

The Science Council

1. The Science Council is a membership organisation representing 41 learned societies and professional bodies drawn from across science and its applications. Collectively our members represent almost 500,000 individuals including scientists, teachers and senior executives in industry, academia and the public sector.
2. In addition to providing a mechanism for the sector to work collectively, the Science Council develops and leads collaborative projects working with member organisations and the wider scientific community: examples include LMI analysis of the UK Science Workforce and Diversity, Equality and Inclusion.¹
3. The Science Council's principal area of work is to advance the professional practice of science across the breadth of the science workforce, including non-graduate and technical roles in science. A key aspect of this is professional registration with the aim of raising the profile, aspirations and retention of scientists at all levels.²
4. In preparing this submission we have consulted with member organisations and Employer Champions to identify areas of common interest.

Science apprenticeships must be at the heart of the government's skills strategy

5. Science and its applications are fundamental to underpinning a strong and sustainable economy, creating jobs, raising standards of living and are vital in preparing the nation for future challenges. They will also enable us to find solutions to the most pressing problems facing global society today, such as food security, climate change and disease prevention.
6. The UK's ability to maximise its investment in science to create jobs, increase economic productivity and work collaboratively with our international partners to meet global challenges will rely on an agile and highly-skilled science workforce. Demand for workers across the UK economy with science qualifications is increasing,³ and as science becomes more complex and interconnected, the roles undertaken by scientists in the future will often require high-level practical and technical skills.⁴
7. We welcome the government's recent focus on apprenticeships, and its aim to create 3 million apprenticeships during the current Parliament is commendable. Much of the recent focus of science workforce investment has been in the graduate workforce with little recognition among policy-makers that not every science-based job is a graduate job.
8. In principle we are supportive of the apprenticeship levy. It should be the government's aim to enable all employers, even those that cannot currently afford to, to take on an apprentice. **However, there remain very few science and mathematics apprenticeships.⁵ Given the increasing demand for science skills across the economy the Science Council calls on the government to create 100,000 high-quality science apprentices per year, with standards linked to Registered Scientist**

¹ <http://www.sciencecouncil.org/content/diversity-equality-and-inclusion>

² <http://www.sciencecouncil.org/professional>

³ <http://www.smf.co.uk/wp-content/uploads/2013/03/Publication-In-The-Balance-The-STEM-human-capital-crunch.pdf>

⁴ http://www.edge.co.uk/media/130721/the_skills_mismatch_march_2014_final.pdf

⁵ <https://www.gov.uk/government/statistical-data-sets/fe-data-library-apprenticeships>

(RSci) and Registered Science Technician (RSciTech), by the end of the Parliament.

Supporting the development of high-quality apprenticeships

9. While supportive of the levy in principle, we address some of our key concerns below. In particular, the government must focus on the pressing need to address wider issues of perception, take up and quality assurance.

Concerns about the apprenticeship 'brand'

10. The low take up of science apprenticeships by employers, to a large extent, has been driven by concerns about the quality of the current 'brand' of apprenticeship and inhibited by the lack of availability of appropriate vocational and practical qualifications.⁶ This in turn fuels concerns about the validity and value of some science qualifications particularly for those who achieve lower grades in STEM and does not help to develop understanding of non-graduate routes to science careers. Science apprenticeships also vary in lengths are therefore likely to be seen as varying in standard and less rigorous than those in other areas of applied science and other areas of the economy.

Increasing the quality of apprenticeships

11. To be attractive and aspirational to young people, apprenticeships must lead to a clear and identifiable achievement at completion. This should go beyond a job with a particular employer, to entry into a recognisable occupation or a profession and gives status and mobility to the completing apprentice.
12. To support young people's career progression, it is essential that apprenticeship standards directly link to professional registration requirements in sectors where they exist.⁷ This will overcome issues around qualification consistency and equivalence, which are potential barriers to transferability and mobility. There is evidence to suggest that the transferability and mobility provided by professional registration leads to lower levels of unemployment as well as increased average earnings.⁸
13. The Science Council believes it is essential that the quality of qualification standards are maintained and benchmarked across disciplines and employment sectors. Indeed, guidance from the Department for Business, Innovation and Skills on the development of apprenticeship standards in science states that they must link to professional registration where they exist in the occupation, including RSci and RSciTech..⁹
14. **The Science Council calls on the government to review the provision and range of vocational science qualifications at all levels to develop better non-graduate vocation pathways into science. This must be done with professional body and industry involvement.**

Engaging and supporting employers

15. The government will want to ensure that employers are supportive and fully engaged in the scheme, meaning that the design, development and implementation of all aspects of the levy must be undertaken with direct consultation with employers, with additional input from training providers and professional bodies; this includes designing and developing relevant education and training that delivers the high-level skills businesses and the

⁶ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/373769/14.11.11_EPS_2014_-_Main_Report_full_V2.pdf

⁷ <http://www.sciencecouncil.org/professional>

⁸ [https://www.istructe.org/news-articles/2014/industry-news/engineering-council-survey-2013-\(1\)?feed=Latest-News-Features](https://www.istructe.org/news-articles/2014/industry-news/engineering-council-survey-2013-(1)?feed=Latest-News-Features)

⁹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/447413/BIS-15-355-guidance-for-trailblazers-standards-to-starts-July-2015.pdf

economy needs; and ensuring that the online voucher system is simple, easy to use and ready on the proposed launch date.¹⁰

16. To build employers' trust and full engagement with the levy and apprenticeship training more broadly, government must also ensure that training providers are ready to deliver immediately the high-quality training they require.
17. Employers will want assurances from the government that the money raised from the levy is only used to fund apprenticeships and ensure there is no subsidisation of non-apprenticeship expenditure.
18. The success of an apprentice will be greatly determined by the level of support they receive from their employer. The levy should therefore enable employers to upskill their workforce to support apprentice mentoring activities. This will help smaller employers as many will not have the capacity or flexibility to enable their employees to assume mentoring activities. Employers should be able to use the levy to fund training for their employees to adequately support apprentices.

Supporting FE to deliver high-quality vocational education

19. The AMRC Training Centre's¹¹ experience has been that SMEs are willing to fund apprenticeships if their apprentices have access to high-quality training that those businesses demand. However, there remains sporadic availability of high-quality vocational education across the UK. In some coastal and rural areas, for example there is a shortage of provision of science qualifications in FE, in part because of lack of local university or large research or innovation-driven employers. There are particular concerns among employers about the geographical availability of good quality post-16 mathematics qualifications. Young people's access to high-quality mathematics education will be vital for long-term economic success.¹²

Ensuring training providers deliver the training demanded of employers

20. It is essential that employers have confidence in the product for which they are paying. Current and prospective training providers must therefore be subjected to continuous rigorous scrutiny, involving government, professional body and industry bodies.
21. **The Science Council proposes that employers should only receive top-ups, or at least a greater proportion of top-up, if the training they purchase is from a recognised provider.** This will reward employers that purchase high-quality training and will encourage providers to deliver the high-quality training that employers will demand. It will help ensure that apprentices will gain the transferable skills and professional standards sought by employers. We appreciate that this approach requires careful costing, but as the government does not expect all employers to access levy-raised funds, we believe that there is scope to investigate the potential of this.
22. The government should commit to annual public reporting on the progress of how the levy is driving take-up of high-quality apprenticeships. The annual report should include information on the income generated from the levy, the training that businesses have commissioned and from whom, and the costs that providers charge for training.

We would welcome the opportunity to discuss further with ministers and officials any of the issues discussed above.

¹⁰ <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmpublicadm/715/715i.pdf>

¹¹ <http://www.amrcrtraining.co.uk/>

¹² http://www.cms.ac.uk/files/Submissions/article_EconomicBenefits.pdf

Member Organisations of the Science Council

Association for Clinical Biochemistry and Laboratory Medicine
Association of Neurophysiological Scientists
Association for Science Education
British Academy of Audiology
British Association of Sport and Exercise Science
British Computer Society
British Psychological Society
British Society of Soil Scientists
Chartered Institution of Water and Environmental Management
College of Podiatry
Energy Institute
Geological Society of London
Institute of Biomedical Science
Institute of Brewing and Distilling
Institute of Corrosion
Institute of Food Science and Technology
Institute of Marine Engineering, Science and Technology
Institute of Materials, Minerals and Mining
Institute of Mathematics and its Applications
Institute of Measurement and Control
Institute of Physics and Engineering in Medicine
Institute of Physics
Institute of Science and Technology
Institute of Water
Institution of Chemical Engineers
Institution of Environmental Sciences
London Mathematical Society
Mineralogical Society
Nuclear Institute
Oil and Colour Chemists' Association
Operational Research Society
Physiological Society
Royal Astronomical Society
Royal Meteorological Society
Royal Society of Chemistry
Royal Statistical Society
Society for Cardiological Science and Technology
Society for General Microbiology
Society of Biology
Society of Dyers & Colourists
The Organisation for Professionals in Regulatory Affairs

Science Council Employer Champions

Anglian Water
Clinical Professionals
Exova
John Innes Centre
National Laboratory Service
Newcastle University
University of Nottingham
University of Sheffield