New academic year message

Thoughts from the NCETM's Director, Charlie Stripp, at the start of a unique school year

I'll start with some good news - it's good that teachers of maths have something to celebrate in these difficult times! The National Reference Test (NRT), taken in February/March in a sample of over 330 schools, has shown an improvement in mathematics attainment at GCSE in 2020, compared to the baseline year in 2017. The aim of the test is to measure standards over time. If it provides strong evidence that standards are changing, Ofqual can use it to change the proportions of students achieving different GCSE grades, to reflect how standards have changed. This year's results, compared with the 2017 baseline, are shown in the table below.

	Estimated percentages of students at each grade			
	Grade 4 and above		Grade 7 and above	
	2017	2020	2017	2020
English Language	69.9	67.0	16.8	17.5
Mathematics	70.7	74.0	19.9	24.0

Ofqual has accepted this as sufficient evidence of national improvement in maths attainment and agreed an adjustment for GCSE maths grades in 2020 of +1 percentage point at grade 4 and

+1.4 percentage points at grade 7, with intermediate grade proportions adjusted accordingly. This is the first time that the evidence from the NRT has been used to change GCSE grading.

What a shame that this excellent news was overtaken by the arrival of the Covid-19 crisis, bringing with it school closures and major disruption to our education system, including the cancellation of examinations. However, it's good to know that standards in maths education are improving. Teachers of maths at both primary and secondary level will have contributed to this and should be proud that their work has resulted in a national improvement in maths attainment.

The 2020/21 academic year certainly presents unprecedented challenges for our education system. Most students are returning to school or college after a gap of more than five months, and schools and colleges are facing huge practical problems to make this work.

The NCETM, Maths Hubs and the AMSP have adapted their programmes to the new circumstances, consulting with teachers to ensure their support is focused effectively.

Our work was re-designed to provide extensive online support for teachers, parents and students over the school and college closure period during the summer term. Of necessity, this was done rapidly, but we took care to ensure its quality and long-term value. For example, the primary maths video lessons were developed by NCETM Primary Mastery Specialists, coordinated by the NCETM's primary team, to produce a coherent resource that will make a long-term contribution to the NCETM's primary teaching for mastery professional development work, and the AMSP's support for students planning to progress to A level Maths was developed by expert MEI staff and can be used by each new cohort of prospective A level Maths students. Teachers tell us that these resources have been greatly valued by teachers and students.

Across July and August work has continued to ensure high-quality support is available, free of charge, to support teaching and learning maths from Early Years through to post-16 from the start of the new academic year. Details of this support can be found via these links:

NCETM (primary and secondary school maths, including the KS2-3 transition)

AMSP (promoting maths beyond GCSE to KS4 students, supporting Core Maths and AS/A level Maths and Further Maths, including additional student support for the transition from Year 11).

The NCETM's and AMSP's experiences of the crisis so far have shown that online teacher professional development and student tuition can be very effective; engagement has been high and feedback very positive. Both programmes have further developed their work to provide additional online support ready for the new academic year, at a time when travel and face-to-face meetings are restricted and further school closures are possible.

All of this support is underpinned by the principle that deep, thorough learning of fundamental mathematical knowledge and concepts is the best way to support students' learning.[1] It could be tempting to think that speeding through topics in a superficial way, cramming in curriculum coverage through instrumental learning, is the way to get students maths education back on track. It isn't.[2]

Students' confidence is likely to have been severely dented by missing so much school and, for Years 6 and 11, not being able to sit important examinations. Many will be particularly anxious about maths. They are aware how important maths is and will be worried about what they have missed. Many will feel their maths knowledge and skills are rusty and insecure.

It's vital to recognise this and not damage their confidence further by making them feel under even more pressure to 'catch-up'. The key to getting students' maths education back on track over the new academic year will be working with them sensitively through calm, focused teaching, prioritising the most fundamental topics to develop and reinforce key knowledge and

ideas. This will increase students' confidence and ensure new learning can be built on firm mathematical foundations.[3]

The NCETM, Maths Hubs and the AMSP will be working hard over the year to support this approach. They aim to ensure that schools and colleges can access the support they need to minimise the impact of the disruption to students' maths education caused by the Covid-19 crisis.

A particular problem is that evidence summarised by the Education Endowment Foundation (EEF) suggests that the education of students from the least advantaged backgrounds is likely to have been damaged most. Furthermore, anecdotal evidence from the current crisis suggests that disadvantaged students' home circumstances, including limited access to the internet, will have made it harder for them to study when schools were closed. The EEF analysis states *'School closures are likely to reverse progress made to close the gap in the last decade since 2011'*.

The NCETM strongly supports the EEF's mission to 'break the link between family income and educational achievement' and this evidence that the current crisis is increasing the impact of disadvantage is of great concern. A fundamental principle of the teaching for mastery approach to maths teaching promoted by the NCETM is to identify as early as possible when a student has failed to grasp a concept or procedure, and intervene to ensure they are ready to move their learning forward with their peers. In the current crisis, providing extra tuition support for disadvantaged students could play an important role in helping to get their maths learning back on track. Schools will need to consider how they can provide additional maths teaching capacity. This might be through teaching assistants, through teachers of other subjects and from the National Tutoring Programme. They will also need to consider how additional tuition can be fitted into students' timetables.

To maximise the benefits from additional maths tuition, it will need to be carefully planned to link with students' standard maths lessons, ensuring all students have the background knowledge needed to engage with these lessons and helping them to consolidate new curriculum content. This is new territory, with little evidence to draw upon. Collaboration and sharing good practice underpins the work of the NCETM and Maths Hubs, and we are well-equipped to use the Maths Hubs Network to share ideas, advice and experiences about what does and doesn't work.

Traditionally, additional tuition support has widened the attainment gap because it has been provided outside the school system by private tutors that only the more affluent can afford. Now is the time to use extra tuition to help narrow attainment gaps.

We know it's going to be tough to ensure students can recover from the disruption to their maths education caused by the crisis, but it's crucial we work together to succeed. And the NCETM, Maths Hubs and the AMSP are here to help.

September 2020

[1] Ma, L. (2010) *Knowing and Teaching Elementary Mathematics – Teachers' Understanding of Fundamental Mathematics in China and The United States*. London: Routledge

[2] McCrea, E. (2019) *Making Every Maths Lesson Count: Six principles to support great maths teaching*. Crown House Publishing Ltd.

[3] Carey, E., Hill, F., Devine, A. and Szücs, D. (2016) 'The Chicken or the Egg? The Direction of the Relationship Between Mathematics Anxiety and Mathematics Performance', *Frontiers in Psychology*, 6, pp. 1987. doi: 10.3389/fpsyg.2015.01987.