




Call for evidence

Launch date 25 September 2024

Respond by 22 November 2024



**Curriculum and
Assessment
Review**

Supported by

**Department
for Education**

Section 1: About you

The following optional questions are about your personal details and contact preferences. Telling us more about you, your position and where you work helps us to understand your responses, as well as whether certain issues affect settings or areas differently.

1. Are you responding as an individual or on behalf of an organisation?

- Organisation

If someone selects individual in Q1 they will then complete:

2. If you are responding as an individual, in what capacity are you responding?

- A student, pupil or learner
- A parent or carer
- Teacher, tutor or lecturer
- Wider school, college or university workforce
- Senior leader
- Researcher, academic or education expert
- Employer
- Member of the public
- Local authority officer
- Other (please describe)

If someone selects organisation in Q1 they will then complete:

3. If you are responding on behalf of an organisation, which of the below best describes which part of the sector your organisation represents?

- Primary school
- Secondary school or college
- Sixth form
- General FE College
- **Higher Education Institution**
- Multi-academy trust
- AP/Specialist provider
- Middle school
- Union or professional association
- Employer or employer representative body
- Charity, social enterprise organisation or non-profit organisation
- Community organisation
- Local authority
- Think tank

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- Professional association
- Awarding organisation
- Other (please describe)

[If more than one applies, please select the one that you think is most important to understanding your consultation response.]

4. What is the name of your organisation?

University of Reading

5. What is your role within the organisation?

Pro-Vice Chancellor (Education & Student Experience)

Following either Q2 or Q3-5, everyone will then complete:

6. What is your name?

Professor Elizabeth McCrum

7. What is your email address?

Please note: If you are willing to be contacted about your submission, please provide your email address. You do not have to give your email address, and your views will be considered whether or not you provide this.

e.m.mccrum@reading.ac.uk

8. Are you happy to be contacted directly about your response?

- Yes
-

Please note: The Review may wish to contact you directly about your responses to help our understanding of the issues. If we do, we will use the email address you have given above.

9. Would you like us to keep your responses confidential?

-
- No

Please note: all underlined content is hyperlinked to supporting evidence.

Section 2: General views on curriculum, assessment, and qualifications pathways

10. What aspects of the current a) curriculum, b) assessment system and c) qualification pathways are *working well* to support and recognise educational progress for children and young people?

If we consider the subjects of Mathematics, English and the Sciences (Physics, Chemistry and Biology) across the age ranges, then much of this is working well in promoting progress for children and young people though does dominate a large part of the curriculum input. The challenge is for those learners who struggle in a traditional educational setting or where there is a lack of specialist knowledge, at both the earlier ages and higher levels of learning. These pathways, along with those in some sciences like Physics, are hampered by a lack of specialist teachers.

Taking Mathematics as an example: If we consider the Royal Society Mathematical Futures programme and Report – Mathematical and Data Education (MDE), these set out a number of reforms necessary to develop the mass quantitative and data skills needed for our future knowledge economy. While there is much to do, it does also note that there have been successes in improving mathematical education. This appetite for mathematical and computational skills is somewhat reflected in recent growth in A-Level entries for Mathematics, Further Mathematics, and Computer Science/Computing (100,052, 17,140, and 19,276 students, respectively, for 2024 entries in England).

A level Mathematics is well regarded, both as a preparation for mathematically demanding courses in higher education (mathematics, science, engineering etc) and as a course of study in its own right.

Core Maths was introduced by the Department for Education in England in 2014 as an additional level 3 advanced mathematics qualification for students not taking A level Mathematics but for whom study beyond GCSE would support their transition to further study in higher education and for their future careers.

Much of The Royal Society Mathematical Futures programme and Report – Mathematical and Data Education (MDE) focusses on the importance of quantitative skills throughout the curriculum. This includes strong references to Core Maths and the importance of building on this in the future as part of a broader curriculum post 16.

The response from The Royal Society, the joint response from the Institute of Mathematics and its Applications and the London Mathematical Society, and the response from the Mathematical Association, to the recent consultation on The Advanced British Standard, all of which include strong support for Core Maths and what Core Maths represents with a focus on developing fluency and confidence in using and

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applying mathematical and statistics skills to address authentic problems, drawn from study, work and life, with a strong emphasis on contextualised problem-solving.

11. What aspects of the current a) curriculum, b) assessment system and c) qualification pathways should be *targeted for improvements* to better support and recognise educational progress for children and young people?

The progress of children is impacted on by the retention and recruitment of specialist teachers. Whilst there are many issues that affect teacher training and retention, the increasing appearance of '[maths deserts](#)' where university maths departments at Russell Group institutions have been allowed to grow at the expense of other institutions is having a further detrimental impact on specialist teacher development recruitment. While this review does not consider HE specifically, it should be a priority for the government to consider what safeguards need to be put in place to avoid concentration of degree provision in a number of subjects in a small number of institutions with obvious implications for social justice and inclusion. The recent [Maths Summit](#) discussed these ideas in detail. Similarly, for [Modern Foreign Languages](#), [Physics](#)

If we consider the curriculum and assessment system overall, there is a need for education which better reflects the needs of society. Young people need to have the [skills, values, attitudes and competences](#) to fulfil their roles in society. This means children and young people need to understand the complexities of that and that our siloed educational systems need to be more connected and cohesive, with overlaps and interlinking. Adopting a metacognitive approach to learning is one way to address this. At the same time this may enhance recruitment and retention of teachers. Interdisciplinary learning throughout the age phases – both early years, primary, secondary, tertiary, informal, non-formal, higher education – would offer opportunities to connect the value of learning to the needs of society. This includes [the Arts](#) and [Climate Education](#).

The University of Reading has played a leading role in recent years in trying to improve the level of climate and sustainability education that young people across England receive. This position is consistent with the [Greening Education Partnership Declaration](#)

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proposed and signed by the UK government at COP28 in Dubai that commits partners to supporting sustainable education systems and getting every learner climate ready. Together with partners across the education sector, we have identified ways in which better climate education could be incorporated into the curriculum in our Climate Education in the Curriculum report. Aligned with the approach of this review for evolution not revolution we provide ways in which more and better climate education could happen with no, minimal and more substantive curriculum change. A key message is that all these pathways remain open.

Given the urgency of better climate education for young people we think much could be done even prior to the publication of this review that could make tangible improvements. As the DfE Sustainability and Climate Change strategy makes clear, the number of good green jobs in need of these skills is large and growing. While we strongly support this strategy and its aims, we are concerned about the statement in the strategy on political impartiality. While we, of course, support the legal duty of political impartiality that schools have, the impact of this particular framing should not be underestimated. In an environment where education staff feel ill equipped to teach about climate change, this particular framing further dissuades staff from accessing the CPD they need to provide high quality climate education. Potential solutions to climate change must be addressed openly and critically in the curriculum and in teaching if the green jobs gap is to be filled.

While the introduction of Core Maths, along with the welcome funding made available through the Core Maths premium to support this, was well received across the university sector, much more still needs to be done to realise its full potential for the benefit of all stakeholders, and particularly for the 200,000+ students who would stand to benefit by studying for a Core Maths qualification.

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Reforms to GCSE Mathematics in 2015 have driven up standards for many students. But as these have now been in place for 10 years the qualifications and associated curriculum are now in need of review and reform.

The 11-16 national curriculum and GCSE Mathematics do not include much emphasis on data education, which is in stark contrast to The Royal Society's vision in their Mathematical Futures programme and Report – Mathematical and Data Education (MDE). The Royal Society's observation that "Modern data and computational concepts and tools are largely absent from mathematical education as it is currently practised, **while problem solving and application of mathematical learning in meaningful contexts are not given high priority.**" which is at odds with current and future needs of learners, and the workforce.

The Curriculum and Assessment review offers the much-needed opportunity to consider all available evidence on the current 11-16 mathematics curriculum, and GCSE Mathematics and its assessment, with a view to reforming this to better serve all learners in the coming years, and to full address The Royal Society's observation that "Modern data and computational concepts and tools are largely absent from mathematical education as it is currently practised, while problem solving and application of mathematical learning in meaningful contexts are not given high priority." which is at odds with current and future needs of learners, and the workforce. The current assessment for GCSE Mathematics is not "**criteria-referenced**" which is problematic as The Royal Society identifies "That GCSE Mathematics is not criteria-referenced is also unhelpful for learners and other stakeholders. In practice, those attaining the highest grades demonstrate that they have mastered the majority of the curriculum, whilst those with the lowest grades have mastered very little of it. For those with the middling 'good grades' that are considered key to entering university and many professional and vocational roles, GCSE provides little information about what those learners can and cannot do." Like many universities, the University of Reading very much welcomed the 2017 reforms to A level Mathematics and A level Further Mathematics which were primarily designed to better support transition to further study of STEM subjects. Like it or not, high-stakes assessment often drives teaching and learning behaviours. Some of the issues that were evident with the pre-reformed qualifications was the variation in the nature of the assessment. The reformed A levels were designed to avoid these issues through common and compulsory detailed subject

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content and overarching themes to drive expected behaviours in teaching, learning and assessment for the benefit of learners and to support their transition to further study. While the reformed A levels represent a significant improvement on their predecessors, there remains variations in the nature of assessments and in assessment outcomes, and in the implementation and realisation of the intended outcomes for learners. The requirements of learners and the development of mathematics and its applications, including into areas such as data science, also evolves. Consequently, it would now be appropriate for the current A levels to be reviewed and reformed with a view to supporting learners even better for their future study and careers. Given their knowledge, expertise and experience with the design and implementation of the 2017 reformed A level qualifications in Mathematics and Further Mathematics, The Royal Society's Panel of Experts and Ofqual's Panel of Subject matter specialists for Mathematics, along with support from the Department for Education, are well-placed to be front and centre of this review and consequent reforms.

The current Core Maths level 3 qualifications were first offered in schools and colleges 10 years ago. These must continue to meet the needs of all learners with prior attainment of GCSE Mathematics ranging from grade 4 through to grade 9, and for those destined for a wide range of degree programmes in universities with mathematical or quantitative content. This can be challenging to achieve given that Core Maths focusses on developing fluency and confidence in using and applying mathematical and statistics skills to address authentic problems, drawn from study, work and life, with a strong emphasis on contextualised problem-solving. In common with A level Mathematics, the requirements of learners, particularly with a much wider range of level of prior attainment in GCSE Mathematics than for A level, and the development of the applications of mathematics and the ever-changing nature of meaningful and current real-life contexts. This means that it would now also be appropriate for Core Maths to be reviewed and reformed with a view to supporting learners even better for their future study and careers.

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In common with A level Mathematics, the requirements of learners, particularly with a much wider range of level of prior attainment in GCSE Mathematics than for A level, and the development of the applications of mathematics and the ever-changing nature of meaningful and current **real-life contexts**. In common with A level, there are variations in the nature of assessments and in assessment outcomes, and in the implementation and realisation of the intended outcomes for learners. This means that it would now also be appropriate for Core Maths to be reviewed and reformed with a view to supporting learners even better for their future study and careers. Again, given their knowledge, expertise and experience with the design and implementation of the Core Maths, The Royal Society's Panel of Experts and Ofqual's Panel of Subject matter specialists for Mathematics, along with support from the Department for Education, are well-placed to be front and centre of this review and consequent reforms.

What this amplifies is the need for more [real-world real-life problem-solving](#) opportunities for learners throughout the curriculum and reflected within assessments.

In terms of English Language and Literature GCSEs, there is sector-wide concern that the inherent skills that they develop, in communication, creativity, collaboration, and critical thinking need to be a. recognised, and b. further embedded in their respective curricula. The relationship between the two distinct qualifications needs to be articulated; more diverse texts need to be studied alongside older literature; multiple forms of writing and media need to be recognised in both qualifications; and both also need to support global environmental sustainability and greening the curriculum through building an enhanced awareness of the representation of the natural environment. Indeed, this is crucial to both qualifications. Whilst we recognise that context is important to studying literature, students need to be helped to understand why this matters, and also to see that the literary text, indeed any text, is more than 'evidence' of a moment's meaning. Rather, students need to understand the specifics of how we read and analyse texts in a number of different ways, and how different forms and media carry their own specific meanings and connotations. Above all, it should be made clear to students that English is enjoyable, that the study of texts can be pleasurable and enlightening, not just a task in identifying literary tropes, and that English language is empowering in that it will enable them to understand a wide variety of language-uses

and to navigate writing skills in their own lives with confidence and acuity. To this end, we recommend acknowledging more explicitly the texts that students are actually reading, and the ways in which they encounter different forms of writing and literature in their lives. Oracy will be vital to the future success of both qualifications.

Section 3: Social justice and inclusion

12. In the current curriculum, assessment system and qualification pathways, are there any barriers to improving attainment, progress, access or participation (class ceilings) for learners experiencing socioeconomic disadvantage?

The President of the Royal Society Sir Adrian Smith is clear in his foreword to the Royal Society Mathematical Futures programme's Report – Mathematical and Data Education (MDE) report that “Reforming the education system will take time and major investment. However, if we do not start now, we risk today’s young people being ill-prepared for the future, and the exacerbation of existing regional, gender and socio-economic inequalities.”

Students from lower socio-economic groups can experience lower levels of efficacy and confidence in learning that can impact on their attainment as well as aspirations for further and higher education. Some students do not trust that their efforts will ‘pay-off’ within an educational system that prioritises and recognises only one type of measuring attainment – i.e. through formal examinations.

The current curriculum does not formalise expectations around learning that research shows can impact positively on the attainment, progress and aspirations of learners from lower socio-economic groups. For example, opportunities to learn in non-formal spaces such as Ufton Court Educational Trust allow students to build confidence, resilience and efficacy that transfers back into the traditional learning space. It also supports those most vulnerable via their risk of exclusion by supporting the skills needs in terms of socio-emotional development.

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- Fuller, C., Powell, D., and Fox, S. (2016): **Making gains: the impact of outdoor residential experiences on students' examination grades and self-efficacy**, *Educational Review*
- Fuller, C. (2014), **Social Capital and the role Educational Aspirations**, *Educational Review, Vol. 66 (2), pp. 131 – 147*
- Pam Cottrell (PhD candidate) **Teachers of excluded children: beliefs and practices**

Children from poorer backgrounds are less likely to be diagnosed with certain neurodevelopmental conditions – in particular [dyslexia](#), but increasingly autism and ADHD as well – than their more affluent peers. This means that it is essential that we look beyond diagnostic labels when considering access to the curriculum and assessment to avoid so-called Matthew effects where children whose parents can afford to pay for a private assessment make more progress (due to increased support) than those whose parents cannot afford such an assessment or simply have not considered this as an option. Recent research ([Fletcher Watson et al., 2025](#)) has shown the importance of looking beyond diagnostic labels and providing opportunities to develop early literacy skills for children in communities where such labels are rarely sought or [given](#).

In terms of English, there is sector-wide concern that texts with older vocabulary, or vocabulary that assumes culturally-privileged knowledge, can exclude students from less-privileged or non-British backgrounds, asylum-seekers, and recent refugees. This can be readily addressed in both English GCSEs by paying attention to more contemporary forms of language and literature, to more diverse language, texts, and authors, and by giving teachers the necessary support to work with students on less immediately familiar forms.

13. In the current curriculum, assessment system and qualification pathways are there any barriers to improving attainment, progress, access or participation which may disproportionately impact pupils based on other protected characteristics (e.g. gender, ethnicity)?

The President of the Royal Society Sir Adrian Smith is clear in his foreword to the Royal Society [Mathematical Futures](#) programme's [Report – Mathematical and Data Education \(MDE\)](#) report that “Reforming the education system will take time and major investment.

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However, if we do not start now, we risk today's young people being ill-prepared for the future, and the exacerbation of existing regional, gender and socio-economic inequalities."

There are issues around the representative nature of the curriculum, and the extent to which it is perceived as inclusive or exclusive. Clearly, any inclusion of material gives greater significance to that topic, whilst the exclusion of topics can convey messages about a group being unimportant. This is a particular issue for those from marginalised groups. [Research](#) shows how students from minority ethnic groups can feel alienated from the education system due to the [lack of representation in the history curriculum](#).

In addition, the current curriculum and assessment systems do not take account of the learning needs or learner-appropriate assessment of pupils whose home language is not English. This means that the curriculum and assessment structures potentially disadvantage pupils for whom race/nationality is considered a protected characteristic. The barriers can be summarised as:

- The assessment systems assume that learners have English as a first language and this means that those learners who are learning English at the same time as learning curriculum content are less likely to attain in line with age-related expectations ([Demie, 2018](#))
- The fact that curriculum design and assessment systems do not take account of pupils' other languages means that the system perpetuates a deficit model of multilingualism as an 'absence of' English. ([Cushing, 2023](#); [Flynn & Curdt-Christiansen, 2018](#))
- These barriers are implicit, but they militate against multilingual pupils' academic potential and their sense of school belonging.

It is important to reinforce the message that all genders and ethnicities are given equal status. As Dame Alison Peacock from the Chartered College of Teaching (2024) states, 'it is essential that we celebrate diversity and ensure black history is integrated into our curriculum all year round, by interrogating the curriculum and understanding whose knowledge is centred, going beyond token celebrations of a few influential individuals'.

A particular challenge for LGBTQ+ students is a sense of isolation which in turn is linked to the prevalence of increased mental health issues for such students. The curriculum, with its absence of LGBTQ+ material, provides a form of 'cognitive isolation'. This is across the curriculum and is an issue consistently raised by LGBTQ+ students ([Harris et al, 2022](#); [Harris et al, 2023](#))

14. In the current curriculum, assessment system and qualification pathways, are there any barriers in continuing to improve attainment, progress, access or participation for learners with SEND?

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The examination accommodations currently in place for students with SEND are not fit for purpose. At university, students with dyslexia or language impairment are generally not penalised in their written work for spelling or grammar inaccuracies, school students in KS2 SATS and GCSE are penalised for this although (for dyslexia) word reading, spelling and writing accuracy are a core part of the diagnostic criteria. Providing students with a laptop with spelling and grammar check disabled when this is precisely where their difficulties lie could indeed be viewed as ableist: it is analogous to penalising a wheelchair user for not being able to walk as far as their peers. In addition, 25% "extra time" which appears to be the default accommodation for many students with additional needs has [no clear theoretical or empirical support](#), and while it does confer some benefit for some students this is not [consistent](#). A more inclusive approach would be to offer spell check, more time, prompters, scribes etc to all students: many will not need these or benefit from them, but the stigma and obstacles associated with gaining these accommodations will disappear.

Demand is increasing. Rising numbers of children and families requesting support and this is increasing pressure on the system. The [most recent data from the DfE](#) shows an increase of over 100000 from 2023. These numbers are made up with an increase in those with speech, language and communication needs as well as ASD. What this means is that an increasing number of students with SEND are coming into local schools. Schools comment on the lack of funding and resources to meet this demand and resultant frustration for families, with [latest statistics](#) showing that well over 95% of tribunals rule in favour of the families, confirming that disputes/disagreements are not being settled locally. Often there are delays in assessment and this could be linked to the pressures put on Local Authorities with limited budgets and increased demand.

Places at SEND specialised schools are limited and they are at capacity. As the demand placed on mainstream provision is ever increasing, mainstream provision cannot meet this demand and families request specialist provision. Resources follow as lower staff ratios cost more money (specialist provision is more costly). These specialist schools are at capacity and plans to increase provision are not keeping pace with demand. A smarter way forward would be to invest in mainstream resources to develop staffing and other provision at this point. This includes regular access to therapists, which is often lacking in mainstream provision.

The National Curriculum needs to be for all students and options to focus on areas linked to creativity or vocational work are often limited. When needing to make tough decisions due to limited budgets, creative and vocational areas are often cut. Schools need to ring fence curriculum time for these areas and make sure the offer is varied and robust and extra support for core subjects is not given in exchange for access to these subject areas.

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We need to ensure access for all learners and therefore, those identified with SEND, should be encapsulated by a quality first model of design. This Universal Design for Learning (UDL), promoted as an inclusive strategy for delivering learning so that all are able to participate, is an effective approach utilised to meet a range of diverse needs. [CAST: About Universal Design for Learning](#)

The assessment system can be a useful data tool for measuring whole class performance but could we consider an adapted way of gauging an individual's level of progress and success, particular for those identified with SEND. With the knowledge that celebrating success of an individual can significantly increase their engagement with learning and support progression, an assessment which values the pupil's strengths. For example, painting a picture of a pupil's achievements, articulated in an official way to the child and their parents, would encourage an increased sense of pride and love for learning. This is the very thing that teachers are trying to elicit but may be unintentional squashed by the standardised assessment system that tries to fit children into a box, rather than allow a more child centred approach to measuring success.

The engagement model (Carpenter, 2024) is a great example of this working for SEND pupils working at 'below' expected levels. It looks at five areas of engagement for learning: exploration, realisation, anticipation, persistence and initiation. 'These areas allowing teachers to assess pupil engagement in developing new skills, knowledge and concepts in the school's curriculum by demonstrating how pupils are achieving specific outcomes. They represent what is necessary for pupils to fully engage in their learning and reach their full potential.' (DfE, 2020) [The engagement model - GOV.UK](#).

Perhaps this best practice model could be adapted in its essence to support increases in self-efficacy for all pupils and their engagement in their own learning journey by encouraging and inspiring scholarship. This is a key Teaching Standard indicator of effective practice, 'encourage pupils to take a responsible and conscientious attitude to their own work and study' ('Teaching Standard 2; DfE, 2011) and therefore would be wise to inform the design of the systems that teachers are utilising to support learning.

Some specific areas of the curriculum that may support pupils identified with common incidence SEND e.g. dyslexia or co-occurring presentations of emotional dysregulation, could reflect on the way spellings and times table tests are administered. Many children with additional needs may find the timed nature of these tests trigger anxiety and may not be the most inclusive practice for determining understanding and retention of the content. For example, times table fluency and accuracy, are important for obtaining quick

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arithmetic and reduce cognitive load when working out problem solving. However, for a child struggling with anxiety, the timed element of the year 4 times table test, could inhibit their ability to recall facts. The timed element could therefore be reduced or removed.

The development of enhanced technology, could be utilised to update our thinking around what we value as useful skills e.g. the wide use of spellcheck or Artificial Intelligence (AI) tools that support dictation and accuracy, could mute the status of the ability to spell as being paramount and an inhibitor to good writing. For example, we may find that the use of new technologies may increase the likelihood of our ADHD and dyslexic students producing the most creative and elevated prose. The current system of hierarchal importance to certain skills, may be holding back our SEND pupils by deprioritising other skills based on an archaic system that may not speak to the current lived experience of the world pupils will graduate into.

The more agency we provide for our teachers and pupils alike, the richer the expression and engagement in learning, we may find. In particular, those who are more vulnerable e.g. SEND and disadvantaged pupils, will benefit from the key trauma informed practice (TIP) principles, 'safety, trustworthiness, choice, collaboration, empowerment and cultural consideration'. If considered carefully, this framework could overarch best practice for all curriculum and practice design in order to facilitate a more inclusive and responsive education system for all. This lens, although designed to advocate for positive mental health and a trauma informed perspective, actually facilitates the promotion of well-being for all key stakeholders involved in the learning process. Therefore, the implication of utilising this to inform curriculum and assessment design could effectively support the goal of this review; to support opportunities and success for all pupils and learners.

15. In the current curriculum, assessment system and qualification pathways, are there any *enablers* that support attainment, progress, access or participation for the groups listed above?

Adopting a neurodiversity-affirmative approach (e.g. Belonging in School:

<https://inclusion.mrc->

[cbu.cam.ac.uk/#:~:text=Introducing%20Belonging%20in%20School%3A%20a,to%20learners%20with%20neurodevelopmental%20differences.](https://inclusion.mrc-cbu.cam.ac.uk/#:~:text=Introducing%20Belonging%20in%20School%3A%20a,to%20learners%20with%20neurodevelopmental%20differences.)) in which differences

between children are expected and feed into school design and policy.

Section 4: Ensuring an excellent foundation in maths and English

16. To what extent does the content of the national curriculum at *primary* level (key stages 1 and 2) enable pupils to gain an excellent foundation in a) English and b) maths? Are there ways in which the content could change to better support this aim? Please note, we invite views specifically on transitions between key stages in section 9.

In terms of English, there is concern that personal enjoyment and the possibility of a more authentically personalised engagement is being sacrificed to the rigours of an overly prescriptive curriculum.

Regarding mathematics, the following suggestions would enhance the aim of pupils gaining an excellent foundation:

Introduce probability in Key Stage 2

The curriculum currently includes some statistics but does not introduce probability at the primary level. Add introductory content on probability, such as basic probability language (certain, likely, unlikely, impossible) and simple chance experiments in Key Stage 2. Including simple probability concepts alongside existing statistics would enhance pupils' data literacy and provide foundational knowledge that will support later studies in data handling and statistical reasoning.

Greater focus on mathematical reasoning and proof skills

While reasoning is encouraged, there is limited explicit content on how to systematically approach reasoning and proof. It is worth embedding content that explicitly teaches the basics of mathematical reasoning and proof e.g., Key Stage 2 could introduce the idea of simple mathematical arguments.

Mathematical equivalence

Currently children are introduced to writing and interpreting mathematical statements involving addition (+), subtraction (-) and equals (=) signs in Year 1, with < and > introduced in year 2. In order to understand the concept of equivalence, the more natural sequencing is to explore more than / less than and the idea of < and > before, or at least at the same time as, introducing the = sign. This would be significant, in helping to establish = as 'is the same as' rather than 'makes', which causes significant issues with later algebra.

17. To what extent do the English and maths *primary* assessments¹ support pupils to gain an excellent foundation in these key subjects? Are there any changes you would suggest that would support this aim?

The primary Maths assessment does not help pupils gain an excellent foundation in Maths. For example, on the KS2 Mathematics Paper 2 ('Reasoning'), many of the test questions are questions such as: "*Write the missing number to make this addition correct.*", "*Emma has a 5 litre bag of compost. She uses 2.75 litres. How much compost does Emma have left?*" These test questions do not assess students' mathematical "reasoning" abilities as all pupils are expected to do is to provide a single numerical answer without the expectation for them to actually provide reasoning behind those answers. These questions could usefully be replaced with questions that assess reasoning – or reasoning assessed by teacher assessment.

The English Association response speaks to the heart of the matter in its members' strong feeling that testing has removed the possibility of more tailored and sensitive responses to children's learning, and that 'knowledge' has supplanted engagement. If that engagement is not nurtured at an early age, knowledge cannot be embedded later.

18. To what extent does the content of the a) English and b) maths national curriculum at *secondary* level (key stages 3 and 4) equip pupils with the knowledge and skills they need for life and further study? Are there ways in which the content could change to better support this aim?

Mathematics

Bringing context and application of skills up to date

While the correct essential key concepts are explored in the current curriculum, the application of these could be reviewed for **relevance in the evolving world**. For example, stem and lead diagrams and the skills of drawing pie charts with compass and protractor are less relevant now, however using IT to represent data in graphs and make comparisons is a vital skill that is not currently addressed.

19. To what extent do the current maths and English *qualifications* at a) pre-16 and b) 16-19 support pupils and learners to gain, and adequately demonstrate that they have achieved, the skills and knowledge they need?

¹ These include SATs at the end of key stage 2, the phonics screening check and the multiplication tables check.

Are there any changes you would suggest that would support these outcomes?

Children from poorer backgrounds start school at a considerable disadvantage relative to their more affluent peers in relation to their language and pre-literacy skills and this is predictive of later attainment. We know that early intervention programmes such as SureStart can have a substantial positive impact on educational attainment many years later and while key ingredients of success are still debated, it is likely that place-based, community-centred approaches that understand the specific needs and challenges in a neighbourhood are important. Recent University of Reading research has shown that investing time into understanding community need and working with parents and other community members to co-design initiatives results in co-created activities that are engaging for parents and children (Fletcher-Watson et al., in press) and which show promise of benefits to language and early literacy skills as well as school readiness. It is increasingly clear that early investment that is context-specific and respectful yields results which are likely to decrease the disadvantage poorer children face when they start school, thereby allowing them to thrive in accessing the curriculum and in early assessment.

Reference

Sue Fletcher-Watson, Holly Joseph, Laura Crane, Georgia Pavlopoulou, Steve Lukito, Eloise Funnell, Alyssa M. Alcorn, Catherine J Crompton (in press). Applied Principles for Inclusive Practice in Neurodevelopmental Research: an illustrative case study series. *Current Developmental Disorders Reports*.

Mathematics

The qualification focus could be enhanced by considering **real-life applications**, for example to personal finance.

20. How can we better support learners who do not achieve level 2 in English and maths by 16 to learn what they need to thrive as citizens in work and life? In particular, do we have the right qualifications at level 2 for these 16-19 learners (including the maths and English study requirement)?

The current issues with 16-19 learners not having attained a level 2 mathematics qualification or a mathematics qualification that they need to thrive as citizens and work could be addressed by reforms to the current 11-16 national curriculum and GCSE Mathematics. This is considered in question 11. Authentic and real-life curriculum and assessment that focuses on learning beyond the curriculum. Learning through doing, learning in the workplace would benefit these individuals. [Also, asking them in a focus group about what would help them.](#)

- 21. Are there any particular challenges with regard to the English and maths a) curricula and b) assessment for learners in need of additional support (e.g. learners with SEND, socioeconomic disadvantage, English as an additional language (EAL))? Are there any changes you would suggest to overcome these challenges?**

As research by [Dr Trakulphadetkrai](#) shows, mathematical language is often complex, posing challenges for EAL students and those with language processing difficulties. Suggested change (to the implementation of the curriculum): embed language support strategies within mathematics instruction, such as pre-teaching vocabulary, using visual aids (e.g., via the use of story picture books), and employing language scaffolds. Providing glossaries or word banks and using more multilingual resources could also help EAL learners. Assessments like the Year 4 Multiplication Tables Check focus heavily on speed, which can disadvantage SEND students with processing delays and those with memory challenges. Suggested change: Replace time-based assessments with ones that emphasise conceptual understanding. Assessment Questions could also usefully be reviewed for context and language in the context of learners with disadvantage, for example questions based on specific cultural references which may exclude some learners.

Section 5: Curriculum and qualification content

- 22. Are there particular curriculum or qualifications subjects² where:**
- there is too much content; not enough content, or content is missing;**
 - the content is out-of-date;**
 - the content is unhelpfully sequenced (for example to support good curriculum design or pedagogy);**

² This includes both qualifications where the government sets content nationally, and anywhere the content is currently set by awarding organisations.

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d. there is a need for greater flexibility (for example to provide the space for teachers to develop and adapt content)?

Please provide detail on specific key stages where appropriate.

In the current curriculum, climate education is fragmented with a lack of sequencing between the causes and consequences of climate change and teaching about climate solutions. This fragmentation means that young people typically feel ill-prepared for the future exacerbating their climate and eco-anxiety. The limited evidence available shows a marked climate literacy deficit amongst school leavers, a direct consequence of this fragmentation. Numerous examples of poorly worded exam questions and out of date concepts that emphasise the 'benefits' of climate change to the UK show how the curriculum has failed to keep pace with both the changing climate and our understanding of that change. The OCR striking the balance report makes it clear that in this and other areas, more rapid curriculum review and reform processes will be needed to keep the curriculum current and accurate.

The National Climate Education Action Plan, Climate Education in the Curriculum report set out where the key parts of climate education feature in the curriculum. The report is clear that, with greater flexibility, climate education could feature in many different subjects and at many different education levels. The SOS-UK Tracked Changes work makes it clear how much the climate curriculum at all levels could be improved by small changes.

While both greater flexibility and small changes could make a huge, immediate difference to the quality of climate education, it remains the case that a more fundamental reimagining, linking key concepts across key stages, would lead to a gold standard climate curriculum.

Neither a. nor b. apply to the level 2 or level 3 mathematics curriculum and qualifications, but that does not mean these should not be reviewed and reformed as outlined in the response to question 11 and question 29.

Computer Science

Key Stage 3: There is a lack of clarity in defining IT and digital literacy topics, leading some schools to pay minimal attention to these areas. Without clear guidelines, the focus remains narrow and schools may skip meaningful computing provision at this level.

GCSE Computer Science: The GCSE curriculum, focused predominantly on computer science, narrows what happens at Key Stage 3. This leads to the exclusion of broader digital skills at Key Stage 4, especially for students who do not pursue GCSE Computer Science. See <https://scari.sites.er.kcl.ac.uk/cpre/>

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Whilst from the outset of the new Computing Curriculum in 2014 the Royal Society report recognised that it included three strands: Computer Science, Information Technology and Digital Literacy, in its implementation there has been an uneven shift towards some aspects of the curriculum (e.g. focusing on programming but sidelining some other topics like data handling). National initiatives, like the free NCCE/Teach Computing Units of Work have provided an approach and resources towards a balanced and sequential curriculum, especially for primary schools. However, the shift from ICT as a core subject to Computing as a foundation subject also meant a huge shift to timetabling and curriculum decisions schools had to make especially in Key Stage 3. In spite of the huge investment and input Computing is not clearly represented in the latest statutory framework for the early years foundation stage and that does not support smooth transition to Key Stage 1.

English

The English Language GCSE examination has been criticised on many levels. However, one aspect of the exam since its new specification in 2017 which has been relatively neglected concerns the vocabulary of the unseen texts in the examination and whether students are sufficiently prepared to understand and answer questions about these texts. Recent [research](#) from University of Reading, using corpus analysis, showed that the vocabulary in the unseen texts tends to be rare and is found predominantly in older, literary fiction. This calls into question whether the qualification is achieving its stated aim of preparing students for future study and work in general. It could also influence teachers' choices about what students read in lessons and recommendations for reading at home. While it may benefit students to read older, literary fiction for exam purposes, as the literary canon consists mainly of "dead white men", this may undermine efforts to increase diversity and representation in the curriculum and encourage freedom of choice in reading for pleasure.

History

History teachers complain there is too much content in the current GCSE specifications, which impacts their practice in several ways. They struggle to cover much material in depth, which can mean students find it harder to make sense of the topics and periods they cover. To counter this, many teachers tend to choose content at KS3 that mirrors the GCSE specification to make teaching GCSE easier but ultimately means a narrowing of the curriculum for students, as the repeat content coverage. There is also an unhealthy adoption of GCSE style questions throughout KS3 to prepare students for GCSE – in effect, in the most extreme cases, this can make the KS3 as nothing more than preparation for GCSE and effectively creates a 5 year GCSE. The adoption of GCSE style questions is problematic for another reason, namely it is hard to test good

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quality source work and historical interpretations in an exam format, so adopting GCSE style assessments throughout KS3 means that these elements get assessed in fairly formulaic ways at KS3 rather than developing students' genuine understanding of these areas. Much of this is covered in [Harris \(2021\)](#):

There is evidence that history departments are increasingly aware of the need to cover Black history and other minority ethnic groups. The Historical Association (HA) surveys of [2019](#) and [2021](#), which examines the state of history teaching in secondary schools, show a move towards greater acceptance of teaching these areas. However, it is not clear how much time is devoted to this form of history, how it is taught and what perspective is adopted. It is safe to say that schools are diversifying their curriculum, which is a positive, but more guidance may be appropriate. Although all the exam boards now offer a GCSE unit on migration, the 2021 HA survey found that most teachers felt there was limited scope to include the history of Black and Asian history within the curriculum. One point to note here is the difference between teaching Black and Asian history generally and teaching British Black and Asian history – quite often students learn about the Black Civil Rights movement in the context of American history but not British history.

Another issue highlighted by the 2021 HA survey, and which is a significant gap in history teaching, is the inclusion of disabled history and LGBTQ+ history. There are very few textbooks that have any material in relation to these histories, there is limited coverage in teacher training courses, and the impacts of this in school are negative. When exploring the experience of LGBTQ+ students in secondary schools, a major issue for these students is the sense of isolation, which in turn is linked to the prevalence of increased mental health issues for such students. The curriculum, with its absence of LGBTQ+ material, provides a form of 'cognitive isolation'. This is not just linked to history, but is an issue across the curriculum, as noted in [Harris et al \(2022\)](#) and [Harris et al \(2023\)](#).

Languages/Modern Foreign Languages

The 2013 National Curriculum for Languages (MFL) is largely suitable for Key Stages 2 and 3 in its aims and objectives but could better emphasize global citizenship, which was more prominent in earlier versions ([Graham & Santos, 2015](#)). The curriculum primarily focuses on French, German, and Spanish, languages with a global presence; there should be added emphasis on teaching children that these are world languages. Likewise, the current focus, as expressed in the OFSTED Curriculum Review (2021,) on developing phonics, vocabulary, and grammar, potentially sidelines equally important aspects of language learning at KS2. We know from our [research](#) with teachers that they not only value fostering empathy and creativity in their learners but are able to do so while also developing their linguistic skills.

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At KS2, guidance is vague, especially on what constitutes “significant progress.” [Research from the University of Reading](#) shows 151 teachers wanting clearer benchmarks for each year (Kasprowicz & Graham, in preparation). The [Progression in Primary Languages](#) project aims to define content and sequencing from Years 3 to 6, which should be incorporated into any curriculum revisions.

In KS3, GCSE requirements often overshadow broader curriculum goals, demotivating students and reducing the focus on cultural learning ([Graham et al, 2016](#)). A survey of 800 teachers supports prioritizing communication and cultural knowledge ([CML, 2020](#), [CML, 2021](#)). To be successful, a curriculum should reflect the goals of both learners and teachers.

The limited vocabulary scope of the new GCSE may hinder A-level preparation ([CML, 2021](#)).

Overall, MFL curriculum reforms are needed to ensure coherent language learning from KS2 to KS5.

23. Are there particular changes that could be made to ensure the curriculum (including qualification content) is more diverse and representative of society?

Computer Science

Gender representation: Multiple studies highlight that girls are underrepresented in GCSE Computer Science, with many being put off by its content and gendered stereotypes. Substantial changes in content, structure and pedagogy would be necessary to address gender imbalances.

Ethnic diversity: Representation is also low amongst disadvantaged groups and certain ethnicities. Schools serving more advantaged communities are more likely to offer GCSE Computer Science, creating a socioeconomic divide. See <https://scari.sites.er.kcl.ac.uk/cpre/>

Inclusivity in computing: The curriculum should be revised to cover a broader range of computing topics (e.g., digital media and project work), which have higher appeal to female students and marginalised groups.

History

As noted in Q22, the GCSE specifications are seen by history teachers as not encouraging greater diversity in the curriculum ([2021](#); Harris, 2021). The GCSE specifications also have an impact on what many teachers choose to cover at KS3, and in many cases serve to restrict what students may cover in Years 7 to 9. Changing the GCSE specifications would encourage history departments to create more diverse and representative curricula. Hodder Murray’s textbook, ‘British Social History, c.1920-2000’,

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is the only school history textbook that specifically addresses issues around disability, sexuality, gender and ethnicity. The fact there is only one textbook available for these topics is shocking.

Languages/Modern Foreign Languages

As noted in Q22, the curriculum could benefit from a renewed emphasis on global citizenship, a feature more prominent before 2013 (Graham & Santos, 2015). While French, German, and Spanish are the primary languages offered at KS3 and KS4, these are global languages spoken beyond Europe, and the curriculum should reflect this broader cultural reach.

24. To what extent does the current curriculum (including qualification content) support students to positively engage with, be knowledgeable about and respect others? Are there elements that could be improved?

Computer Science

Exclusivity of coding focus: The current computing curriculum focuses on coding, which does not encourage broader participation, particularly amongst girls and certain minority students. More inclusive topics like digital media, data science and ethics in technology are needed.

Teacher and curriculum support: Research suggests that computing teachers feel unprepared to teach an inclusive computer science curriculum, suggesting a need for more comprehensive training and professional development opportunities to support diversity.

See <https://scari.sites.er.kcl.ac.uk/cpre/>

The Computing curriculum includes online safety focusing on exploration of digital interactions in Primary. At Key Stage 3 the focus on online safety is revisited with further focus on digital interactions and digital authorship and ownership. There is less focus on validity and reliability of sources as there was with the older ICT curriculum. At GCSE level there is focus on social, moral and ethical implications of digital technologies but at that level it is only students who opted in for the subject. There is room for more focus and deeper exploration on digital citizenship in Key Stage 3. Project Evolve identifies 8 strands for online safety but the take up on all 8 is uneven, especially at primary level.

History

As noted in Qs 22 and 23, the history curriculum does not explicitly encourage teachers to plan for a more diverse curriculum, in which students learn about other societies and promotes respect. There are lots of examples where teachers are doing this (the HA's

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journal 'Teaching History' has several examples), but this is usually through personal initiative, rather than being required to focus on this. The 2014 History National Curriculum does steer teachers towards a 'white', 'male' form of history, although its lack of prescription, is helpful for giving teachers freedom, but there is little to actively encourage teachers to embrace a more diverse curriculum

Languages/Modern Foreign Languages

The Ofsted Curriculum Review (2021) highlighted phonics, vocabulary, and grammar as priorities in primary language instruction, but this emphasis may sideline other important areas, such as cultural awareness and global citizenship, that support students to positively engage with, be knowledgeable about and respect others. Findings from the 'Digital Empowerment in Language Teaching' (DELTEA) project indicate that language learning through digital resources like digital storytelling can support the development of cultural empathy and the valuing of diversity and acceptance of difference as part of a common humanity.

25. In which ways does the current *primary* curriculum support pupils to have the skills and knowledge they need for life and further study and what could we change to better support this?

The current primary curriculum is not fit for purpose for learners whose home languages are other than English; those pupils who need to learn English to access the curriculum. This is because the content of the English curriculum, and its related assessment, assumes a pupil with English as a first language. Because of this, the curriculum devotes insufficient time to speaking and listening/ oracy education, which are vital skills supporting English language learners' language acquisition and literacy development. Subsequent under-attainment for these learners can negatively impact their life chances (Hessel & Strand, 2023) .

The ways to challenge this problem are twofold:

1. Research from the US and the UK shows us that classroom practice that is both intentionally dialogic and culturally sustaining underpins effective teaching in multilingual classrooms (Flynn et al, 2023).
2. Research from the UK using a professional learning approach to teacher development, focussed on oracy education and promoting school belonging, demonstrates that multilingual pupils make better progress in speaking, listening and reading comprehension if taught in this way. The University of Reading's Talk Rich Teaching Project exemplifies this approach.

Languages

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Children, from primary school onwards, need to experience a broad and balanced curriculum that not only develops their knowledge but also their skills and social and personal attributes. The latter include the development of tolerance, empathy and creativity which are all crucial to well-being at both an individual and social level. All these attributes can be strengthened through learning another language. However, the primary curriculum is currently too focused on literacy and numeracy to allow enough space for language learning. Annually, British Council Language Trends surveys show that children have very limited curriculum time for languages (generally around 30-45 minutes a week), and our work with teachers tells us that often language lessons are cancelled at short notice. Not only is that insufficient for them to develop their language skills (Graham et al., 2017), it also does not allow teachers sufficient time to develop the non-linguistic skills language study can bring. Our current research ('Digital Empowerment in Language Teaching' (DELTEA)) has found that using digital stories within the primary languages classroom can have a positive impact on the empathy and intercultural understanding of Year 5 learners, but that more curriculum time needs to be allowed for languages to maximise those benefits. Furthermore, greater importance needs to be attached to languages within the primary curriculum so that the lesson time that is allocated is more protected than it is at present.

Computing

There have been organised initiatives to support and standardise provision for the primary Computing curriculum. The NCCE/Teach Computing curriculum resources or the Computing activities on the Barefoot website have been helpful. However, unequal access to hardware has made it more difficult for schools to deliver aspects of the curriculum. After lockdown the move to reorganising hardware has also led schools to decisions about apps and reorganising the curriculum. Some schools buy into subscription-based resources often placing less emphasis on teaching transferable skills. This means students may focus more on specific app features rather than gaining a deeper understanding of the key concepts behind using the app effectively.

26. In which ways do the current *secondary* curriculum and qualification pathways support pupils to have the skills and knowledge they need for future study, life and work and what could we change to better support this?

The current secondary curriculum and qualification pathways for mathematics have positive outcomes for many learners and have many strong attributes that are relevant and of value for many learners. However, there is ample scope to make this more fit for purpose for all learners – see response to question 11 and question 29 – and should be reviewed and reformed accordingly.

English

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The English Language GCSE examination has been criticised on many levels. However, one aspect of the exam since its new specification in 2017 which has been relatively neglected concerns the vocabulary of the unseen texts in the examination and whether students are sufficiently prepared to understand and answer questions about these texts. Recent research from University of Reading, using corpus analysis, showed that the vocabulary in the unseen texts tends to be rare and is found predominantly in older, literary fiction. This calls into question whether the qualification is achieving its stated aim of preparing students for future study and work in general. It could also influence teachers' choices about what students read in lessons and recommendations for reading at home. While it may benefit students to read older, literary fiction for exam purposes, as the literary canon consists mainly of "dead white men", this may undermine efforts to increase diversity and representation in the curriculum and encourage freedom of choice in reading for pleasure.

Modern Foreign Languages

At KS4, the current GCSE (as from 2024) places greater emphasis on written communication compared with spoken language, and much more emphasis on phonological, vocabulary and grammatical knowledge as ends in themselves. Instead, teachers and learners, as well as many researchers (Graham, 2022), believe that such knowledge development should be in the service of language skill development, and that both are needed for successful and motivated language learning in schools.

As teachers tend to teach to the exam and from early Key Stage 3 onwards, the GCSE needs to prioritise what both teachers and learners see as important, to avoid a negative backwash effect from the examination. While in theory there is nothing in the GCSE that stops teachers from including communication and culture into their lessons, in practice, they focus on what the examination requires in terms of a narrower range of requirements centred on vocabulary, phonics, grammar and written accuracy.

Furthermore, the current GCSE assesses a more limited range of vocabulary than its predecessor. While that has the intended aim of making the GCSE more accessible to learners, it may well have the opposite impact. As GCSE grading will not change with the new examination (ie there will be the same percentage of learners within each grade band as in previous years), we will have the worst of all possible worlds: learners will continue to gain demonstrably lower grades than in other EBacc subjects for an examination that does not equip them with the skills they wish to develop, namely to communicate or engage with authentic language. This will only serve to accentuate their sense of lack of competence in language learning, and hence drive down uptake, rather than increase it. While teachers do have the freedom to teach more vocabulary than is assessed, in practice, the washback effect of the examination is leading to a narrow focus on an insufficiently wide range of vocabulary. Research from a leading expert in the field of vocabulary development (Milton, 2022) highlights the importance of learners being exposed to both common and less common vocabulary, both from the

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perspective of language development but also to prevent learners from having to read only very simple and uninspiring texts in class. We share that view.

Our own research has shown that learners at both Key Stage 4 and Key Stage 3 benefit in terms of vocabulary growth ([Graham et al., 2024](#); [Woore et al., 2018](#)) and the development of creativity ([Graham et al., 2020](#)) from working with authentic texts that contain a more ambitious range of vocabulary and that are written on more cognitively challenging themes.

Computing

Popular pathways from Key Stage 3 to Key Stage 4 are the GCSE in Computer Science and the OCR Creative iMedia qualification. These options reflect the ongoing debate between academic and vocational exam qualifications, leading to variations in what is offered across schools. Coursework is also reduced in favour of exam-based approaches leaving students without a comprehensive, well-rounded experience of the subject.

27. In which ways do the current qualification pathways and content at 16-19 support pupils to have the skills and knowledge they need for future study, life and work and what could we change to better support this?

The current content and qualification pathways for mathematics have positive outcomes for many learners and have many strong attributes that are relevant and of value for many learners. However, there is ample scope to make this more fit for purpose for all learners and should be reviewed and reformed accordingly and accompanied by reforms to 11-16 and GCSE Mathematics study, all as outlined in the response question 11 and question 29.

Skills for employment

We undertook commissioned research in the Thames Valley area to explore the skills that employers think are essential for workers to have gained through further education, training, and prior experience for employment ([Floyd et al., 2023](#)). Our findings from over 100 small, medium and large-scale employers were as follows, with implications for how the curriculum post-16 needs to be reformed:

- For **entry level employees**, technical job-related skills are not perceived by employers to be as important as more generic transversal skills such as communication, time management, and team working. Other important skills identified were linked to specific roles such as driving, machinery maintenance, and software development, alongside more generic themes which can be grouped under the umbrella term of transversal skills such as problem solving and self-awareness.

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- Only 6% of employers felt that prospective and current employees for **entry level positions** have the necessary skills to meet current business objectives. The reasons for this can be grouped into key areas such as employees needing more work experience, requiring a more up to date curriculum and better career advice from educational and training providers, and needing better developed transversal skills such as people and time management, resilience, and more positive attitudes to work. Resilience was the skill that most employers perceived **entry level employees** were lacking.
- For **mid-level employees**, as well as technical skills highlighted for specific roles, transversal skills were highlighted as being important including leadership and project management skills, compassion and understanding, reflecting the more senior nature of mid-level employees which may include supervisory positions.
- Only 17% of employers felt that prospective and current employees for **mid-level positions** have the necessary skills to meet current business objectives. The reasons for this can be grouped into key areas such as employees needing more continuous updating/upskilling, leadership development in preparation for taking on more supervisory roles and developing transversal skills such as confidence and emotional intelligence in order to take on such roles successfully. Employers perceive **mid-level employees** are lacking key technical skills, but leadership and related skills were also highlighted as needing development.
- There were relatively few statistically significant differences between types of organisations, but those that did exist largely involved the 'Manufacturing' group. Employers in that area tended to rate more people-focused or 'soft' skills less highly than other groups.

Where should these skills be gained from?

- For both entry and mid-level roles, it is clear that employers overwhelmingly think that these skills should be gained through a mix of both education and prior experience. They also highlighted the importance of schools, FE colleges, or other education providers in this process for entry level roles, and professional development/training through work for mid-level roles.

Barriers

- While employers perceive the unresponsiveness of educational institutions or a lack of suitable courses/training on offer to be a key for both groups, for **entry level employees** they perceive barriers relating to the attitudes, perceptions and expectations of individuals as being almost equally important. Other barriers identified were related to the pandemic and not been given enough opportunities to experience what workplace expectations might be.
- Reasons for this for **entry level employees** can be grouped around educational providers needing to better prepare young people for the work place (e.g.

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curriculum not appropriate, inflexibility of training), and key transversal skills that need to be developed such as confidence, self-esteem, commitment and having a positive attitude. For **mid-level employees**, key themes emerged around FE/universities/graduates being out of touch with skills needed in workplace, a lack of appropriate in house CPD/training, family/home life related issues impacting on job roles, and leadership development required for supervisory roles.

Skills for the future

- For the future, employers felt that IT skills would be the most important skill, with transversal skills such as time management/organisation, communication, and resilience still being perceived as key.
- Key themes emerged around what can broadly be termed technical digital skills (including artificial intelligence and software engineers), social media engagement (marketing etc), construction/engineering skills, managing different views in a diverse society, and the ability to manage time and work remotely (flexible working practices). Interestingly, green skills were not especially highlighted across all three data sets.

Section 6: A broad and balanced curriculum

28. **To what extent does the current *primary* curriculum support pupils to study a broad and balanced curriculum? Should anything change to better support this?**

Based on experience of teaching in schools, working with teachers and training of teachers, the current **primary curriculum** is broader in schools following the full National Curriculum. However, it is not balanced. Most schools need to dedicate a large amount of curriculum time to cover the core subject programmes of study. Preparing pupils for KS2 assessments can narrow the curriculum for some cohorts.

In **foundation subjects**, the NC is less prescriptive which does give schools an opportunity to be inventive and resourceful with their curriculum design. However, the opportunities for pupils to experience these subjects can be infrequent due to either lack of training or lack of time.

Many schools rotate subjects in order to cover all subjects across the school year. As long as the curriculum is of quality and designed well the rotation does not affect the depth of coverage of subjects.

The NC is subject specific and linear in its design. There are many opportunities for schools to consider where skills and knowledge are transferable across subjects. Many schools do make opportunities to do this and still retain the individual subject specific lessons, even when placed within a wider topic or thematic approach. However, at times, the learning in the individual subject can be lost.

Change to support this is to consider:

- A **wider model/ framework of learning considering the key skills and learning behaviours across subjects** that will prepare children for their next stage of education and life beyond it.
- Ensuring **schools have resources** to positively impact school curriculum provision and opportunities.
- Ensuring an **entitlement to teacher training** and teacher development opportunities across the wider curriculum is ongoing, beyond ITT.

29. **To what extent do the current *secondary* curriculum and qualifications pathways support pupils to study a broad and balanced curriculum? Should anything change to better support this?**

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Based on experience of teaching in schools, working with teachers and training of teachers, a broader curriculum and additional qualifications pathways for mathematical and data education to incorporate two GCSEs should be considered. One could focus on more traditional 'pure' mathematics and the other could focus on applications and include aspects of data education. Both qualifications would be available to all students, and mid-higher attaining students would be encouraged to study both. This would allow for better transition to the current level 3 advanced mathematics qualifications – A levels in Mathematics and Further Mathematics, and Core Maths. This would also allow learners to study a broader range of mathematics and its applications providing them with pathways to suit their interests and career paths, including those interested in data science. These could be based on a modular structure where students take enough modules to gain credit for either one or two GCSEs. The principle of having two GCSEs has been developed and trialled in the recent past - see for example [the linked pair pilot](#).

Secondary school choices are narrowed down due to optional subjects being chosen at Key Stage 4. [NFER Research](#) shows how the time spent on teaching some subjects has declined. This is part of the issues with the [teacher retention and recruitment crisis](#). Whilst Mathematics, English and Science remain compulsory at KS4 the other subject specialisms can cause a narrowing, that then limits accessibility to A-levels/ other post-16 options. The narrowing of subjects, and challenges of attracting teachers into the profession in shortage subjects, then also has a knock-on effect of either teaching the subjects ineffectively, furthering the dislike of particular subject choices as well as not allowing schools to run these options. The new [Natural History GCSE](#), yet to launch, is an example where an effort is being made to deliver a duo-disciplinary subject. But the challenges will be [whether schools can staff this](#).

Change to support this is to consider:

Review of options and compulsory provision. Mapping of the Curriculum by organisations such as [Teach the Future \(2023, 2024\)](#) could provide opportunities to consider cross- subject links that consider the mega-trends facing society in the future. Consider how teachers are trained to deal with the changing curriculum e.g Natural History GCSE. Build connections across subject specialisms, particularly in secondary education.

Change to support this might include the approach being taken through the development of the Initial Teacher Education Framework for Climate and Sustainability Education ([University of Reading](#)) in which these ideas and pedagogical approaches to developing skills, values, attitudes and competences are being woven into the ITE Curriculum.

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This same approach could be taken within specific subjects where they closely align – Drama within English, Music with Mathematics. This requires a re-innovation but with careful re-visioning of what the required outcomes are then learners can be prepared with the Future in Mind and ensuring building [connections with nature](#).

30. To what extent do the current qualifications pathways at 16-19 support learners to study a broad curriculum which gives them the right knowledge and skills to progress? Should anything change to better support this?

16-19 options include A-Levels, T-Levels. We shall comment on A-Level provision from an ITE perspective. The narrowing of subject choices begins with the options chosen at KS4, GCSE. A broader balanced curriculum throughout KS4 would help, but then one might argue about the depth of subject knowledge. If we develop learners who are able to access subject knowledge, that is constantly changing, this could be a way of narrowing what is essential and then broadening and enriching the curriculum to be more engaging and relevant to learners.

Green skills training gaps are particularly acute in the 16-19 sector and contribute to the large [green-skill deficit](#) in the UK. Detailed recommendations which sit across the sector were produced by the [Committee on Climate Change](#) which provide a good basis for tackling this skills shortage.

31. To what extent do the current curriculum (at primary *and* secondary) and qualifications pathways (at secondary *and* 16-19) ensure that pupils and learners are able to develop creative skills and have access to creative subjects?

Our analysis of [curriculum subject trends over time](#) (published alongside this document) has shown that while many subject areas are thriving and take-up is growing, take-up of some subjects has declined over time. Of course, this is not necessarily a problem: these changes may reflect policy directions or other social trends, or they may reflect changes in policy and accountability measures over time.

The national curriculum provides pupils with an introduction to the essential knowledge that they need to be educated citizens. It introduces pupils to the best that has been thought and said; and helps engender an appreciation of human creativity and achievement. However, the NC could be more explicit in promoting creative skills. Within the NC mentions of creativity appears in the purpose of study and subject content for a range of subjects: Maths, Art and design, Design Technology, Computing and Music. However there seems to be many opportunities missed to promote creative

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skills such as the omission of it from subjects such as Dance and within the aims of the English Curriculum.

Schools using pedagogical approaches that inspire and encourage imagination and innovation will more effectively develop children's creative skills.

The E-Bacc has been a challenge for Art, Dance and Music in secondary schools. As these subjects have been removed from the list of E-Bacc GCSEs and fully funded ITT subjects and numbers of teachers training in these subjects has reduced. This is not a social trend, it is a direct result of government underfunding. Funding to Music Hubs has also reduced reducing the availability of music lessons to children in schools from KS2 and KS3, reducing still further the pipeline of children who might study music from GCSE. This runs counter to the laudable intentions of the National Plan for Music Education 2 which seeks to provide an integrated music education plan for all children across the UK. Put simply, without the funding to provide access to music lessons, and funding to support music teacher training then Music as a subject is fast diminishing and this decline must be addressed.

Creativity should extend across all curriculum subjects and its development be a specific cross-cutting requirement, rather than being seen as limited to certain subjects. Currently, creativity development is largely absent from the languages curriculum in England (in contrast with Wales and Scotland). Creativity development can go hand in hand with language development: we found in a study of over 500 learners of French aged 13-14 that learners' creativity and knowledge of French vocabulary were enhanced when they studied texts such as poems and when the teaching focused on personal and emotional engagement (Graham et al., 2020b). In our current research ('Digital Empowerment in Language Teaching' (DELTEA)), learners who have learnt French or Spanish through digital stories and undertaking creativity-focused activities have developed higher levels of creativity than children following more traditional language lessons.

32. Do you have any explanations for the trends outlined in the analysis and/or suggestions to address any that might be of concern?

Our analysis of [curriculum subject trends over time](#) (published alongside this document) has shown that while many subject areas are thriving and take-up is growing, take-up of some subjects has declined over time. Of course, this is not necessarily a problem: these changes may reflect policy directions or other social trends, or they may reflect changes in policy and accountability measures over time.

Key stage 4 Technical Awards

33. To what extent and how do pupils benefit from being able to take vocational or applied qualifications in secondary schools alongside more academically focused GCSEs?

34. To what extent does the current pre-16 vocational offer equip pupils with the necessary knowledge and skills and prepare them for further study options, including 16-19 technical pathways and/or A levels? Could the pre-16 vocational offer be improved?

Section 7: Assessment and accountability

Primary and national curriculum assessments

35. Is the volume of statutory assessment at key stages 1 and 2 right for the purposes set out above?

During key stage 1, children experience the phonics screening check to confirm their decoding skills have reached an age-appropriate level. [Pollard \(2023\)](#) notes that although opinions can differ around the phonics screening check, some argue it is a necessary diagnostic tool with pupils who do not make the expected standard taking the check again at the end of year 2. During key stage 2, year 4 pupils complete the multiplication table check to determine whether they can fluently recall their times tables. Both of the assessments' purpose is to identify pupils who may need additional support (STA [2012](#), [2020](#)) however the MTC is not revisited as a statutory assessment or external data set as phonics currently is for those not making the threshold mark. Schools can use the MTC check for their own internal identification and support purposes. It is for teachers as professionals to reflect on pupils' future learning needs and opportunities (Pollard, 2023). Therefore, it seems appropriate not to add further statutory assessment for those identified as needing support.

At present, the concentration and volume of statutory assessments is in year 6. The six different test papers cover key areas of the programme of study: 3 mathematics papers for arithmetic and reasoning; one English reading paper and two English grammar, punctuation and spelling tests ([STA 2024](#)). Comparatively, this almost mirrors the number of optional assessments at the end of key stage 1. With the STA guidance for optional key stage 1 tests (2024) stating they will not print and distribute test papers to schools but schools can download versions of the test papers from the Primary Assessment Gateway, potentially more schools may choose to use these materials selectively to further inform teacher assessment which is a common theme of talking to leaders across 10 primary schools during the last year. However, there isn't the same autonomy for schools to make the choice for year 6 pupils.

Due to the concentration of statutory assessment in year 6, focus and time can move towards the assessments and can distort curriculum provision to prepare children for the tests. Narrowing across the curriculum was evidenced by Ofsted's curriculum research ([Harford, 2017](#)) and the [Ofsted English subject report](#) concluded external assessments "unhelpfully shape the curriculum" (Ofsted, 2024, p8). It is worth considering that even within core subjects of mathematics and English key aspects of the NC such as investigations and oral capabilities are not given focus (Pollard, 2023). This can narrow the experience and the developing skills of children in some key areas and therefore impact the purpose of the NC in creating a broad and balanced experience for pupils.

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36. Are there any changes that could be made to improve efficacy without having a negative impact on pupils' learning or the wider education system?
37. Are there other changes to the statutory assessment system at key stages 1 and 2 that could be made to improve pupils' experience of assessment, without having a negative impact on either pupils' learning or the wider education system?
38. What can we do to ensure the assessment system at key stages 1 and 2 works well for all learners, including learners in need of additional support in their education (for example SEND, disadvantage, EAL)?

Secondary assessment

39. Is the volume of assessment required for GCSEs right for the purposes set out above? Are there any changes that could be made without having a negative impact on either pupils' learning or the wider education system?
40. What more can we do to ensure that: a) the assessment requirements for GCSEs capture and support the development of knowledge and skills of every young person; and b) young people's wellbeing is effectively considered when assessments are developed, giving pupils the best chance to show what they can do to support their progression?
41. Are there particular GCSE subjects where changes could be made to the qualification content and/or assessment that would be beneficial for pupils' learning?
42. Are there ways in which we could support improvement in pupil progress and outcomes at key stage 3?
43. Are there ways in which we could support pupils who do not meet the expected standard at key stage 2?

Accountability

44. To what extent, and in what ways, does the accountability system influence curriculum and assessment decisions in schools and colleges?
45. How well does the current accountability system support and recognise progress for all pupils and learners? What works well and what could be improved?
46. Should there be any changes to the current accountability system in order to better support progress and incentivise inclusion for young people with SEND and/or from socioeconomically disadvantaged backgrounds? If so, what should those changes be?

Section 8: Qualification pathways 16-19

47. To what extent does the range of programmes and qualifications on offer at each level meet the needs and aspirations of learners?
- Level 3
 - Level 2
 - Level 1 and entry level
48. Are there particular changes that could be made to the following programmes and qualifications and/or their assessment that would be beneficial to learners:
- AS/A level qualifications
 - T Level and T Level Foundation Year programmes
 - Other applied or vocational qualifications at level 3
 - Other applied or vocational qualifications at level 2 and below

When post 16 students were funded per qualification they were studying there was the opportunity in year 12 to choose to take AS level Mathematics, and AS level Further Mathematics alongside AS level Mathematics or to accompany a 'full' A level in Mathematics, or to take Core Maths (which is equivalent to an AS, although it is designed to be studied over the two years 12 and 13). When the change to funding per qualification was removed and the 'decoupling of AS and A level many learners no longer had the opportunity in their school or college to gain a qualification in AS Mathematics only, or in AS Further Mathematics only; it also made the Core Maths more challenging for schools and colleges to offer as they resorted to a '3 A level' model for post 16 students on an A level programme. Reintroducing the study of 4 AS levels or their equivalent as the 'norm', with an associated decoupling of AS and A levels, would be of benefit to all learners for whom mathematical study is of interest and desirable. The Royal Society's proposals for Mathematical and Data Education (MDE) would

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secure the much-needed broader curriculum, qualification pathways and associated assessment that learners and society will need in the coming years.

- 49. How can we improve learners' understanding of how the different programmes and qualifications on offer will prepare them for university, employment (including apprenticeships) and/or further technical study?**
- 50. To what extent is there enough scope and flexibility in the system to support learners who may need to change course?**
- 51. Are there additional skills, subjects, or experiences that all learners should develop or study during 16-19 education, regardless of their chosen programmes and qualifications, to support them to be prepared for life and work?**

The Advanced British Standard proposals included much emphasis on mathematical and quantitative skills for citizens and their day to day lives, and well as in their work. The current review should address this area and ensure that the future curriculum, qualifications and assessment makes appropriate provision for this need to be met.

Section 9: Other issues on which we would welcome views

Transitions

- 52. How can the curriculum, assessment and wraparound support better enable transitions between key stages to ensure continuous learning and support attainment?**

Languages

1. Learners leave primary school with relatively high levels of motivation for language learning but this declines during the first year of secondary school ([Graham et al., 2016](#))
2. This declining motivation is linked to learners feeling they are not making progress, that their language lessons at secondary school do not equip them to develop the skills they most value – namely the ability to communicate in the foreign language ([Graham et al., 2016](#)), and using more of the pedagogical approaches found at primary school (interactive methods, cultural input, stories). A revised curriculum should ensure that there is not an abrupt shift in curriculum goals and associated pedagogy from primary to secondary.
3. Transition from primary to secondary school language learning is also problematic because there is too much variation in the levels of proficiency that learners develop at primary school, making it difficult for secondary schools to build on it appropriately. This variation is influenced by factors that curriculum reform must tackle: how much teaching time is devoted to language study at primary (and secondary) school, and how proficient the primary school teacher is in the language they are teaching ([Graham et al., 2017](#)). At least 60 minutes a week of language teaching is needed in all primary schools to even out attainment and hence ease transition issues.
4. How much progress is possible in languages at primary school is unclear, making curriculum planning more difficult for teachers. Research being conducted at the University of Reading by [Dr Kasprowicz](#) is providing insights into what kind of progress is possible.
5. We need curriculum goals and teaching approaches in primary and early secondary school foreign language learning that support learners' literacy development in the foreign language, including approaches that have been shown to boost the reading confidence and self-regulation of lower proficiency learners ([Graham et al., 2020a](#)). This will help them to read material which interests them and from which they can learn.

-Technology

53. How could technology be used to improve how we deliver the curriculum, assessment and qualifications in England?

As highlighted in The Royal Society Mathematical Futures programme and Report – Mathematical and Data Education (MDE) “Mathematics, as currently taught in schools, is missing out on extensive opportunities to transform understanding and learning through use of computing technology and tools.” In part this is due to the nature of the current GCSE Mathematics, A level Mathematics, A level Further Mathematics, and Core Maths curricula and their associated high-stakes, terminal assessments.

The current A level Mathematics curriculum, and the associated assessment and guidance, has the declared intention that the Use of Large Data Sets (LDS) should permeate the teaching and learning of statistics, with considerable opportunities for the use of technology and associated tools for handling, interrogating and analysing data. Unfortunately, this intention has not been realised as fully or uniformly for all learners as intended, in part because of the nature of the assessment.

Given that the scope and application of mathematics has undergone significant expansion, partly driven by an unprecedented surge in data availability, computing capabilities, and statistical methodologies, with data playing a pivotal role in both employment and everyday life, it is vital that learners have the opportunity to use relevant tools in their mathematical education throughout their studies. This also includes study that is not associated with data – computational and graphing tools, dynamic geometry tools, symbolic manipulation software are also important in higher level study and in business and industry.

Further revisions to A level Mathematics, A level Further Mathematics, and to GCSE Mathematics, and their associated assessments, would offer learners the opportunity to make better use of available technologies to improve their learning, and to support their future study and careers.

The report from the Joint Mathematical Council of the UK on Mathematics education and digital technology includes recommendations on the use of digital technology in the teaching and assessment of mathematics and data analysis across all years.

Languages

Teachers are central to effective curriculum delivery. Research being conducted by the Universities of Southampton and Reading has found that digital technology can be used to foster teacher confidence, proficiency and sense of autonomy. It has also found that technology, in the form of a Generative AI app and digital stories, can make better use of the curriculum time available to schools and hence improve the language skills,

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motivation, creativity and empathy of primary school language learners. Teachers across the four nations are involved in the research.

Access to hardware, enhanced support for emerging and new technologies, more focus on digital creativity and further guidance on digital pedagogies are essential steps. Education and industry can work together to design more content and enable access to virtual labs, simulations and educational video games to make learning more inclusive and forward thinking.

Further Views

54. Do you have any further views on anything else associated with the Curriculum and Assessment Review not covered in the questions throughout the call for evidence?



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