



ASE POLICY PERSPECTIVES

Effective Continuing Professional Development Entitlement for Teachers

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About the ASE

The Association for Science Education (ASE) is the UK's largest community of science educators. We support science teaching and learning through professional development, a community of support, resources and advocacy. Our policy positions are informed by evidence, member expertise and our commitment to excellent science education for all learners.

Summary

While each UK nation has its own professional standards for teachers, there is a common expectation that all teachers should engage in regular and meaningful continuing professional development (CPD). However, the provision of, and engagement with, CPD varies greatly across the UK. ASE believes that essential features of good CPD for science teachers should:

- include subject (i.e. science) and discipline (i.e. biology, chemistry, or physics);
- comprise both substantive and pedagogical development;
- be a mandatory minimum requirement for all teachers to participate in CPD
- be appropriately funded.

Whilst CPD for technicians will be underpinned by many of the same principles, this is not included within the scope of this position statement.

Background

The Teachers' Standards for England and Wales mandate that educators engage in CPD to: enhance subject knowledge; understand how learning occurs; and, deepen pedagogical skills. These expectations align with the Professional Standards for Teaching in Scotland (GTC Scotland, 2021), the Professional Standards for Teaching and Leadership in Wales (WG, 2019), and the Code of Values and Professional Practice in Northern Ireland (GTCNI, 2018). Thus, it is both the right and responsibility of teachers across the four nations to pursue high-quality professional development.

However, across the UK, only Scotland has a statutory requirement for teachers to complete a minimum of 35 hours of professional learning annually. In England, Wales and Northern Ireland, there are no statutory requirements for CPD, though all nations promote professional development through national frameworks or professional standards, with Wales providing particularly strong non-statutory guidance. It is generally up to schools to decide how to implement CPD provision in terms of the development needs of teachers and the impact it will have on pupils. All nations define expectations for professional behaviour, emphasise the importance of reflection and self-evaluation, promote teacher professionalism and lifelong learning, and CPD is expected to align with wider school improvements and curriculum goals.

Key Messages

• What constitutes high quality CPD?

Research provides a robust foundation for defining what constitutes 'high-quality' CPD. The ASE endorses the recommendations from the Education Endowment Foundation (EEF, 2021) on effective professional development which states:

- When designing and selecting professional development, focus on the mechanisms.
- Ensure that professional development effectively builds knowledge, motivates staff, develops teaching techniques, and embeds practice.

The mechanisms of professional development are

- A Building knowledge
- B: Motivating teachers
- C: Developing teaching techniques
- D: Embedding practice
- Implement professional development programmes with care, taking into consideration the context and needs of the school.

• What constitutes high quality CPD for science educators?

While the principles outlined by the EEF are broadly applicable, science education poses unique challenges. A strong understanding of subject matter is crucial for science teachers. The Institute of Physics' "Subjects Matter" report (2020) highlights that "for students to have the best experience of subjects—to

excel in school and aspire to future success—teachers themselves need excellent subject knowledge and an understanding of how to teach it.” Therefore, CPD for science educators must cover, substantive and disciplinary knowledge, health and safety, pedagogical content knowledge at discipline and subject level, statutory training e.g. safeguarding and leadership training. It should be research informed, linked to context and provided in school, as well as from external providers.

- **Subject specific CPD helps to improve pupil outcomes**

Access to high-quality, subject-specific CPD however, remains limited. In 2024, only 13% of teachers reported that the biology-specific CPD they received was ‘sufficient or somewhat sufficient,’ a decline from 17% in 2023. Similar trends were observed for chemistry (2024: 18%; 2023: 21%) and physics (2024: 16%; 2023: 21%) (Royal Society of Chemistry, 2024). Over half (61%) of chemistry teachers surveyed in 2023 stated they had received no subject-specific professional development in the previous academic year.

Yet, the link between subject-specific knowledge and student outcomes is well-documented, especially amongst disadvantaged pupils. Sadler and Sonnert (2016) noted that “it is not surprising that teachers with proper subject-matter knowledge achieve larger gains with their students than those lacking that knowledge.” Consequently, numerous organisations recommend that at least half of all professional learning be subject-specific (Institute of Physics, 2020; Perry et al., 2022).

- **Entitlement and access to career long learning**

The ASE considers it essential for teachers to have access to high quality CPD throughout their careers, recognising the differing needs and aspirations of individuals at different stages of their careers. This is of particular importance in the science disciplines, where the rapid pace of scientific developments should be responded to and incorporated into teaching. However, as cited above, there is currently evidence to suggest that there is a lack of availability, access and/or engagement with high quality and relevant science education CPD across the UK.

Where it is available and perceived as relevant, schools and/or teachers often can’t afford the cost to attend or find cover.

- **Evidence based strategies that address teacher needs.**

Teachers citing poor quality or irrelevant courses is also a barrier to effective CPD. In order to understand what works, maximise impact and ensure efficiency and cost effectiveness, the provision of CPD should be informed by evidence based strategies and teacher needs.

The ASE endorse the recommendations from The Wellcome Trust which include:

- ‘Appointing a senior leader with explicit responsibility for leading professional development, to develop understanding of professional development, to plan for, lead and evaluate change and to engage staff in these changes.
- Embedding small changes in practice to balance and align school development objectives with teachers’ individual learning needs, such as redefining the purpose and content of staff meetings, linking professional development with performance management or appraisals, and developing systems of teacher-led inquiry.
- Supporting all school staff to build a shared understanding of the purpose and outcomes of high-quality professional development and move towards shared ownership of professional development as an ongoing process of learning through multiple sustained activities.’ (Perry et al., 2023).

Key Recommendations

- In order to ensure the provision of high quality CPD for science educators, the ASE recommends that:
- All four nations make it a statutory requirement for teachers to complete a minimum of 35 hours of high quality CPD per annum, with half of that being subject specific.
- Funding be ringfenced to cover the cost and cover to properly enable teachers to take part in CPD.

Key Recommendations continued...

- In the event of major curriculum and assessment reform there needs to be adequate time to allow teachers to implement changes and access appropriate CPD to implement them effectively.
- School leaders provide protected time throughout the school year for professional development to take place.
- School leaders work with teachers to ensure that there is an appropriate balance of time between the different forms and foci of CPD.
- Schools identify a designated person who is responsible for leadership of science specific professional development

ASE policy positions are developed through consultation with our members and advisory committees. For more information or to contribute to our policy work, visit:
ase.org.uk/our-policy-work.

This policy perspective is applicable to: England, Wales, Scotland and Northern Ireland

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Supporting Evidence

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