

MathsMakers

Making maths accessible for all

Impact Report 2019



MathsMakers is an education charity that delivers maths intervention programmes for secondary schools. Our aims are to

- strengthen students' foundation in maths,
- raise their attainment levels, and
- cultivate confidence when tackling maths problems.

We focus particularly on students in need, including disadvantaged students who are unlikely to have access to help outside of school, students who are significantly behind National Curriculum expectations and those needing an immediate boost to help them pass GCSE maths exams.

Contents

Headlines	3	Feedback	10
The problem	4	Partnerships with schools	13
The MathsMakers solution ...	5	Endorsements & quality mark	14
Delivering best practice in intervention	6	Looking forward	15
Outcomes & impact	8	Find us	16

Who are we?

At MathsMakers, we believe that success in maths learning can significantly boost self-confidence, widen education and career choices, and enable the development of important life skills.

Yet too many young people continue to underperform in maths and are denied that success.

We take as our starting point the belief that students who face challenges with maths can, with extra support, become 'unstuck'. We deliver personalised support and attention to help students reach their full potential.

In this report, we share some of our successes and a sample of first-hand accounts from the students and teachers we work with. We are proud of our work to date and look forward to reaching more students in 2019/20 and beyond.



MathsMakers has now delivered

31 programmes

to a total of

300 students

with the help of

180 maths mentors



Parents report that their children have **gained confidence** in

confidence in

maths after participating



Without exception, our mentors find their

MathsMakers experience

highly rewarding and are greatly **appreciative of the opportunity** to take part

Headlines

Our partner schools appreciate our

professionalism,

the quality of our **resources**

and the level of **care** given

to individual students



More than

90%

of our students give **positive feedback** on their experience



Our students **consistently**

show an average

improvement of 20

percentage points in

MathsMakers test scores

Secondary schools struggle to reverse underachievement in primary school

Pupils who are behind at Key Stage 2 are less likely to make progress compared with those who have achieved the expected level or above. Differences in progress by prior attainment are largest for maths.

The attainment gap in maths between disadvantaged students (those eligible for Free School Meals) and their non-disadvantaged peers increases in years 7, 8 and 9. (Department for Education, 2010)

The impact of this is particularly noticeable through poor student progress in Key Stage 3, dubbed 'The Wasted Years'

Some schools fail to take advantage of pupil premium funding effectively to close gaps quickly in Key Stage 3. (Ofsted, 2015)

Despite an increased focus on core subjects in the secondary curriculum, student progress in maths in England – particularly for disadvantaged and underachieving students – continues to face several serious challenges...

The problem

The UK has a persistent attainment gap in education



The difference between the highest and lowest performing pupils in English primary schools is greater than that for top-performing nations

(Education Policy Institute and UCL, 2017)

There is a shortage of good maths teachers in England

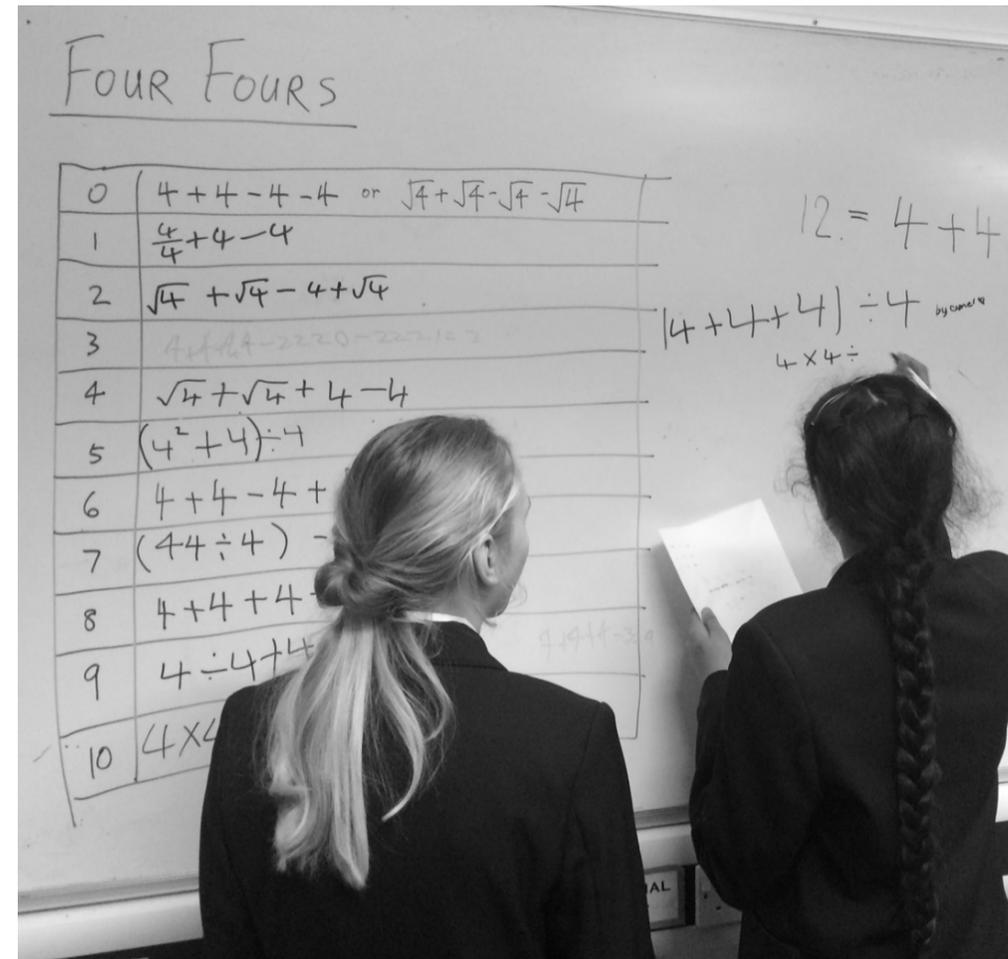
Maths teachers continue to leave the profession and 20% of secondary maths lessons are now delivered by non-specialist teachers. The new curriculum has exacerbated this effect. (Ofsted, 2016)

The most disadvantaged pupils are more than two years behind their classmates when they sit their GCSEs. This gap has increased over the past decade. (Education Policy Institute, 2016)

The MathsMakers solution

At MathsMakers, we are **passionate about maths**. As our name suggests, our ambition is to create young mathematicians – students who are good at using numbers. We set about this in a way that distinguishes MathsMakers from other similar intervention programmes.

- ✓ We **extend the maths provision at school** beyond the school day. We deliver carefully planned programmes **tailored to individual student needs** where each participant receives a high level of personal attention from a **mentor** under the guidance of an experienced instructor.
- ✓ By **consolidating students' core maths skills**, we close the gaps that some students **bring with them from primary school** and which get in the way of effectively accessing the secondary maths curriculum. We believe this to be more beneficial to pupils at this stage than just offering them extra practice on KS3 topics.
- ✓ Using puzzles and a range of **problem-based activities** in every session, MathsMakers facilitates the **development of a range of skills crucial to success in maths**, notably problem-solving and reasoning but also checking, self-evaluation and perseverance.
- ✓ Our **mentors** are mainly A-level maths students. In addition to being crucial to the delivery of our programmes, they also gain what we believe to be **one of the best-supported, most accessible and rewarding work experiences** available to year 12s.



Delivering best practice in intervention

MathsMakers delivers best practice by combining the widely recognised benefits of individual or small group tuition with a programme structure that is consistent with advice from the **Education Endowment Foundation (EEF)** through its **Teaching and Learning Toolkit** and guidance reports.



To support metacognition and self-regulation, **each of our students has an Individual Learning Plan (ILP)**. This ILP is created based on input from the student's maths teacher and the student's performance in a baseline test. It **highlights learning targets to develop the student's number skills** during the MathsMakers programme.

ILPs are **working documents to help guide students** in reflecting on their learning and taking responsibility for their progress against agreed targets.

Students are **supported in this process through weekly feedback** from the programme instructor and the student's maths mentor.

Best-value intervention approaches according to the EEF

Toolkit strand	Cost	Evidence strength	Impact (months)
FEEDBACK	£ £ £ £ £		+8
METACOGNITION & SELF-REGULATION	£ £ £ £ £		+7
PEER TUTORING	£ £ £ £ £		+5
SMALL GROUP TUITION	£ £ £ £ £		+4

Source: Adapted from the EEF Teaching and Learning Toolkit (2018), a summary of the international evidence on teaching 5-16 year-olds

MathsMakers also delivers best practice by having **peer tutoring** as a central part of our programmes.

Students get **1-on-1 help from high-attaining students** in years 10-12, who have been recruited and trained as maths mentors. Mentors encourage students to **engage actively with the learning tasks** assigned by the programme instructor. Students have opportunities to ask questions and are encouraged to articulate their reasoning.

Combined with a class size limit of 10 students, peer mentoring creates a **friendly and supportive environment where students can start to feel more positive** about their maths learning.

Students value this and always highlight their appreciation in their feedback.

"I liked having mentors as there would always be someone that could help you if a question was hard."

"The mentor I worked with was very good. He showed me how to do certain questions and different topics by showing me examples."

"The mentors helped me a lot and I really thank them for this."

"The mentor was helpful as I had one person focusing on me and giving me attention."

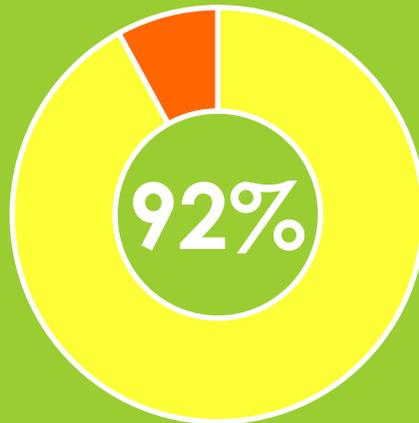


Outcomes & impact

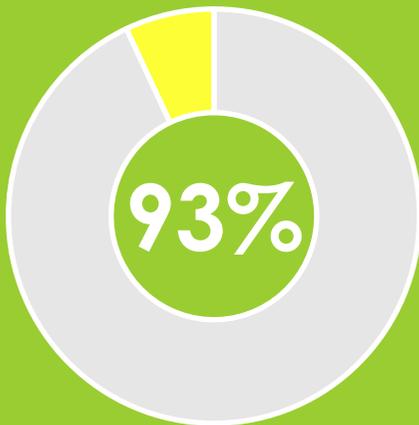
MathsMakers has now delivered 31 programmes to a total of 300 students with the help of 180 maths mentors



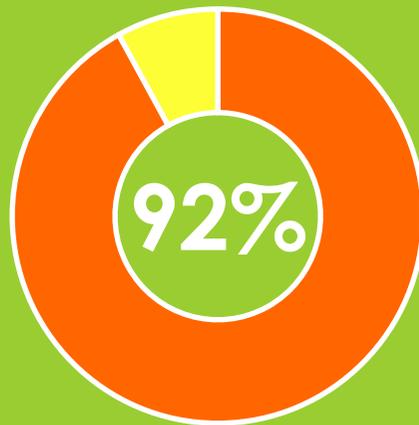
90% of students say their experience was **better than expected**



92% of students say they have **improved in maths**



93% of students would **recommend MathsMakers** to their friends



92% of mentors **would do it again** and recommend to friends

amazing
confident
friendly persevere
great
useful helpful fun experience
rewarding I can do it
get unstuck improve
easier challenging
to learn motivate
grateful thinking skills
enjoy maths more

We measure our students' progress in several ways:



Comparing pre-programme **test scores** and final test scores.



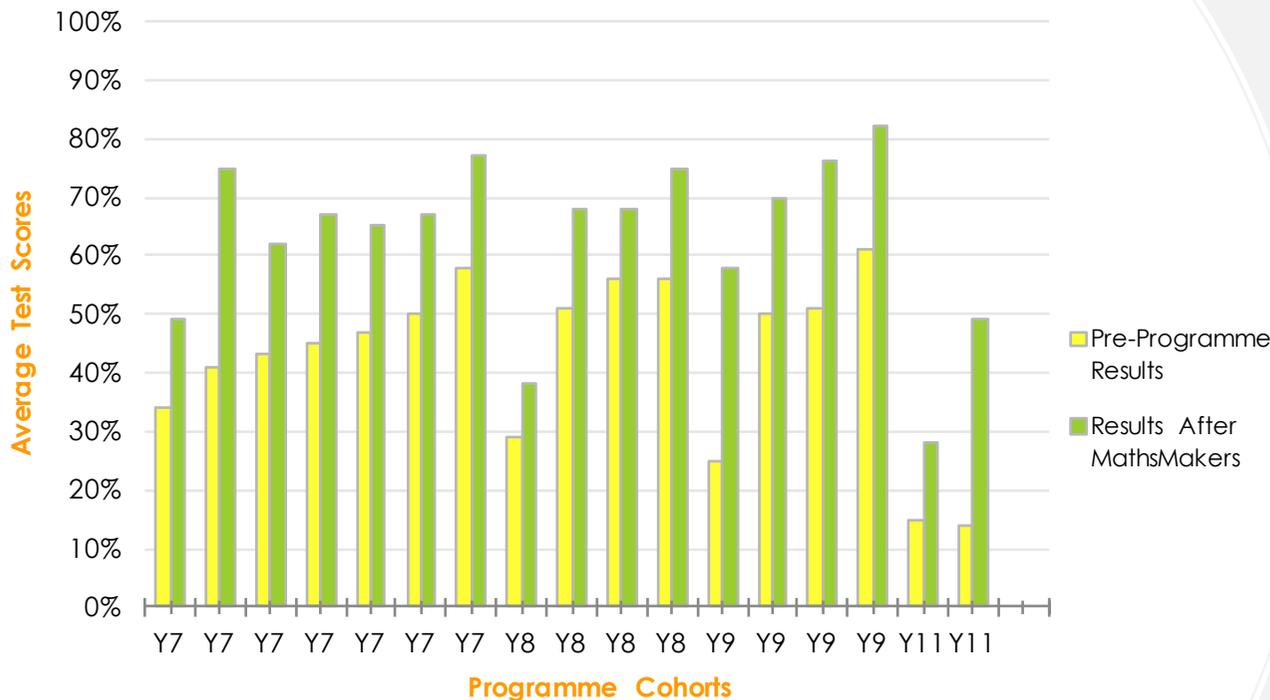
Observing how students engage in group and **problem-solving** activities.



Inviting them to provide written **feedback** on their experience of MathsMakers, including their own assessment of whether they have improved in aspects of their maths learning.

By all these measures, the majority of MathsMakers participants achieve a very good outcome

Progress results



Attainment

Students consistently show an average **improvement of 20 percentage points** in MathsMakers test scores.

Many students also show an improved performance in their **regular maths lessons**.

Year 11 students improved in their mock exams and **met their target GCSE grades**.

Attitudes

Many students enjoy **group problem-solving** activities.

With the support of their mentors, they gain the **confidence to come up to the board** and share their ideas and solutions.

Mentor case study

Feedback

Tilly McCargo

"I was lucky that I never needed help with maths myself, but I really **wanted to help others and to try and pass on my love of maths.** It is interesting to see that others have a different view and the challenge is to try and change their minds.

It is important that students acquire the basic skills that MathsMakers focuses on and it is great to play a part in cementing those skills. **For the students, working with sixth formers offers them a friendly, much more relaxed, experience, different from working with teachers.**

The training reminded me to think about whether I was being too hands-on and about how to get students in the mind-set to learn. **The starter activities are very enjoyable** – for example, multiplying by 11s – and a good way of trying to pass on my enthusiasm to the students.

MathsMakers has been very valuable for me. **I have talked passionately about my experience to others and think it will be good for university interviews.**

It has been very helpful in so many ways. I have learnt how to express myself in a better way and to communicate more carefully and effectively. I would say that **you learn a lot more than you expect to** and get an enormous amount out of it personally."



Mentor case study

Bhavika Jagwani

"I enjoy working with kids and have a passion for maths. Maths is a core subject and all students need to know the basics and MathsMakers provides that.

It was a really good experience. **Some students wanted to give up but that just made me feel that I needed to try harder.** It helped me to take more initiative – when students were not keen, I had to find ways of encouraging them to participate. Different techniques worked with different students and **I improved my own maths techniques by going back to basics and pinning them down.**



The sessions were interactive and the puzzles helped us to engage with the students, and I **enjoyed talking to them on an individual level.** In the end, I felt that the methods had worked which gave me a real sense of achievement.

MathsMakers helped me develop my communication skills, with teachers as well as younger students, and my ability to motivate others. **It helped me to feel valued – particularly in the discussions after each session with my instructor.** I am able now to present myself as someone who can liaise well with all ages.

I am applying to do an apprenticeship degree which is very hard to get onto but I feel that my experience with MathsMakers will help me."



"I don't worry about maths any more as I know now not to give up."

Year 9 student

"Everyone helps you. It's lots of fun and gets you working."

Year 8 student

"It helped me a lot as I have improved my grades at school. I found it a nice experience as I didn't like maths but now I have changed my mind."

Year 7 student

*"I enjoy coming to MathsMakers. I like the puzzle, workbook, activities, mentors and the biscuits. It has helped me with my maths. **I understand better in class and speak up more.** I feel more confident.*

The MathsMakers classroom is calm, which makes it easier to learn. I like working with mentors. I think mentors are good at explaining things so that I understand." **Year 7 student**



Student & parent feedback

*"I was very pleased when I heard that my children would be doing MathsMakers. I want my children to do well so was **grateful that the school had noticed that they could benefit from some extra help** and had organised it.*

Nancy is loving it. She was not too confident about maths initially and has always been reserved. Now, she shows me her homework!

Eddie was awarded "Maths Student of the Year" last year. He really improved after MathsMakers. Alex is moving up a set. He also was not confident initially. Since the programme, his teacher report say he is a lot more confident participating in class and asking questions.

*I am very grateful for the text messages I get from MathsMakers. I'm happy that **MathsMakers is on the ball with attendance and lets me know.** You are doing a really good job and I am very grateful."*

Mother of three children who attended MathsMakers programmes

MathsMakers programmes are most effective when we work closely with schools to ensure careful student selection, maintain high attendance and share constructive feedback.

Together, we deliver the greatest possible benefit to both students and mentors.

“The quality of resources and the level of attention given to the students were excellent, far superior to what the school would have had capacity for.

We could see our students benefiting during the time they attended the programme. Some became more confident in class. Some improved the accuracy of their work. Some improved times tables skills.

We would recommend MathsMakers to other schools.”

Mark Kennedy
Head of Maths
Nower Hill High
School



“I found MathsMakers to be the best among many outside organisations I’ve had experience with that offer mathematics intervention in schools.

Thanking MathsMakers for the care and professionalism they bring to their programmes. It was a great pleasure working with such a dedicated and committed team.

Our year 7 and 11 students at Park High School thoroughly enjoyed the sessions which has an impact on their attainment over time.”

Mine Bayar
Head of Maths
Park High School

Partnerships
with schools

Endorsements & quality mark

Our work is important. MathsMakers was a finalist in the Teach First Innovation Award in 2018. Over 70 organisations were considered by Teach First, and we were delighted to be recognised among the finalists.

In March 2019, MathsMakers was awarded a Quality Mark by the National Resource Centre for Supplementary Schools (NRCSE).

Excerpts from NRCSE report:

"You have successfully completed a 360° quality assurance of your supplementary school. This quality assurance is based on:

- *Observational visits of classes in action by a professional supplementary schools' mentor;*
- *A witness report detailing the learning environment, teaching, and planning and evaluation;*
- *A portfolio of evidence scrutinised by experts in the fields of education.*

Outstanding MathsMakers achievements:

- *Policies and procedures in place to ensure provision is both safe and effective;*
- *Well-organised systems for curriculum, monitoring and evaluation, assessment and reporting;*
- *Excellent partnership with schools;*
- *Range of responses for different ages, e.g. Sixth Form mentors play an important role in engaging year 7/8 students and creating a positive learning environment, while Year 11 students work in small groups with a teacher to meet their needs and build confidence."*



Looking forward

As MathsMakers continues to grow, we look forward to refining our programmes with our current schools and tailoring our offer to meet the requirements of new schools. Each school brings its own opportunities and challenges. We work hard to design the **best possible intervention programmes** to help students in years 7-11 improve their maths attainment and become more confident learners.

We take pride in the **leadership and mentoring opportunities** we provide for Sixth Form students. We aim to continue to develop our mentor training and also seek new ways to recognise the immensely valuable contribution that mentors make as they work with the younger students.

The success of MathsMakers programmes derives from our **team of dynamic and experienced instructors**. We recognise the importance of continuing to attract outstanding teachers and maths experts. We look forward to expanding the training and professional development opportunities we offer to our instructors.

Careful analysis of the **short term and longer term impact** of maths intervention programmes is critical for MathsMakers and our schools. We are prioritising a review of how we monitor student progress and we are committed to working with schools to revise how we measure overall impact.

Our work with schools is made possible through grants and donations, which we greatly appreciate. This financial support enables us to offer our programmes at subsidised rates to schools. We are optimistic about **expanding our funding sources** so that we can run additional maths programmes in schools.

We invite you to be part of our journey forward.



Helena Mullins and Michelle Lee



Find us at
Or contact

mathsmakers.org



@MathsMakers_uk



07816 916538



contact@mathsmakers.org

Registered company number 8898749

Registered charity number 1183887