ASE response to the Ofsted consultation on a new Education Inspection Framework

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 provide a response to Ofsted's consultation on a new Education Inspection Framework. This submission has been formulated in consultation with ASE's membership and national 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.

Proposal 1

To what extent do you agree or disagree with the proposal to introduce a 'quality of education' judgement?

The Association for Science Education (ASE) strongly supports the proposal to introduce a 'quality of education' judgement that recognises the relationships between the curriculum, teaching, assessment and leadership, and the extent to which these can be collectively evaluated through the stages of intent, implementation and impact. We welcome the emphasis on a coherently planned and sequenced curriculum that is ambitious and designed to give all learners, particularly the most disadvantaged, the knowledge, skills and cultural capital that they need for future learning and employment to succeed in life. We would add to this a greater emphasis on preparing young people for their informed and active role in society.

We welcome the emphasis on the curriculum remaining as broad as possible for as long as possible, and the opportunities this presents in schools and teacher education for a vision and understanding of how epistemic insight can be developed across the curriculum as well as within individual subjects.

We hope that this emphasis on a broad curriculum will result in primary schools giving due emphasis to science, reinstating it as a core subject which has all too often not been the case in recent years (as a result, in part, of the removal of the KS2 science SAT which ASE continues to support). We request that Ofsted consider the extent to which primary schools treat science as a core subject alongside science's significant potential to develop oracy, reading, writing and mathematical skills during their inspections.

For secondary schools, we welcome the high academic, vocational and/or technical ambition for all students, including disadvantaged students and those with SEND. As part of a broader curriculum, we would expect that all young people study the core sciences of biology, chemistry and physics until the age of 16. We hope that the attention to a broad

curriculum will focus schools on the purpose and opportunities for an 11-14 science experience, and move schools away from the trend of commencing GCSE science studies in year 9. This effective narrowing of KS3 was identified as part of the work by ASE together with the Institute of Physics, Royal Society, Royal Society of Biology and the Royal Society of Chemistry on the effects of implementation of different GCSE science routes. Initial findings from a representative sample of over 500 schools, suggest that regardless of the science qualification routes offered (combined science only, triple science only or both) students are disadvantaged: triple science classes are often timetabled on less than a proportional increased of timetabled lessons, and combined science classes are less likely to be allocated three teachers with individual disciplinary expertise. This work is to be published in the coming weeks. We request that Ofsted consider the effects of implementing science GCSEs during their inspection visits.

In supporting science subject leaders and their teams to consider (adopting or) constructing an ambitious, coherently planned and sequenced curriculum, we are encouraged by Ofsted's research findings that schools can produce equally strong curricula regardless of the level of deprivation in their communities. Our understanding is that for large numbers of science subject leaders this is a new developmental role for which they have little or no experience. The implications for professional development and learning to undertake this 'intent' task effectively should not be underestimated. We are therefore reassured to a certain extent by Ofsted's intention to apply a transition period to their judgements on the development of curriculum plans. We request that this transition period extends beyond the 12 months indicated as this proposed timescale brings with it some risks:

- some schools may simply create cross-curricular topics by mapping connections in the content across compartments - a practice that would miss the opportunity to plan teaching that develops students' appreciation of both in-discipline and across-discipline epistemology
- some schools adopt 'off the shelf' curricula developed by the curriculum fund pilot schools without due regard to local context
- middle leaders and senior leaders, in a significant number of schools, will be required to write detailed post-hoc justifications for their curriculum, rather than taking an appropriate period of time to focus on improving their curriculum offer.

We draw attention to some of the support from the science education community already available to help science leaders construct, implement and review the impact of their curriculum: Principles and big ideas of science education; and Working with the big ideas of science education https://www.ase.org.uk/bigideas; Primary Science Assessment (PLAN) https://www.ase.org.uk/plan, Primary Science Quality Mark (PSQM) http://www.psqm.org.uk/, Best Evidence Science Teaching https://www.stem.org.uk/best-evidence-science-teaching and the curriculum frameworks from the Institute of Physics, Royal Society of Biology and Royal Society of Chemistry as outlined in ASE's School Science Review on 'Framing the Secondary Science Curriculum' https://www.ase.org.uk/resources/school-science-review/issue-370. Together with ASE, the above organisations are currently working on the foundations and a framework for a primary science curriculum.

Practical work is an essential part of learning science and the curriculum but not all practical

work is effectively planned and purposeful. We recommend that Ofsted inspectors refer to the ten Good Practical Science benchmarks https://www.gatsby.org.uk/education/programmes/support-for-practical-science-in-schools for recognising good practice in science. ASE's supporting resources for benchmark 1 on planned practical science to help science leaders and their teams develop their vision and policy for effective practical science will be available later this month https://www.ase.org.uk/goodpracsci

We welcome the emphasis on the importance of subject knowledge and pedagogical content knowledge for teachers in effective implementation and assessment of impact of the curriculum, and the strategic role of leaders to ensure that teachers receive focused and highly effective professional development to that end. We welcome the emphasis on leaders supporting those teaching outside their main area of expertise which is of concern for science with many primary teachers without the confidence or background in science, and secondary science teachers often deployed outside of their own specialist science discipline. This situation reflects the widely recognised recruitment, and in particular, retention issues for science teachers. We recommend that science leaders consider the recommendations of this report - Increasing the quantity and quality of science teachers in schools: eight evidence-based principles www.ase.org.uk/news/new-report-gatsby-charitable-foundation and ASE's support for teachers considering leaving the profession https://www.ase.org.uk/sos . We encourage Ofsted to consider the retention of teachers, and technicians, as an indicator of effective leadership and management.

Any evaluation of teaching, learning, and curriculum quality, is generally affected by the extent to which the assessor is, or is not, an expert in their subject. It is uncertain how reliable judgements will be unless the inspection team includes inspectors with specialist knowledge of the subject (particularly from KS3 onwards).

With reference to FE we offer the following comments. The renewed focus upon curriculum is welcome. STEM courses can be perceived as costly to provide in FE and they are difficult to staff. Too much emphasis on performance data can further deter providers from providing STEM opportunities to their learners, who will often have a different academic profile to school students. FE colleges have a much greater proportion of SEND and BAME students. Their students are also drawn from a greater proportion of financially disadvantaged backgrounds. Since STEM education is an important precursor of improved social mobility, it makes sense to ensure our disadvantaged learners have access to STEM education opportunities. Emphasis on curriculum content should support this.

In the wider context, provision of science education in FE is under threat. League tables and performance data dissuade learning providers from offering some science and STEM courses and there is a serious shortage of specialist teachers in STEM areas. Since science and STEM are strategically important subjects, it makes sense that provision should prioritise and value these courses. Inspection needs to ensure STEM provision is nurtured and protected through appropriate provision for all learners, at all stages.

Proposal 2

To what extent do you agree or disagree with the proposed separation of inspection judgements about learners' personal development and learners' behaviour and attitudes?

ASE supports the proposal to separate the two judgements, though we are concerned about how reliable the judgements can be in an inspection visit.

We support the requirement for providers to prepare students for their futures – this would, we hope, include increasing the science capital of those whose science capital is not developed through their home circumstances, to ensure they have the widest career opportunities and also to ensure they make good science decisions as citizens. We recommend the eight benchmarks of the Good Careers Guidance https://www.gatsby.org.uk/education/focus-areas/good-career-guidance to inform inspection judgements.

Proposal 3

We want to ensure that the education inspection framework 2019 judgements (see section above and para 131 in the EY handbook]) are appropriate for the range of early years settings.

To what extent do you agree or disagree that the judgements will work well for *early years education***:**

ASE welcomes the proposed focus on quality of education and curriculum as a whole, in place of a narrow focus on data. The dangers of narrowing of the curriculum and neglect of opportunities for science learning apply to the EYFS not just to KS2.

However the inspection process and the grade descriptions need to reflect more strongly the key principles and approaches outlined in the EYFS Framework in particular the *four guiding principles* outlined in the Introduction.

- every child is a unique child, who is constantly learning and can be resilient, capable, confident and self-assured
- children learn to be strong and independent through positive relationships
- children learn and develop well in enabling environments, in which their experiences respond to their individual needs and there is a strong partnership between practitioners and parents and/or carers
- children develop and learn in different ways (see "the characteristics of effective teaching and learning" at paragraph 1.9) and at different rates. The framework covers the education and care of all children in early years provision, including children with special educational needs and disabilities.

and the *three characteristics of effective learning* from Section 1 – The learning and development requirements

9. 1.9. In planning and guiding children's activities, practitioners must reflect on the different ways that children learn and reflect these in their practice. Three characteristics of effective teaching and learning are:
    - playing and exploring - children investigate and experience things, and 'have a go'
    - active learning - children concentrate and keep on trying if they encounter difficulties, and enjoy achievements
    - creating and thinking critically - children have and develop their own ideas, make links between ideas, and develop strategies for doing things

These are of central importance across the curriculum, but have particular relevance in relation to fostering skills and dispositions associated with science learning. There is increasing recognition internationally of the important place of science in the early years

curriculum both for a child's development and learning. Perspectives on science education in the early years (for example Eschach and Fried, 2005) emphasise the importance of building on young children's ideas and interests and their concerns to explore and explain the world around them from their earliest years.

The above characteristics of the EYFS framework also have the potential to provide a strong foundation for future science learning in relation to the aims and programmes of study for Working Scientifically in the Primary National Curriculum.

It is therefore of concern that they are not well represented in the grade descriptors for the quality of education. For example it is hard to relate the description in section 142 bullet point 3 under implementation, to the kinds of interactions that take place and are appropriate for very young children in early years settings. Although there is recognition of EYFS principles in footnote 17, they deserve greater prominence.

Finally professional development will be vital to support practitioners in developing a clear rationale for the approaches they adopt and their pedagogical knowledge and skills. Access to professional development is a major issue for early years and primary practitioners, particularly in relation to science.

Eschach, H. and Fried, M.N. (2005) Should science be taught in early childhood? *Journal of Science Education and Technology*, 14(3), 315-336.

Maintained schools and academies

Proposal 4

To what extent do you agree or disagree with the proposed focus of section 8 inspections of good schools and non-exempt outstanding schools and the proposal to increase the length of these inspections from the current one day to two days?

ASE supports the proposal to increase the section 8 inspections of good and non-exempt outstanding schools to two days. The longer the inspection (within reason), the more reliable the judgement should be.

Proposal 5

To what extent do you agree or disagree with the proposed introduction of on-site preparation for all section 5 inspections, and for section 8 inspections of good schools, on the afternoon prior to the inspection?

ASE has taken into account a wide range of views on this proposal and, on balance, supports this proposal in the spirit in which it is intended.

Proposal 6

To what extent do you agree or disagree with our proposal not to look at non-statutory internal progress and attainment data and our reasons why?

ASE supports the proposal not to look at non-statutory internal progress and attainment data as a significant contribution to the overall effort to 'de-intensify the inspection focus on performance data and place more emphasis on the substance of education and what matters most to learners and practitioners'. We interpret this proposal as providing opportunities for inspectors to have meaningful discussions with school leaders about how they know the curriculum is having an impact and for leaders to draw attention to their internal progress and attainment data, where appropriate, to exemplify their responses.

Please use this box to record any additional comments in relation to the detail set out in the draft school inspection handbook

We support the recommendation of the UK National Association for Environmental Education that the 'quality of education judgement needs to take into account the imperilled nature of the biosphere and support and encourage a curriculum that helps young people understand the nature of the problems we face, and needs to help pupils prepare to play a part in taking positive action in relation to them' and the recommendation of the Council for Learning Outside the Classroom that Ofsted qualifies that 'a classroom environment can be a range of places and spaces where learning happens, both within and outside of the school grounds, on educational visits and through residential experiences'.

Proposal 7

To what extent do you agree or disagree with the proposal that inspectors should normally use the non-specialist curriculum as their primary source of evidence in assessing the extent to which the school meets the quality of education criteria?

ASE does not have a view on this proposal.

Proposal 8

To what extent do you agree or disagree that where non-association independent schools have been found to improve or decline at an additional inspection, Ofsted should provide up-to-date judgements about the school's current performance?

ASE supports this proposal.

Proposal 9

To what extent do you agree or disagree that the proposal to reduce the types of provision we grade and specifically report on will make our inspection reports more coherent and inclusive?

ASE does not support this proposal. Provision for learners with high needs should be inspected separately as well as being considered within the relevant type of provision. We need to ensure these learners have access to the same subjects as others, including STEM subjects. A separate focus during inspection will consider this.

Proposal 10

To what extent do you agree or disagree with the proposed model for short inspections?

ASE does not have a view on this proposal.

Proposal 11

To what extent do you agree or disagree that the timescale within which providers that are judged to require improvement receive their next full inspection should be extended from '12 to 24 months' to '12 to 30' months'?

ASE supports this proposal.