IOP Institute of Physics

Royal Society of Biology

ROYAL SOCIETY OF CHEMISTRY

Rt Hon Gillian Keegan
Secretary of State
Department for Education
Great Smith Street
London SW1P 3BT

30 November 2022

Dear Secretary of State,

We are writing to congratulate you on your appointment as Secretary of State for Education. As professional bodies and learned societies representing over 100,000 scientists, the Royal Society of Biology, Royal Society of Chemistry and Institute of Physics wish to offer our expertise as you develop your policy programme. We can support you to achieve excellence in teaching and learning of the sciences in order to ensure that the UK's workforce has the scientific and technical knowledge to grow an innovation-based economy. Our organisations are committed to supporting and encouraging primary and secondary education in the sciences.

Education and training in biology, chemistry or physics can lead to a wealth of employment options across various sectors, many of which are rapidly evolving in light of new scientific discoveries and the need to address pressing global challenges. Developing those capabilities begins at school and economic growth will be driven by timely and targeted investment in teachers and teaching quality. Despite the undoubted value of the sciences, science education remains in crisis. It continues to be hit with poor teacher recruitment and retention[i], leading to a severe shortfall of specialist teachers[ii].

Our organisations regularly work together to project a strong, unified voice supporting evolving education in the sciences. We have, for example, drawn upon our subject expertise to advise STEM Learning's Science partnership delivering DfE funded CPD. Our organisations also collaborate as part of the Science Education Policy Alliance, which regularly meets with science policy leads in the Department for Education. All three learned societies have produced their own version of a curriculum framework, drawing on advice of the expert members of their bodies[iii, iv, v].

The Early Career Framework outlines that many problems facing the English education system can be addressed through subject-specific professional development; however, this is currently piecemeal, hard to find, and of variable quality. The learned societies support the recommendations made in the *Subjects Matter* report[vi], published by the Institute of Physics in 2020 and the Royal Society's 2021 report *Science Education for a Research and Innovation Economy*[vii]. We would like to see an investment in the existing teaching workforce through high quality support for teachers within their subjects, in the form of effective subject-specific continued professional learning – especially early in their career.

We have previously voiced our concerns about the removal of funding from applied qualifications in STEM at Level 3. Whilst we welcome the introduction of T-Levels, we are concerned that the changes have led to an overall reduction in science content. Closing down STEM education pathways will compound the

issue that without the adequately trained personnel, we will not have the required workforce in place for technically demanding jobs. We are concerned that the removal of funding will also disproportionally affect those from underrepresented groups, working equity, diversity and inclusion in our sectors, and therefore, losing talent.

Our organisations stress the need to improve the diversity of student take-up of STEM subjects. The IOP's Limit Less campaign[viii] found that underrepresented groups are put off studying physics due to the biases of those who influence them and their choices.

We are calling on Government to prioritise the following:

- Invest in teachers now to provide future returns through increased innovation and productivity. Career-long learning strategies should contain subject-specific entitlements at primary and secondary level, and widen access to specialist teachers.
- Ensure more young people enjoy the economic benefits that derive from STEM education and skills by evaluating the funding offered to post 16 qualifications, whilst supporting the take-up and growth of technical education career pathways, such as T-Levels and apprenticeships to ensure parity of esteem.
- School science curricula should prepare all young people to fully participate in efforts to tackle climate change and sustainability challenges.
- Implement measures to improve diversity in STEM by ensuring that all young people have opportunities and guidance to enable them to pursue a future in STEM.

We request a follow-up meeting to discuss this at your earliest convenience. In the meantime, we wish you every success in your new role and look forward to working with your department to understand how we can best support your ambitions for education across the UK.

Yours sincerely,

Tom Grinyer
Group Chief Executive
Institute of Physics

Dr Mark Downs CSci CBiol FRSB
Chief Executive
Royal Society of Biology

Dr Helen Pain CSci CChem FRSC
Chief Executive
Royal Society of Chemistry

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[i] https://www.ascl.org.uk/ASCL/media/ASCL/News/Press%20releases/ASCL-survey-on-teacher-shortages.pdf
[ii] https://researchbriefings.files.parliament.uk/documents/CBP-7222/CBP-7222.pdf
[iii] https://www.rsb.org.uk/policy/education-policy/school-policy/curriculum
[iv] https://www.rsc.org/new-perspectives/talent/chemistry-curriculum-framework/
[v] https://spark.iop.org/framing-future-physics-curricula
[vi] https://www.iop.org/about/publications/subjects-matter#gref
[vii] https://royalsociety.org/topics-policy/publications/2022/science-education-for-a-research-and-innovation-economy/
[viii] https://www.iop.org/sites/default/files/2020-11/IOP-Limit-Less-report-2020-Nov.pdf