



**Maths Week
England 2019**

**Summary Report and
Recommendations**

Maths Week England 2019 Summary

November 2019 saw the first annual Maths Week England. Its aim was to make a positive impact on mathematics across the nation. The six aims of Maths Week England are:

Aims

- 1. Raise the profile of mathematics throughout England**
- 2. Change the conversation about maths in the population at large to be more positive**
- 3. Allow children and adults from all social and economic backgrounds to access and enjoy interesting mathematical experiences**
- 4. Support teachers to plan special low-cost high-impact maths activities at their own schools during Maths Week**
- 5. Encourage Higher-Education centres to invite schoolchildren to visit for maths events, in order to raise aspirations and encourage higher take-up of the study of maths at A-level and university.**
- 6. Make maths accessible and enjoyable for people who thought it was an elitist subject for 'clever' people: to 'love and enjoy' is a worthy goal!**

Background

Many organisations within the mathematical community have long believed that a national maths week would be a good idea, and with good reason.

Attitudes towards mathematics in England are poor. There is a fear amongst the adult population of algebra, trigonometry, and the perception of irrelevance persists amongst too high a proportion of our population. Sources quoted by the National Numeracy Autumn 2019 report* suggest that only 22% of adults are functionally numerate. In recent years, Ireland and Scotland have both produced successful maths weeks, running public events in schools, public spaces and universities. Maths Week England is trying to emulate this success by bringing maths to the people.

*References

Building a numerate nation: confidence, belief and skills, National Numeracy, 2019
Bartholomew, Dave. 'Further Education And Skills in England November 2017'. Department for Education, Education & Skills Funding Agency, 2017.

DBIS. '2011 Skills for Life Survey'. Department of Business, Innovation and Skills, 2012.
<https://www.gov.uk/government/publications/2011-skills-for-life-survey>. Figures based on a working-age population of 42 million.

Principles

Key principles for setting up the inaugural maths week England were:

1. Participation must be simple and free at the point of delivery. This is particularly important with education budgets so stretched.
2. Resources must be easily accessible online. This was in part a practical consideration. Given that the first maths week was funded privately, it was not realistic to mail resources to all schools, though for 2020 this is a goal.
3. Inclusivity– there must be resources for all ages and abilities; maths should not be seen as an elitist subject.
4. Resources provided must be of good quality and hopefully enjoyable while providing genuine learning opportunities.

Partnerships

Many organisations were keen to lend their support to Maths Week. In particular, NRIC was the first, with both MA and ATM close behind. MEI, NAMA and UKMT were also supportive partners.

We also had some commercial organisations participating. The criteria was that these would have to offer a free opportunity over and above their usual paid offerings. These included TimesTables Rockstars, SumDog, MangaHigh and Numberfit.

Sponsorship

A not-for-profit company (officially a 'Community Interest Company') and bank account was created, allowing for organisations to make donations officially. In total around £1700 was donated by The Mathematical Association, Times Tables Rock Stars, Sparx Maths, MEI, UKMT, MacMillan Education and Hodder Education.

However, by that time all the major expenditure of Maths Week had already been spent, such as training, software, web-hosting and building, etc. so most of this money remains unspent and in the bank. It is proposed that it will help to cover the costs of Maths Week England 2020. A printer capable of printing A3 pages was purchased in anticipation of producing printed materials in the future.

Resources on Offer during Maths Week 2019

Daily videos: Each day during MWE19, a video was uploaded containing a puzzle. The puzzles were all set by a different mathematician each day, and each afternoon a different mathematician would post their solution.

Daily Barvember Challenge: In association with White Rose Maths, we also published a Bar Model problem of the day, with solutions the following day.

Quiz: This contained puzzles and problems for every year group. This was obviously a huge undertaking but it was felt to be important that everyone in schools, right from reception to A-level students could participate. *In line with our principles, for the purpose of inclusion, a second copy of the quiz was also available that did not mention year groups, meaning that special schools could participate without their students being made to feel inadequate.*

NRICH Roadshow Puzzles: A carefully curated set of puzzles were also added to the site for free download. They also provided posters.

How Tall is Your School?: A video showing how children could measure the height of a building using just a piece of A4 paper and some basic knowledge of similar triangles.

Pizza and Pi: A video thinking about areas of circles using an Italian restaurant context.

Get Calculating: A series of MEI resources for Y6 pupils which explored the curriculum with the help of a calculator.

Buchanan's Brainbusters: A booklet of maths puzzles

Yohaku: A set of number puzzles written specially for Maths Week.

MyMaths and Numicon: OUP free resources

KS3 Probability Resources: provided by Hodder Education

'Rugby Scores' and interactive number pattern activities from ATM

'Where's The Maths in That?' resources from AMSP

There were also links to other relevant external resources.

Partner Organisations ran their own competitions too. TTRS, MangaHigh, Sumdog and MEI all ran popular MWE19 competitions. NRICH held a country-wide live webinar on the Wednesday morning. In addition, other prizes were offered by Numberfit, Alex Bellos, Rob Eastaway, Matt Parker and Andrew Jeffrey.

Photo Credit: John Schnobrich 1

What Went Well?

The social media campaign was a big success. Using Facebook and Twitter MWE was able to engage over 1000 educators and provide regular updates.

Participation – at least 200,000* young people took part in at least one of the resources on offer, which was a big surprise given the humble beginnings. The figure is probably many times this if we were to include the students who took part in partner competitions, but we cannot verify this as many will have taken part in more than one so there may well be double-counting.

Daily Videos: although a very time-consuming element of Maths week, these were one of the most popular aspects. By using a paid platform to host the videos, and avoiding YouTube, we ensured that as many schools as possible would have free access.

The Quiz: Having questions for all ages was a big hit, and according to feedback, the most popular thing on the website.

The 'Buzz': a huge number of schools reported that their pupils were loving taking part in maths week. Of course qualitative data is much harder to assess, but it certainly appeared from social media comments that many teachers themselves felt re-invigorated by the event.

Barvember: This created an ongoing sense of anticipation and was appreciated by many respondents to the survey.

*based on teacher data via the website.



Photo Credit: Michel Porro 1

Survey Data

Based on 104 respondents.

94% of respondents rated MWE19 good or better. This is hugely encouraging.

The following chart shows a breakdown of which resources were used.

ANSWER CHOICES	RESPONSES
▼ Quiz	64.65% 64
▼ Sumdog Competition	15.15% 15
▼ MangaHigh Competition	14.14% 14
▼ Times table Rockstars Competition	45.45% 45
▼ Ritangle Competition	12.12% 12
▼ Daily Video Puzzles	50.51% 50
▼ NRICH Webinar	25.25% 25
▼ NRICH Roadshow resources	18.18% 18
▼ OUP resources	6.06% 6
▼ Get Calculating!	4.04% 4
▼ Buchanan's Brainbustes	13.13% 13
▼ Yohaku Puzzles	26.26% 26
▼ AMSP Magic Maths Club activities	9.09% 9
▼ Hodder Probability Pages	1.01% 1
▼ Sparx Maths Pages	0.00% 0
▼ ATM booklets (Rugby, Number Patterns)	10.10% 10
▼ Where's The Maths in That?	16.16% 16
▼ Pizza Video	4.04% 4
▼ 'How Tall is your school?' Video	7.07% 7
▼ Data Visualisation Competition	6.06% 6
▼ DESMOS Art Competition	8.08% 8
▼ Barvember	47.47% 47

Proposals for Maths Week 2020

There are a number of things we can do even better for MWE2020. Based on feedback, here are the main ones:

- 1. Involve more organisations.** Inevitably, given that this was a new event, many organisations were not willing to join in until they knew it would be a success. Now that it has been, I am confident that there will be a more positive response from previously hesitant. In particular, I am keen to encourage more universities and businesses participate this year, since 2019 was very much school-based, and did not reach the public – perhaps by using shopping centres, theatres, etc.
- 2. Raise more sponsorship:** This would allow us to send information packs to all schools and colleges, and hopefully raise both awareness and participation.
- 3. Expand and improve the website:** The site worked, and attracted a huge number of people, but it can be improved in terms of style and navigability.
- 4. Change the way the videos are delivered.** A few pieces of feedback mentioned these; they were very popular, and the diversity of the presenters was particularly appreciated, but the chosen style (natural, phone-style footage) did not play well on smartboards in classrooms, so we will move to landscape shoots this year. Also we will post solutions the following day rather than the same afternoon.
- 5. Change the quiz:** Given the success of the daily Barvember and video problems, the quiz will follow a similar format. There will be a daily problem for EYFS, another for Y1 and so on up to A-level. As before, the answers will all be numeric values and classes can submit their total at the end of the week. This means having to write more questions of course, but the momentum generated will be worth the extra effort.
- 6. Better Reach:** There are 24332* schools in England. We must not rest until all of them are taking part in Maths Week, for the benefit of all.



*Source: Department for Education; Welsh Government; Scottish Government; Northern Ireland Department of Education (2018/19)