

Promoting Excellence in Science Education

Our strategic goals and objectives
2024-2028



About the ASE

The Association for Science Education (ASE) has been supporting all those involved in science education from pre-school to higher education for over 100 years; members include teachers, technicians, teacher educators, researchers and others involved in science education. We play a significant role in promoting excellence in teaching and learning of science in schools and colleges.

Working closely with the science professional bodies, industry and business, we provide a UK-wide network bringing together individuals and organisations to share ideas and tackle challenges in science teaching, develop resources and foster high quality Continuing Professional Development. Together, we are a powerful voice for science education professionals in order to make a positive and influential difference to the teaching and learning of science throughout the UK and further afield.

Our Mission and Vision

Mission: to promote excellence in science education

Vision: All learners are engaged in appropriate, valuable and interesting science education, supported by a professional science education workforce.

“The objects and purposes for which The Association is hereby constituted are the promotion of education by the following means:

- by improving the teaching of science and
- by providing an authoritative medium through which opinions of teachers of science may be expressed on educational matters and
- by affording means of communication among all persons and bodies of persons concerned with the teaching of science in particular and with education in general.”

ASE Royal Charter 2024

Our Values

Our values define our culture and reflect our priorities in the way we work. They underpin our approach, programmes and CPD activities, they inform our policies, priorities partnerships, recruitment and training. They are at the forefront of our mind as we seek to ensure best practice in all that we do. We are:

- **Welcoming:** we celebrate diversity and **foster an inclusive environment** in which everyone in our science education community is respected, valued and heard
- **Evidence informed:** we value **good research**, data analysis, evaluation feedback and expert opinion and use it to shape our activities
- **Passionate about science and teaching:** We inspire educators to continually evolve and grow in their understanding and teaching of science, nurturing a **culture of life-long learning** and innovation
- **Bold:** We aim to push boundaries, **embrace innovation in science education** and set ourselves ambitious objectives in pursuit of our goals
- **Environmentally sustainable:** we are dedicated to **reducing our environmental footprint** by minimising waste, conserving resources, and adopting sustainable practices.

Key issues for science education

Science education and teaching in 2024 is facing some of the largest challenges in the history of the profession:

- **Outdated and content heavy curriculum:** Whilst curriculum reform is taking place in Wales and Scotland, the national curriculum in England has not been reviewed over the last ten years, and is outdated in many respects^[1]. It is content heavy, prioritises rote memorisation over critical thinking, problem solving and practical skills and discourages cross-disciplinary exploration. This is compounded by an overreliance on testing for external accountability at key stage 4 (GCSE level) and post 16 (A levels and equivalents), which fosters a culture of “teach to the test” where educators prioritise exam technique over deep understanding and application of knowledge. This approach can exacerbate inequities in educational outcomes and stifle creativity and innovation.
- **Recruitment:** The UK is consistently failing to attract science graduates into teaching. In 2022/23 just 54%^[2] of the target for post graduate trainees for secondary STEM subjects was met and only 17% of the target for secondary physics teachers. This falls significantly below the numbers needed to fill science teaching vacancies in UK schools and raises serious concerns about our ability to deliver good science education to future generations.

[1]<https://www.gov.uk/government/collections/national-curriculum>

[2] [Initial Teacher Training Census, Academic year 2022/23 – Explore education statistics – GOV.UK \(explore-education-statistics.service.gov.uk\)](https://www.gov.uk/government/statistics/initial-teacher-training-census)

- **Retention:** 29% of science teachers report that they plan to leave their role within the next three years for reasons other than age or retirement^[1]. The numbers of science technicians leaving the profession is also increasing^[2]. Problems with recruitment and retention are not attributable to salary alone: burnout, workload, stress, lack of status, professional autonomy as well as subject-specific professional development are all contributing factors to the retention crisis.
- **Specialist scientific knowledge:** There is now an unprecedented and severe lack of specialist science teachers with current science industry knowledge^[3]. This means young people are being taught physics and chemistry by biology or maths teachers or by those teachers with no science or maths background at all.
- **Access to professional development opportunities:** Teachers and technicians need to keep pace with new technological advancements, scientific knowledge, pedagogical approaches and accepted best practice – but access, funding and time off to attend affordable, high quality professional development is limited.
- **Inequity and exclusion:** There are often disparities in science education and attainment among different schools and communities. Evidence shows a correlation between socio-economic disadvantage and less engagement and attainment in STEM subjects^[4]. Low socio-economic status is also associated with less well-equipped laboratories and digital resources, and lower availability of well qualified science teachers. This can result in certain groups of students being left behind in, leading to social and economic disparities in STEM fields.
- **Low confidence/competence in practical sciences:** Nearly half of the teachers surveyed in a recent Gatsby report⁶ stated that they did not feel confident in teaching practical science lessons. Research published in our own Journal SSR suggests many science teacher enter the profession without sufficient training in practical science and lack confidence in delivering practical science sessions. This is compounded by lack of time to cover practical lessons due to heavy workloads, as well as the focus on theory over practical hands on learning.
- **Perceived lack of value of technicians:** Technicians play a crucial role in supporting science teachers and facilitating effective learning experiences for students in science laboratories. However, they typically receive lower salaries than teachers and educational professionals – despite their specialist knowledge and responsibilities. There are little opportunities to progress into leadership roles, in some cases there is a lack of recognition and support from school leaders and their roles are often vulnerable to budgets cuts and constraints – as they are perceived as non essential, have limited advocacy.

Four overarching goals

We have set out four overarching goals. These are: aligned with our charitable objectives, purpose and mission; they are designed to address the current challenges faced by the sector; meet the needs of membership; and, ensure the long term sustainability of the organisation.

[3] <https://www.rsc.org/policy-evidence-campaigns/chemistry-education/education-reports-surveys-campaigns/the-science-teaching-survey/2022/burnout-and-workload/#how-long-left>

[4]. <https://www.rsc.org/policy-evidence-campaigns/chemistry-education/education-reports-surveys-campaigns/school-science-technicians/>

[5] See for example RSC survey [here](#)

[6] Eg see [Data \(stem.org.uk\)](https://www.stem.org.uk), and Royal Society Review of [SES and Science Learning in Formal Education Settings](#)

Goal One

Create a comprehensive programme of career long learning for science educators that promotes subject knowledge, improves confidence, leads to changes in classroom practices and pedagogy, improvement in outcomes and encourages educators to remain in education.

Science educators face increasing pressure to keep up with curriculum changes, evolving pedagogies, and subject-specific knowledge, often with limited support.

High-quality, ongoing professional development is critical not only to teacher and technician effectiveness but also to retention and student outcomes. ASE is uniquely positioned to support educators at all career stages across all sectors. Our goal is to ensure that every science educator can access a clear, lifelong learning journey that is relevant, inclusive, and grounded in evidence.

We will achieve this through a blended offer of online and in-person CPD, dedicated support for early career and international teachers, the promotion of our professional registers, and leadership development opportunities. Our journals and resources will remain a trusted source of expertise, and we will identify and respond to emerging issues such as AI, sustainability, and inclusion to keep our offer current and impactful.

Goal Two

Offer a welcoming, diverse and inclusive range of professional activities, networks and opportunities that help our members to enjoy their professional career and encourages them to stay in education.

Belonging to a strong, supportive professional community has a direct impact on educator wellbeing and retention. Science teachers frequently work in isolation—often as the only subject specialist in their school—and need spaces where they can connect, share experiences, and feel valued. ASE’s networks and culture of collaboration help to reduce this isolation, strengthen professional identity, and create pathways for mutual learning.

To achieve this, we will invest in peer-to-peer mentoring, local and national events, and online networks tailored to different educator roles. We will actively embed wellbeing and inclusion into all our communities and promote a positive narrative about the science teaching profession through our communications and public voice. By strengthening relationships and celebrating the rewards of teaching, we aim to make science education a career people are proud to enter and stay in.

Goal Three

Influence science education policy at national levels to achieve curriculum reform that meet young people's needs, and drives a policy and practical framework that supports science educators, encourages them to stay in practice and helps to improve outcomes.

Policy decisions profoundly shape what happens in classrooms—determining what is taught, how it is assessed, and the conditions under which educators work. Yet the voices of science teachers are often missing from these conversations. ASE is committed to being a strong, credible advocate for the profession and to influencing policy and curriculum in ways that meet the needs of learners and educators alike.

We will lead and contribute to national policy work through our role in SEPA, support curriculum reform, and make the case for properly funded CPD. We will collaborate on inclusion initiatives and push forward innovative projects that explore what works in science education. Our goal is a policy environment that values science education, listens to those delivering it, and equips all young people to thrive in a rapidly changing world.

Goal Four

Build a strong and sustainable organisation that meets our members' needs, ensures growth and is fit for the future.

Our ability to support the science education community depends on the strength and sustainability of ASE itself. We must remain financially resilient, efficiently run, and underpinned by inclusive, ethical, and transparent practices. A positive and motivated staff team and strong governance structures are essential to delivering our mission and long-term impact.

We will focus on recruiting and retaining members, building our income through projects and partnerships, and managing resources wisely. Internally, we will foster a culture of collaboration and participation, support staff development, and uphold the highest governance standards. Diversity, equity, and inclusion will be embedded throughout our structures and activities. In doing so, we will ensure ASE continues to thrive and serve the science education community well into the future.

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