

**Response from the 11-18 subcommittee of The Mathematical Association Teaching Committee to the Mathematical Futures discussion paper consultation November 2023**

**1. Do you support our vision for the future of mathematics and data education?**

Thank you for the opportunity to read the ‘Mathematical Futures’ discussion paper. We appreciate the time invested in its production and welcome the opportunity to comment.

Overall, we do not support the vision advocated. We do not believe a fusion of mathematics, statistics, data science and computer science to be the way forward. We agree that it is vital to strive for an education which is fit for the future but do not agree that this entails a move away from having mathematics as a distinct discipline.

Mathematics, when well taught, provides and will continue to provide rich opportunities for the development in our young people of logical reasoning, problem solving skills, creativity, perseverance and clear, precise communication. These are, and will remain, highly beneficial to the individual and to society as a whole.

We do not believe it is appropriate to remove current content from the mathematics curriculum to make room for the teaching of data science.

We also believe that the vision would not be attainable in the time scale proposed and, moreover and critically, it does not take into account the current situation in U.K. schools. An acute and worsening national recruitment and retention crisis in teaching as a whole, and in mathematics and in computer science in particular, cannot be the starting point for such a venture as is proposed. It is urgent and critically important to address that crisis.

Hence we neither believe the vision to be feasible nor appropriate. It does not appear to be rooted in relevant research or to address the issues at hand.

**2. Is the vision appropriate for all students?**

We do not agree that the vision outlined in the discussion paper is appropriate for all students.

Firstly not all students would wish to pursue statistics, data science and computer science. In those schools where the latter two are already offered only a relatively small proportion of students opt to study them.

Secondly it seems to be an unduly utilitarian approach to view the purpose of school education as being to teach specific skills needed for the national economy. Instead we see fostering mathematical habits of mind – logical reasoning, problem solving skills, creativity, perseverance and clear, precise communication – as key. Encouraging our young people to be curious, resourceful, resilient and collaborative, to think strategically and in an abstract manner, to work systematically, to pose questions, make conjectures and justify their results – these are characteristics and ways of working which will stand the test of time. This is the heart of good mathematics.

The discussion paper rightly acknowledges that children entering primary school today will, in many cases, take up occupations which do not yet exist. For that very reason, with the fast pace of change, if our curriculum tries to chase the skills currently or imminently needed within our workforce in the field of data science, it will become outdated before it has even been implemented.

In our curriculum for all we need instead to focus on things which are enduring, which have stood the test of time and which will still support learning going forward. Specific interests and specific, fast-evolving economic needs should be addressed not via a new blended subject, MDE, but via separate optional subjects in school and at university and by then education and training in the work place.

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

Instead of the vision of MDE, we believe that national priorities need to include

- Addressing the huge current shortfall in applicants for Initial Teacher Training
- Addressing the current recruitment and retention crisis in teaching in our schools
- Working to ensure that all school students are taught mathematics by well qualified subject specialists
- Ensuring that all mathematics teachers have access to high quality, subject specific CPD
- Boosting the uptake of 'Core Maths' and encouraging all universities to embrace its value and acknowledge this in their offers to applicants
- Halting and reversing the decrease in the number of mathematics degree courses running in the U.K.
- A resumption of face-to-face Subject Knowledge Enhancement courses for those applying to train to teach mathematics
- Liaison with the subject associations and with the NCETM, Maths Hubs, NRICH, AMSP and MEI to inform next steps
- Increased support for adult numeracy
- Supporting and perhaps rethinking provision for post 16 students who do not have a qualification of grade 4 or above at GCSE

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

Rather than changing to the model advocated, MDE, we wholeheartedly believe that mathematics should be retained as a separate discipline both in schools and in universities.

We have listed our priorities in our response to question 3. Tackling the recruitment and retention crisis is most urgent.