those entering the workforce include sustainability and the green transition, data and new digital technologies, and lab-based skills. Additionally, 12 of the top 20 most common skills mentioned for chemistry roles are transferrable and the sciences present many opportunities to develop these skills, including problem solving and communication.
16. Students consistently tell us that they want more opportunities to learn about real-world issues and interests, including sustainability,⁵ while teachers report that the curriculum feels overloaded and outdated. Giving young people access to practical, hands-on learning that is rooted in the real world is still seen as a key driver in generating positive perceptions of chemistry and a heightened level of interest, therefore these opportunities are regarded as crucial.
17. However, our *Science Teaching Survey 2023* shows that 60% of teachers feel there is insufficient time for practical activities to be taught alongside the theory in the curriculum.⁶ In the same survey, the cost of consumables and chemicals (34%) and a lack of equipment (33%) were identified as top barriers to running practical work. Schools should be supported to provide hands-on practical activities as a part of their curriculum through sufficient funding for consumables and chemicals as well as enough science technicians. In our *Science Teaching Survey 2024*, 41% of respondents said that their mainstream or special school was understaffed for science technicians.⁷ Shortages of school science technicians also make it harder for schools to support practical chemistry. The Government should review science technician pay and conditions, considering what policy measures might help to attract and retain science

⁴ Royal Society of Chemistry (2025), [Future workforce and educational pathways](#)

⁵ Royal Society of Chemistry (2026), [Sustainability in the chemistry curriculum](#)

⁶ Science Teaching Survey 2023, [Underfunding is having a negative impact on science teaching and learning](#)

⁷ Science Teaching Survey 2024. Note: data displayed is for UK/all schools; mainstream data for England is available on request, [Concerning trends in working conditions and staffing levels](#)

technicians in the future. Practical skills are in high demand by employers in the chemistry sector. A lack of time, shortages of staff and funding pressures need to be addressed to ensure these skills are being integrated into lessons and being developed by young people.

18. Since its inception, our Science Teaching Surveys have periodically asked teachers and technicians about their confidence and understanding of skills and pathways into work. In our 2025 edition, when asked about factors that present challenges to your classroom teaching in science, 67% of those in schools with greater than 30% free school meals (FSM) identified limited numeracy skills compared to 49% in schools with less than 30% FSM. Similarly for literacy skills, 68% of those in greater than 30% FSM identified it as a challenge compared to 53% in schools with less than 30% FSM.⁸
19. Our 2024 edition of the *Science Teaching Survey* explored teacher understanding of what employers were looking for in those entering the workforce. 20% of teachers reported that they were unaware of the skills that employers in the chemical sciences are looking for.⁹ We investigated this further through focus groups and found that those who were happy they did know these skills had investigated them independently or had a background of working in these fields before teaching. Our focus group teachers expressed a desire to understand what skills employers were looking for so they can pass on these useful skills to students and explain why they are developing these skills and the use they will be in future.
20. For skills to be thoughtfully and meaningfully incorporated into the curriculum, teachers need to be equipped with the knowledge and understanding of these in-demand skills. They need to be offered high-quality subject-specific professional development to equip them with ideas of how to incorporate skills meaningfully alongside the subject content they are delivering. There also needs to be space in the curriculum to develop these skills. In our most recent Science Teaching Survey 2026, 81% of teachers in state schools in England believe that an overloaded curriculum is having a detrimental effect on student learning outcomes.¹⁰ Curriculum reforms should create sufficient space in the curriculum, particularly at key stage 4, to enable the development of key skills alongside acquiring subject knowledge.

Workforce reforms

The Government's target to recruit 6,500 additional teachers and the feasibility of meeting this commitment.

21. The Department for Education's (DfE) school workforce census and Initial Teacher Training (ITT) application data sets show improvements in teacher recruitment and retention.¹¹ Chemistry ITT applications and acceptances have increased since last year and chemistry is predicted to exceed the recruitment target. However, the improvement is likely to be largely the result of external factors such as a weaker overall labour market and the predicted fall in

⁸ Science Teaching Survey 2025 data set, p.41. *Note: data set displays mainstream school data only. FSM cuts are available on request.* <https://www.rsc.org/getContentAsset/9b2d7948-1460-4017-8bcc-35f2823148eb/f4c91d86-ac3e-4675-bdf3-f8325ded9710/The-Science-Teaching-Survey-2025-full-report.pdf?language=en>

⁹ Science Teaching Survey 2024, [1 in 5 teachers lack awareness of essential skills for chemical science careers](#)

¹⁰ Unpublished data from the Science Teaching Survey 2026, due to be published September 2026. Previous years result can be viewed here: [The Science Teaching Survey 2025](#)

¹¹ DfE (2026) School Workforce in England [Release home - School workforce in England - Explore education statistics - GOV.UK](#), and DfE Initial teacher training application reports [Initial teacher training application reports - Apply for teacher training - GOV.UK](#)

secondary pupil numbers rather than a response to policy changes. If and when the economic situation improves, we expect recruitment to ITT to slow and more teachers to leave the profession.

22. Headline improvements in recruitment data do not necessarily indicate that schools have access to the specialist chemistry teachers that they need (see paragraphs 23 and 24). This combined with the likelihood that schools will need to recruit more teachers in the sciences to staff the Government's proposed entitlement to triple science,¹² means that as James Zuccollo, Director for School Workforce at the Education Policy Institute said in a recent blog post, the sector is 'at risk of failing to fix the roof while the sun is shining'.¹³
23. The latest school workforce census figures show that the percentage of chemistry hours taught by specialist teachers at key stage 4 is the lowest it's been since 2015/16.¹⁴ This is the opposite of what we would expect if science departments were adequately staffed. Our *Science Teaching Survey 2026* suggests that chemistry teacher shortages remain an issue, with 30% of respondents from state funded secondary schools in England reporting that their school was understaffed for chemistry teachers.¹⁵
24. Similarly, the seemingly positive news from the DfE that unfilled teacher vacancies are falling,¹⁶ could be masking under-recruitment as schools 'make do' by relying on non-specialist teachers in the sciences. This could be due to budget pressures and/or schools adjusting their teacher deployment in anticipation of falling pupil numbers. New trainee entries into the state funded sector fell despite ITT entries increasing, which again is the opposite of what would be expected if the reduction in vacancies was genuinely reflective of an increase in supply.¹⁷
25. We believe the Government's decision to defund chemistry Subject Knowledge Enhancement (SKE) courses mid-cycle on 27 March this year was short-sighted as well as inconsiderate to providers and applicants. SKE courses have been an important part of the route into chemistry teaching for career changers and those without a relevant degree for over ten years. Between one quarter and one third of chemistry ITT candidates have completed these courses each year as a condition of their ITT offer.
26. For the 2026/27 training year, the bursary for biology ITT students will be £5,000 compared to £29,000 (or £31,000 for the scholarship) for chemistry.¹⁸ As has been the case in previous years when the difference between the financial incentives for these two subjects is very pronounced, ITT providers have told us that they have lots of applications from bioscience graduates this year. These candidates typically need SKE to boost their chemistry subject knowledge.

¹² Schools Week (November 2025) [Triple science pledge needs more specialist teachers - Phillipson](#)

¹³ Education Policy Institute blog (July 2026) [A borrowed recovery: the 2025 school workforce data - Education Policy Institute](#)

¹⁴ ['Subjects taught and Specialist teachers and hours' from 'School workforce in England', Permanent data table - Explore education statistics - GOV.UK](#)

¹⁵ Unpublished data from the *Science Teaching Survey 2026*, due to be published September 2026. Previous years result can be viewed here: [The Science Teaching Survey 2025](#)

¹⁶ DfE (2026) School Workforce in England [Release home - School workforce in England - Explore education statistics - GOV.UK](#)

¹⁷ Blog: Teacher Shortages? Five key metrics behind the new DfE workforce data. Worth, J. (June 2026) SecEd [Teacher shortages: Five metrics behind DfE data - SecEd](#)

¹⁸ DfE, Get into Teaching website, [Teacher training bursaries | Get Into Teaching GOV.UK](#)

27. There are also geographical considerations at play. An ITT provider in the southwest told us that, because there are no chemistry undergraduate courses nearby, virtually all their chemistry ITT students hold bioscience rather than chemical science qualifications. This provider relied on the chemistry SKE to improve these students' subject knowledge. If this provider rejects these candidates, there could be longer term implications for localised chemistry teacher shortages.
28. More than half of respondents to a poll of chemistry ITT providers we conducted in early June reported having made offers to candidates who prior to defunding would have had completion of SKE as a condition of their ITT offer. Providers were worried about the challenges of developing these trainees' subject knowledge during the ITT year. Some provided tasks or self-led development for candidates to complete before their training year. Whilst others made self-funded SKE a condition of offers.
29. Defunding of chemistry SKE courses has implications for both the quality of chemistry teaching and the retention of some chemistry teachers. The most effective teachers have good subject and pedagogical content knowledge.¹⁹ Chemistry teachers who lack a good understanding of chemistry because they missed out on SKE may find it harder to address student misconceptions. They may need additional chemistry specific professional development, especially in the early stages of their career. There is also a risk that these teachers could experience low self-efficacy and have extra workload challenges as they spend time 'swotting up' on chemistry topics when planning lessons. This in turn could increase the chances of them leaving the profession.

Establishment of the School Support Staff Negotiating Body.

30. We welcome the new School Support Staff Negotiating Body. Our research from 2020 found that science technicians' pay and conditions were inadequate.²⁰ Since then, our annual *Science Teaching Surveys* have shown that understaffing of school science technicians is an ongoing concern and low pay is a key reason cited by technicians as reason for considering leaving their roles.²¹ In our 2025 survey, 88% of technician respondents from state funded secondary schools in England who were planning to leave said that increased pay would convince them to stay.²²

The availability and quality of continuous professional development, mentoring, and leadership support.

31. We welcome the new Teacher Training Entitlement but are concerned that the White Paper makes no specific reference to subject-specific professional development. ITT is just the start of a teacher's journey to become an expert practitioner. To ensure there are enough experts teaching the sciences, teachers must be supported to develop and where appropriate, expand their subject and pedagogical content knowledge throughout their careers. Disappointingly, in our *Science Teaching Survey 2026* almost half (48%) of chemistry teacher respondents from state schools in England told us that they had done no chemistry-specific professional development the previous 12 months.²³

¹⁹ What makes great teaching? Review of the underpinning research. Coe, R., Aloisi, (2014) Sutton Trust, [What makes great teaching? - The Sutton Trust](#)

²⁰ Worth, J. (2020). The Science Technician Workforce in English Secondary Schools. Slough: NFER. [School science technicians in English secondary schools](#)

²¹ [The Science Teaching Survey 2025](#), [The Science Teaching Survey 2024](#), [The Science Teaching Survey 2023](#), [The Science Teaching Survey 2022](#)

²² Science Teaching Survey 2025 data set, p.39. [The-Science-Teaching-Survey-2025-full-report.pdf](#)

²³ Findings from the Science Teaching Survey 2026 are due to be published in September 2026

The extent to which the proposals address workload, wellbeing, and job satisfaction across the school workforce.

32. Whilst we do not have specific evidence about the effectiveness of the *Education Staff Wellbeing Charter* or the resources signposted by Government to reduce workload and improve staff wellbeing, we have been collecting data about workload, wellbeing and job satisfaction for the past five years. Our annual *Science Teaching Survey* results show that average science teacher and technician wellbeing and job satisfaction have remained broadly stable since 2023.²⁴

The likely impact of workforce reforms on teacher recruitment, retention, and school leadership capacity, particularly in high-need areas.

33. We often use our annual Science Teaching Survey to ask questions about retention. In our 2025 survey, we asked teachers who said they were planning to leave teaching what would make them stay. The most cited reason was 'better work/life balance' (73%) closely followed by 'more balanced / reduced workload' (67%).²⁵
34. The Government's planned workforce reforms rightly recognise and try to address these key issues. They may lead to limited improvements in teacher supply. However, many of the plans are simply a continuation of existing schemes, which in themselves have not resulted in meaningful improvements in chemistry teacher recruitment and retention. The Government will need a long-term strategy that makes teaching an attractive and sustainable career for chemistry graduates, rather than relying on favourable economic conditions to support recruitment.

²⁴ [The Science Teaching Survey 2025](#). (Previous years' results can be accessed from the 2025 survey landing page). Findings from the Science Teaching Survey 2026 are due to be published in September 2026

²⁵ Science Teaching Survey 2025 data set, p.38. [The-Science-Teaching-Survey-2025-full-report.pdf](#)