

## Q1. Do you support our vision for the future of mathematics and data education?

Members of the **ATM/MA Joint Primary Group** do, with the following, significant provisos.

The 'why' is clear and there is some detail on the 'what' but mostly in secondary and beyond. There seems very little on 'how', particularly with regard to Early Years' practitioners and primary teachers. You state, "*In summary, MDE needs ... to be based on a sound understanding of foundational mathematics...*" However, there is not much detail on how to achieve the goal of everyone developing a sound understanding of foundational mathematics, and what this might look like or consist of in reality, at different ages, in particular, in the Early Years and Primary phases. Any vision must accommodate *all* learners of mathematics, from birth, and *all* adults that work with children mathematically. In particular, the pathway through Early Years and Primary needs to be clear. It is welcome that your vision is seen as falling beyond just mathematics teachers, remembering of course that Primary and Early Years' teachers are generalists and thus ideally placed to make cross-curricular links with mathematics.

If 'foundational mathematics' refers to the core content that everybody must gain, this must include mathematical thinking, reasoning and solving problems, all of which lie at the heart of what it means to do mathematics and be a mathematician at any age. The idea of 'foundational mathematics' needs to be carefully thought through. This needs to be truly inclusive or it will reflect the pervasive belief that only some people can 'do', or, are 'good at' mathematics. Good intentions are not enough, e.g. by using labelling such as 'foundational' and 'advanced' you reinforce the idea that some aspects of mathematics are only appropriate for some people and thus the labelling of those who study it as 'different' or 'clever'.

Overall, there is too much focus on assessment and curriculum; not enough on CPD for all phases from the Early Years, and teacher workforce development. In the light of the current retention and recruitment crisis in all phases, this is crucial.

Generally, the paper seems more focussed on assessment and curriculum content rather than on how children best learn mathematics, at any age.

There needs to be acknowledgment of the narrowing effect of KS2 tests on the KS2 curriculum. These are redundant in terms of any meaningful assessment and operate only as an accountability measure. We would support a more holistic approach to learning that encompasses values and the social-emotional aspects of learning (self-regulation, executive functioning, collaboration, resilience, for example) and more prominence given to being mathematical and an emphasis on mathematical thinking and problem solving approaches, which are a statutory requirement of the current National Curriculum at all key stages.

## Q2. Is this vision appropriate for all students?

We would like a clear definition of what is meant by "all". Any vision for mathematics education needs to be equitable and include all learners of mathematics, from birth and the early years onwards, as well as all those adults that work with children on mathematics. At

the moment, your vision leans heavily towards KS3 and beyond. Please see our response to Q1.

Yes, we do think this vision could be appropriate for all students, if it is executed thoroughly, with the involvement and support of the entire workforce, and with provisos about inclusive approaches to the subject, for all ages, from all who work in the Early Years through primary school and beyond (see our response to Q1).

Any vision needs to be carefully created to be genuinely inclusive, otherwise it will reflect the pervasive belief that only some people can 'do' maths. Pupils need more, relevant and engaging mathematics, not 'harder' mathematics.

### **Q3. Are there areas of our vision that need further development?**

We have identified four areas which we believe need further development:

The first of these is **curriculum**. We are in favour of the suggestion that the curriculum be overhauled to better reflect future needs of the population. We would welcome more clarity on how this might look for students in Primary and for Early Years settings. We would encourage a general slimming of the curriculum content and a focus on 'being mathematical', problem solving and mathematical thinking / reasoning. The problem solving cycle is a useful representation of how a focus on data could be realised in classrooms, and we can envisage many opportunities for cross-curricular problems that can be brought to life in a Primary or Early Years classroom, and that such work will also develop Literacy skills.

The second area for further development is **assessment**. We urge you to review the current assessment regime and to engage with teachers and school leaders to develop a new assessment regime to accompany any new curriculum. We particularly encourage reflections on how the current KS1 non-statutory assessments might be similarly adopted at the end of KS2. Please have appropriate expectations of pupil recording when considering new assessments.

Within the discussion paper, there are two references to "what pupils know and can do" and one reference to "what students understand and can do". The connected, conceptual nature of mathematical knowledge and the core disciplinary skills of reasoning suggest a need to focus on understanding and, as assessment is such a powerful influence on what and how mathematics is taught, reforms to assessment should support this.

We would like to see more thinking about **attitudes towards learning mathematics**. We would welcome more detail about the values we would hope to see and encourage in classrooms: such as equity, and including developing pupils' self-regulation, agency, ability to collaborate, resilience... We think that a shift to more meaningful mathematics may help to ensure that maths is seen as more appealing and less 'scary' by pupils and their families.

The final area we would like to be developed is **consideration of the workforce**. We would like a real commitment to involving teachers as partners in curriculum development in a way that is sensitive to teacher workload. We'd also like a clear commitment to teacher professional development – including engagement with research and opportunities for

reflection – as any curriculum changes will be more successful if teachers are knowledgeable and confident implementers. The professional learning needs of support staff must also be considered.

#### **Q4. What are the first steps needed to begin the process of change?**

Members of the ATM/MA Joint Primary Standing Group feel that the discussion paper does not clearly incorporate perspectives from Early Years or Primary education. We believe a fundamental first step must be to acknowledge the importance of the foundations of learning in Early Years and Primary phases as essential precursors to developing successful MDE learning later on and that the Mathematical Futures programme should be reconsidered to reflect this.

This should include consulting with and working alongside the workforce in every phase and sector (including, specifically, the PVI sector and childminders, both of which provide early childhood education to a significant majority of pre-school learners), to understand the issues and likely needs for practitioners (including, but not limited only to, teachers) and other stakeholders. Any developments must be considered within the context of workload and the current crisis in teacher recruitment and retention.

Any first step needs to encompass a coherent/cohesive model of professional development that recognises the complexity and the social dimensions of teaching and learning – including embedded and on-going practitioner research.

Alongside this, we believe policy and decision makers need to work with a wide range of mathematics education specialists within each phase (including in teacher education) to help these policy and decision makers to understand what mathematics is and what 'being mathematical' means as learners develop their cognitive and social capabilities. Those making decisions about curriculum, assessment and teacher professional development must go beyond being able to describe mathematics only as a series of facts, procedures and axioms that can be classified under specific domains.