

A response to the white paper 'Educational Excellence Everywhere'

ASE Statement - 26 May 2016

The **Association for Science Education (ASE)** is the largest subject association in the UK. Members include teachers, technicians and others involved in science education. The Association plays 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, ASE provides 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. The Association for Science Education can trace its origins back to 1900. Incorporated by Royal Charter in October 2004, the ASE operates as a Registered Charity.

The Association welcomes the opportunity to respond to the white paper 'Educational Excellence Everywhere'. This response has been formulated in consultation with ASE's national Primary Science, 11-19 and Leaders of Science Teacher Development committees. Together these groups bring expertise in primary and secondary science education, from a range of viewpoints, including classroom practitioners, educational research, teacher education and professional development.

The Association broadly welcomes the ambition of the proposals set out in the white paper – particularly the focus on:

1. **Outcomes, not methods** based on rigorous fairly measured outcomes (1.17) using fair, intelligent, reliable and carefully-balanced measures of success and failure (1.57), while giving teachers professional autonomy to decide how those outcomes should be achieved (7.7); coupled with fair and focused school inspection which reduces the burden on schools and teachers (1.59) where inspection is focused closely on what matters most – outcomes not processes (7.14).
2. **Engagement in educational research at all levels from ITT onwards for an evidence-based profession** with strengthened ITT content, focusing on helping new teachers enter the classroom with sufficient subject knowledge.....and a greater understanding of the most up-to-date (and highly regarded, long established) research on how pupils learn (1.36) through support for the teaching profession to access, use and spread high quality evidence, with a greater focus on research informed practice built into ITT and leadership qualifications (2.60); ensuring that the work

of system leaders is focused, purposeful and evidence-based (5.d) and encouraging greater use of evidence-based teaching materials (6.b) to enable teachers to critically review the research evidence base.

The diversity of expertise within the Association encourages opportunities for teachers, and those involved in the training and professional development of teachers, to use research knowledge in their practice, to engage with research processes and to take part in research projects themselves. Reflection on the impact of using educational research in effective teaching and learning forms part of criteria for achieving Chartered Science Teacher (CSciTeach). ASE provides a wide range of support for engagement with education research including our peer reviewed *School Science Review* and *Science Teacher Education* journals and highly regarded publications such as the *ASE Guide to Research in Science Education* (Ed. Oversby 2012).

3. **Greater support for teachers during their early careers in developing their subject knowledge and pedagogical content knowledge** through a new standard for ITT mentors to help define and spread good practice (2.22) over a sustained period (2.e). It is essential here that early career teachers are encouraged and provided with high quality professional learning opportunities, recognising advanced subject knowledge and pedagogy that is rooted in evidence, both within and outside their own schools to not only inform them of what works in the classroom but also how to adapt such pedagogy to meet the needs of specific groups of learners.
4. **The importance of high quality, evidence-based professional development** with the introduction of a new Standard for Teachers' Professional Development to help schools improve the quality and availability of CPD (1.36f) and to identify good practice, raising expectations among teachers, schools and providers and – we hope – being used to challenge ineffective practice and improve quality (2.45); the establishment of a new, independent College of Teaching that will help spread good practice in areas like professional development and the effective use of evidence in education (1.36g); and new voluntary National Professional Qualifications for each level of leadership to better prepare new leaders for the full range of leadership roles (1.37b).

With regard to the College of Teaching, the Association states that individual teachers must take responsibility for their own professional development as members of the teaching profession and an entitlement to continuous professional development should be an expectation; the College of Teaching should protect this. The College recognises the importance of subject associations, and there should be mechanisms in place to strengthen this relationship. Subject associations and learned societies enable subject identity to be developed and expressed and they ensure that valuable professional knowledge for teaching is created and shared. Every teacher should ideally be a member of a subject association, and each subject association should be enabled to award

chartered status. The ASE, as a licensed body of the Science Council, is empowered under the terms of its Royal Charter to award CSciTeach to individuals who meet the requirements.

5. The Association also welcomes the ambitions of the proposals to give teachers much **more professional freedom** to choose how to teach (the curriculum) and how to assess it in the classroom (6.10) ; to continue efforts to reduce teacher workloads and bureaucracy; and the plans for fairer funding distribution to support schools and teachers in disadvantaged areas.
6. More specifically for **science and STEM**, the Association welcomes the recognition of the particular challenges in science and mathematics relating to teacher supply and recruitment targets and the outline plans to address these including the focus throughout on strengthening subject specific knowledge in teachers during ITT and ensuring teacher subject specialism training (TSST) is available to improve mathematics and physics subject knowledge of existing non-specialist teachers, as well as improving the gender balance of pupils studying STEM subjects. Such development though will be insufficient if training and continuing professional development do not also focus on how teachers promote and support learning within the subject and provide more in depth understanding of the assessment process and how this can provide opportunities to ensure teaching supports effective learning.

However the proposed mechanisms for achieving these ambitions do not always sit well with the principle based on outcomes, not methods. The Association has **deep seated concerns** on the following:

1. The lack of an evidence base supporting the principles and proposed mechanisms for achieving the Department for Education ambition of **academy status for all** (chapter 4). We fear this decision was a distraction from the core purpose of education which has been made on misplaced ideological grounds, rather than a secure evidence base. There is no conclusive evidence that the school-led academies system offers educational advantage across the board and so we welcome the recent decision of the government not to create legislation to bring about blanket conversion of all schools to achieve academy status.

The Association has long campaigned for a balanced science curriculum for all children aged 5-16. The current national curriculum for science is the culmination of that work, and draws on our subject expertise, both in framing the draft national curriculum documents and in providing non-statutory guidance for Key Stages 1 and 2. The Association has also supported Ofqual in the removal of controlled assessment and replacing it with a broad and flexible approach to the use of practical work in learning and assessment at GCSE and A level.

2. Whilst the Association supports the freedoms available to schools to provide a broad and balanced curriculum to meet the needs of their pupils, this provision must be underpinned by the national curriculum. The proposal that **the national curriculum will no longer be a decree, but a benchmark** (6.8) sends confusing messages to school leaders, watering down the importance and statutory nature upon which a national curriculum should be regarded. In effect the national curriculum will be abolished by this move. At primary level, there is a significant risk that children will not be taught science, and especially in the later years of primary teaching. Yet we know that children are already making choices at this age about possible future careers, so this change will probably lead to a reduction in numbers of young people with an interest in STEM. In secondary schools there is a significant risk that students will be directed to study only two of three science options to best satisfy recent changes to school accountability measures. Without a requirement to study the national curriculum there will be no statutory need to provide a balanced science education.

Recommendation: All schools, including academies, should be required to follow the national curriculum.

3. The Association has promoted the contextualization of learning in the local environment and the social structures in which children live. There is a strong belief that each school should provide a school curriculum based on the national curriculum, but taught in a local context, drawing on local resources and aspirations. By moving school control from local towards larger and wider reaching bodies such as large MATs, there is a risk that the local contextualization of learning will be lost. There is clear evidence that some MATs are already imposing a single curriculum on all schools within the MAT irrespective of geographical location. Changes in governance of academies, including the removal of parent governors may further accelerate the move to a bland context free curriculum.

Recommendation: Each school should adhere to the current requirement to publish its own curriculum online; and should demonstrate how its curriculum is adapted to local contexts to meet the needs of their pupils in preparing them for their contributions to society.

4. There is a significant risk that the continued move to academisation will reduce the amount and quality of practical work undertaken as part of science teaching. Practically based courses need additional resourcing. The removal of local support mechanisms brought about by the conversion of schools to academies may result in little external advice being available to leaders of academy trusts on resourcing the curriculum. A reduction in the number of practical courses available in schools is a serious concern. The quality of remaining courses also shows signs of under

resourcing, with secondary science departments reporting they can only afford to do the practical work that is required by their examination specification. The numbers of technician support staff are also being reduced, so some schools no longer have expertise across the full range of science disciplines at all key stages including A level.

Recommendation: All schools, including academies, should be required to fulfil the requirements of the national curriculum, including ‘working scientifically’. The position of practical work within school science should be monitored and reported annually, by government, Ofqual or a suitably funded alternative agency.

5. The Association has concerns about the moving towards a school-based ITT provision and challenges the statement about such practice being ‘best’ based on those particular studies selected. The Ofsted report (2015) on initial teacher education inspection outcomes noted that 98% of all partnerships were good or outstanding at their last inspection. The National Audit Office report, Training New Teachers (2016) substantiates such provision as the most cost-effective way of large scale recruitment and training. We accept that the situation in some shortage subjects requires extreme measures and that alternative routes might increase access for broader recruitment but feel that the government should be encouraging greater cooperation between providers of the various routes rather than what might be perceived as competition. What is needed, particularly in subject shortage areas, is research into the learning needs and aspirations of early career teachers with a view to providing a more tailored and differentiated provision for professional learning to ensure they feel equipped to continue improving and honing practice beyond those skills gained in ITT. Such moves are likely to encourage retention.

Recommendation: There should be a reconsideration of moving towards a school-based ITT provision and a rethinking of how providers for the various routes could work towards better cooperation in providing sufficient trained teachers for their region. Further to this, research is required on the learning needs and aspirations of early career teachers to provide a more tailored and differentiated route for development beyond ITT.

6. We disagree with the suggestion of removing Qualified Teacher Status (QTS) which we feel is an assessment that holistically captures competent performance. We do not agree with the suggestion that this is a low bar to set for professional standards for entry to the profession. While we can see good reason to suggest longer training periods for ITT, we have concerns, in the current climate of recruitment and retention, that this might have an adverse effect on the provision of teachers. Instead we feel that QTS is sufficient for the end of the first period of focused training and

that there should be further more advanced standards further down the professional journey such as Masters accreditation, or specific accreditation such as CSciTeach or CBiol, CChem or CPhys.

Recommendation: Qualified Teacher Status (QTS) should be retained and supplemented by further professional accreditation at a later stage in the professional journey of teachers.

We look forward to further opportunities to discuss our concerns in more detail, and to contribute our considerable expertise to commenting on the detail of various developments arising from this white paper.