REPORT OF ACTIVITIES

2014-15

Introduction

At Maths on Toast, we make maths family fun.

We bring parents and children together to enjoy creative, maths based activities and events, in educational, community and family settings. We show that maths can be collaborative, social, achievable – and fun. We want to abolish 'I can't do maths', and all of its associated negative perceptions.

Maths on Toast's third year was busy from the start, with family maths events in schools, museums and even theatres, as we worked with a wide range of partners, funders and audiences.

As we started the year, our strategic focus was on school settings – aiming to work with an increasing number of state primary schools to support them in hosting our family maths event, Festival of Triangles. Alongside this, we wanted to offer more fun maths to families outside school, building on our existing community links, particularly in the London Borough of Camden. We also wanted to work with our audiences to develop new activities and events that responded to their comments and feedback – and in particular their requests for family-focused resources related to learning times tables. And finally, we aimed to increase our financial stability through developing more stable income streams.

As the year progressed, we achieved all these aims, with much learning along the way. We increased the amount of work we do with schools, largely as a result of building our understanding of the best channels through which to approach teachers. We raised the funds to carry out our much-requested times tables project – which not only had good outcomes for participants, but also produced a new family game, Number Rumbler, which we believe has great potential for income generation as well as for family learning. An entirely different community project led to our reflecting on the theme of mathematical resilience in the context of children's theatre. Finally, we raised our first core funding, giving us security over our most basic core costs for the first time and giving us a foundation from which to build a secure trading income.

Through all this, we counted **2,790** people participating directly in our activities, and estimate our total reach as **7,701**. We formed new partnerships and built on existing ones. We start next year in a position of greater knowledge and greater opportunity.

Our core aims, as set out below, remain at the heart of everything we do, as do our intended outcomes. Specific outcomes vary between events, but the fundamental principles remain consistent to our endeavours.

This report sets out the activities we undertook this year in detail, explains how Maths on Toast has grown to support and sustain our work, and outlines our plans for the future. We are hugely excited about the opportunities ahead, and very grateful to everyone who has helped us to achieve our outcomes to date.

Our theory of change

Maths on Toast makes maths family and community fun. Our events and activities bring people together to show maths as collaborative, creative and, above all, fun and achievable.

As a result of Maths on Toast's activities, we want to see, in the country as a whole:

- More positive attitudes towards maths
- Increased confidence and resilience in doing maths
- Broadened awareness of what and where maths is
- Maths perceived, and carried out, as a human, social activity

All of these are precursors to increasing and broadening attainment in mathematics. We also believe that out work will inspire our audiences to feel excited about lives and careers that involve maths and numeracy – supporting work towards a more numerate UK.

Our approach draws on research demonstrating the positive impact of parental involvement in children's learning, and suggesting that negative attitudes to maths can be inherited. We work with children, their families, their schools and their communities to help them support each other, discover new things and have fun, all whilst doing maths.

We intend that those participating in our activities will:

- Enjoy doing maths together, and be aware it is maths they are enjoying
- Increase their confidence in maths – see it as something they can do
- Engage in mathematical activities, showing concentration, play, and perseverance
- Broaden their view of what maths is
- Be supportive of others' mathematical learning
- Develop shared, positive family memories of maths
- Interact with a broad section of the community and become more aware of the opportunities maths opens up to them
- Increase their enthusiasm for maths, reduce any fear of it – and do more, afterwards.

Contents

Making maths fun – for even more people, in even more ways

Maths on Toast organises creative, maths based activities for parents and children. Our events are designed to bring people together to enjoy doing maths, in the places where families typically spend time - at school, at home and in family friendly settings.

Schools

"As I was driving today Laceyann said since I have done the festival triangle I can notice our town is made up of lots of triangles!" Participant at the Festival of Triangles, Summerswood School, November 2014.

School settings are a key focus for Maths on Toast, because working with state primary schools enables us to ensure that we reach groups that represent the diversity of the overall local community. We have found that many families would not ever attend a public family maths event – but they are much more likely to attend an event in school.

Our first product for schools is Festival of Triangles. Festival of Triangles is a whole-school celebration of maths, run in part by the school's teachers, and in part by members of the Maths on Toast team. Six weeks before the event itself, teachers receive a resource pack (in our custom designed, triangular prism shaped box). The box contains activities to carry out with the children, marketing materials, and more. During the week of the event, every child in the school designs a triangular flag, showing triangles being useful in day to day life, and on the day these flags they are strung up around the hall as festive bunting. Large numbers of children make tetrahedrons from straws. Then children and parents arrive together at the after-school or weekend event, where they can participate in mathematical craft and colouring and help build a giant mathematical structure out of all those tetrahedrons.

The Festival of Triangles box

Having spent our second year finessing this product, working with teachers to ensure that it runs smoothly in a school setting and is provided at a cost that schools can afford to pay, we were ready to take it to market. We ran Festival of Triangles for three London primary schools during the year, including a special event at the Evelina Hospital School – and we received very positive feedback.

Facebook feedback from one of our events

Of the 45 people who gave us feedback after the school events, **96%** said they enjoyed themselves. **80%** thought that the event was (or maybe was) about maths, and **51%** met new people. Their comments showed three consistent themes, all aligning with our intended aims and outcomes: participants enjoyed having time together as a family, taking part in activities which were fun but also helped them to learn, and coming together as a community.

"My son thoroughly enjoyed it. It was great to be involved with the school and my son at school." Summerswood School, November 2014.

"Working together with my child and her teacher." St Mary's School, February 2015 (when participant was asked what they liked most).

"I loved the idea of bringing all the children / adults together to do something that not only taught them to work as a team, listen but to have fun while learning." Summerswood School, November 2014.

"The flexibility of the activities – they were easy to adapt for children from 2 upwards inc. (sic) pupils with SEN." Teacher, Evelina Hospital School, December 2014 (when asked what they valued most about the activities).

To have as much impact as possible, we encourage participants to do more maths following the event. We therefore asked parents what they had done or intended to do after the Festival:

"Doing more such work with my son. More exploring other shapes also." St Mary's School, February 2015.

"My six year old was experimenting making more shapes out of straws when we got home and the morning after." Summerswood School, November 2014.

We learned during the year that the schools who booked Festival of Triangles had generally heard about us through word of mouth, rather than our direct marketing - for example, one event was booked because a parent attended one of our public events; another was booked because of a teacher's recommendation. Word of mouth is an important measure of success for us, so we were delighted to discover this. It also led to a change in how we market our work. Firstly, we now acknowledge that our public events are important for our marketing. Secondly, we realised that to get the word out about Festival of Triangles, we needed to meet more teachers.

As a first step, we ran an open session at the London Maths Hub Conference, held in Stratford in July 2015. The aims of this were twofold: to share our learning about how to create a family-friendly maths celebration in school, which is itself in line with our mission, regardless of whether our services are used, and to spread the word about Festival of Triangles. 20 teachers attended, trying out our activities and sharing ideas on how to engage families with maths. After the event we took three school bookings for the following term. Our marketing plans for next year will build upon the initial success of this approach.

Family friendly places

One of the highlights of our third year has been the varied events we have been able to run in community and family friendly places. Maths on Toast has toured museums, libraries, community centres and even a theatre. In doing so we have developed new activities, made new partnerships and counted **2,420** participants - whilst meeting our outcomes of engaging people in mathematical activities (showing concentration, play, and perseverance), encouraging interaction and support between

Community maths at the Shape Parade

communities, increasing enthusiasm for maths and demonstrating that it can be fun, creative and attainable.

We have identified that our work in family friendly places complements our work in schools in several ways. Where we can provide regular events, we find people attend repeatedly, which significantly deepens their engagement. Public events also help us to become known to teachers, including those teachers who attend to pick up ideas for their classrooms. Finally, working directly with audiences in these contexts helps us to listen to them, and further understand their needs.

The Shape Parade, London Borough of Camden

"Maths on Toast arranged some activities in our library which were not only mathematical but very popular. We had families from many different communities coming … and many groups came back several times, clearly enjoying the time they'd spent together and valuing what they were learning and doing." Peter Baxter, Senior Officer: Learning, Reader Development and Bibliographic Services, London Borough of Camden.

We were proud to continue our partnership with the London Borough of Camden, utilising the remainder of our £14,000 grant from the Innovation and Development Fund. Building on the success of our Festival of Triangles tour in the summer of 2014, we evolved the activities into a set of materials suitable for library and community settings, newly named the Shape Parade. In the autumn of 2014 and spring of 2015, the Shape Parade visited Primrose Hill and Pancras Square Libraries and returned to a local school. We counted **360** participants and noticed that we were attracting repeat participants, with some visitors attending almost all of our five Shape Parade sessions at Pancras Square Library.

Our overriding aim for our collaboration with Camden was to build resilience by bringing communities together to engage with maths in a creative and inspiring way. **92%** of adults and **96%** of children (of a total sample size of 154) who gave us feedback told us that they enjoyed the activities, with **91%** and **76%** respectively (sample size: 132) identifying them as maths – meeting our aim of organising events that were focused on maths but also fun and achievable. Our data on ethnicity showed a huge diversity of attendees, and photographs from the events show different families working together at large group tables at our events.

"Maths can be an intimidating subject …. but by bringing a taster session to them in the classroom, that barrier was broken down …. they started asking when the public events would be, and were excited about the idea of going to one … All part of increasing the group's confidence not only around maths but around their own ability to support their children's learning and to participate in the wider community." Family Learning Tutor and Quality Co-ordinator, Richard Cobden School, April 2015.

Finally, **75%** of adult attendees filling in feedback cards (sample size: 65) said they intended to continue the activities at home in some way.

In terms of our own sustainability, the opportunity to hold regular sessions in one venue, Pancras Square Library, enabled us to develop significantly our process for organising and promoting community based events. We were able to enhance our marketing, mostly through working with local schools, and reach more people than ever before (including a record attendance of **109** people at one event) – giving attendees time to get to know and mix with the community, and removing some the barriers to participation by building people's familiarity with and confidence in the activities. We are taking all of this learning forward into our future events.

Numbers x Fun

"Look at the Octopuses again with my 6 year old. He can count in 8's now. " Parent (asked what they intended to do after a Numbers x Fun event).

As we moved into our third year we identified a clear need to develop a second event, to complement our shape based events. This was in direct response to requests from our audience who were asking about number based activities, and specifically about times tables. In January 2015, we were awarded a grant of £5,000 by John Lyon's Charity to begin developing activities to support creative learning around times tables and multiplication. We held pilot events at the Winch in Camden to develop and trial ideas directly with families, followed by two public events at Pancras Square Library in May.

Participants in Numbers x Fun were able to explore four activity 'zones':

- Making an ancient Chinese times table scroll out of lollysticks (an instant hit!)
- Dice and card games involving multiplication and other operations
- Paper cutting and colouring activities, with folding representing multiplying
- Using music and sound to represent times tables.

Lollysticks … and maths!

144 people in total participated in the activities. **95%** of those who gave feedback (sample size: 35) enjoyed themselves and the events were strongly associated with maths. **92%** of our sample of children (sample size: 12) told us the activity had, or maybe had, made them like maths more. We observed children making

number associations, persevering for a long time with the activities and recognising new relationships between numbers.

We continue to develop Numbers x Fun and our learning from the events, together with direct feedback from some of our younger participants, has contributed directly to the development of our new game, Number Rumbler – of which more to come. We also plan to develop Numbers x Fun further, so that it is in a format that we can deliver in a school.

We're Stuck

"This is genius!" Parent, Ovalhouse, October 2014.

"I think the performance will help [my daughter] tackle difficult questions in healthier / more productive ways.' Parent, Ovalhouse, October 2014.

We're Stuck! took Maths on Toast in an entirely new direction – collaborating with theatre director Sarah Punshon to devise a new piece of interactive theatre for families. It was supported using public funding by the National Lottery through Arts Council England, with further funding from the Ernest Cook Trust and private donations (raising £15,500 in total in cash support), with support-in-kind from the Unicorn Theatre, Shoreditch Town Hall and the Ovalhouse Theatre.

We're Stuck focused on the belief that getting stuck in maths (and life) is important and exciting, supporting our objective of reducing fear of maths. Sarah worked with performers and mathematicians towards the development of the final piece. Along the way we held events in schools – 181 children, 9 members of staff and 10 parents attended sessions at Ivydale School, Queen's Park Community School and St James' Catholic Primary School, and at two theatre venues – 71 people took part at the Ovalhouse Theatre and Shoreditch Town Hall. In total over **270** people participated.

The activities varied by venue but some of the most popular included

- 'Who Said What' - during which audiences were given a set of statements about how people feel when they get stuck and had to guess whether they were said by mathematician or a ten year old (this was very hard to guess correctly!)
- 3D tea making – giving children the chance to instruct a 'robot' actor in how to make tea, using only coordinates to give directions.

3D tea making at Ovalhouse

Everyone who gave us feedback said they had enjoyed the session or show, and strongly associated

the activities with maths and learning. Even more importantly, the events met our intended outcome of encouraging people to see maths as something they can do, increasing confidence and influencing changing attitudes towards maths:

"Several children who would normally hide – shone!" Teaching assistant, St James's School, November 2014.

"I would say don't be afraid for getting things wrong. Top mathematicians have got things wrong and felt like you and confused so don't be upset." Child, St James' School, November2014, asked what she would say to a friend who was struggling with some maths.

We showed parents and children strategies for solving problems, and supported confidence around taking risk and being wrong:

"Try not to get frustrated. Enjoy making mistakes. That's how we learn … Love from Sam, Age 7" Shoreditch Town Hall, feedback activity, November 2014.

"It is OK not to know how to do something, let's learn how to do it together." Parent's suggested approach to helping child if struggling, following session at St James' School, November 2014.

Finally, teachers commented positively on the outcome of the events and possible future application:

" 'Everyone can get stuck' stayed in their minds … It surprised me that they picked up on this. I didn't expect them to remember." Head of Maths, QPCS, October 2014.

"The co-ordinates grids were brilliant … There is a lot more about 3D coordinates coming on the new curriculum, it's harder to teach and it will be very useful." Head of Maths, QPCS, October 2014.

Museums

"EPIC!" Child's comment, Bletchley Park, November 2014.

Following on from our successful activities at the Imperial War Museums during 2013-14, we developed and grew our partnerships with museums during the year – collaborating with them to run interactive family events focused on maths based activities, in a range of inspiring settings.

During the autumn of 2014, we ran a series of family maths events at **Bletchley Park**. As well as Festival of Triangles, we created two new events: 'Codes and Conundrums' and 'Playing Games'.

The events were successful, attracting over **350** people in total, and received highly positive feedback. **100%** of those completing feedback forms (sample size: 117) said

they enjoyed it, **80%** of those asked (sample size: 60) were sure the activities were maths, and many said they would go on to do more maths after the event:

"The cipher wheel is fantastic and I will be doing it with children that I childmind."

After the event, several families reported that they had taken things they had made into 'show and tell' at school, and at least three families came to the event more than once. The events also helped to encourage engagement in maths among the whole family, meeting our aim of showing maths as something everyone can do:

"My son is statemented with special educational needs and he found things interesting and manageable. He took all his bits into school and did a 'show and tell' talk on the Enigma machine and breaking codes … (he) keeps quoting the word 'quintillion'!"

"Thanks for arranging events that everyone can join in with."

From Maths on Toast's perspective, we were encouraged that people came to Bletchley Park planning to attend our events (**88%** of those who signed in, representing 70 families, stated that they had known about the events in advance). The activities had been marketed as having a maths theme, and the numbers attending grew over the course of the autumn – indicating that the reputation of the events was spreading. This was particularly encouraging given that **40%** of those who signed in (31 families) stated that they only did maths 'on and off', rather than 'all the time'.

Alongside the events at Bletchley, our 'Cracking Codes' activities continued to run on **HMS Belfast** (part of the Imperial War Museum), coordinated entirely by the museum's own staff, and attracting **1260** participants over 8 sessions spread across the year.

As our third year drew to a close we began working with **Tower Bridge** to create a series of exciting activities to take place at this iconic landmark. **250** people attended a first session in August 2015 in which they had the opportunity to build a version of the Tower Bridge tower out of drinking straws, using the strength of triangles to keep the tower rigid.

We summarised our learning about presenting maths in museums, and circulated a summary of the benefits of doing so via the Group for Education in Museums (GEM) mailing list, which was picked up and promoted by campaigning charity Kids in Museums and by several individuals.

Maths + Animation
Intergenerational Celebration, Camden

In another new departure for Maths on Toast, we were delighted to work with Kentish Town Community Centre and Bunny Schendler / Animation for Kids as part of Camden's

Intergenerational Week, funded by a £200 grant from the London Borough of Camden. We had participation from a range of age groups, and the new animation activities we developed with Bunny led to great outputs from both children and adults.

Intergenerational maths

Homes

"I'm the champion of Number Smart!"
Child, aged 7, The Winch, August 2014.

Not everyone can get to our events, and those who can often express the intention of doing more fun maths at home. We believe we can significantly increase the impact and reach of what we do by giving families ideas and activities to bring maths into their homes.

We released several free resources during the year. Our list of 'family games that are also maths' – developed in partnership with Bletchley Park Trust – attracted 52 page views on our website. The Little Robot activity, developed by one of our volunteers who develops visual effects for the film industry (a very mathematical role), and linking what she does at work to a cut-and-fold activity, attracted 215 views. Dice games from Numbers x Fun were also released, and viewed 135 times.

As the year drew to a close, we identified an opportunity to expand our offering to families at home. Our Numbers x Fun project had resulted in a particularly successful outcome: designing a card game which was enjoyed by families at our event and played persistently by children. We worked with our audiences to develop this game further, including collecting online votes for its name, which over 100 people selected from several options. With that confirmed, we worked once more with our partners at The Winch to gather more feedback.

Number Rumbler, the result of this activity, is a game that's easy for families to play wherever they are, and that supports times tables and number sense. Number Rumbler is our first step towards bringing our work to a far greater number of people than we can reach through face to face events. On the last day of our third year, we were poised on the brink of a crowdfunding campaign to allow us to print an initial run of the game – which, sold at an affordable price, will form a key part of our product development and financial sustainability strategy for the 2015-16 year.

Playing Number Rumbler!

Growing as an organisation

"This is just wonderful – inspirational. We need to spread the word about Maths on Toast to make sure that everybody can engage with mathematics in a creative and collaborative way. May I congratulate all those who are involved." Professor Dame Celia Hoyles DBE, 2015.

As the scope and scale of our activities continues to increase, we retain our focus on operating as a robust, sustainable organisation. Everything we do remains a learning opportunity for us, as we seek to broaden our reach, deliver events of the highest quality and, above all, ensure that everything we do is as effective as possible.

Moving towards **financial sustainability** remains a key priority. Our community and family based events continue to be funded primarily by grants, and we have gained experience in monitoring our budgets, building strong relationships with our funders and reporting back to them regularly on how our activities meet the outcomes agreed with them.

Supplementing our project-based funding, we were delighted to be awarded a grant of £10,000 from Man Charitable Trust to cover our ***core costs*** for the year. In addition to giving us security over our office, insurance, and other basic costs, this grant is already having a significant impact in enabling us to develop our ***fundraising and marketing activities***. For example, these funds allowed us to attend the Maths Hub Conference, and has enabled our CEO to invest in building relationships for the organisation.

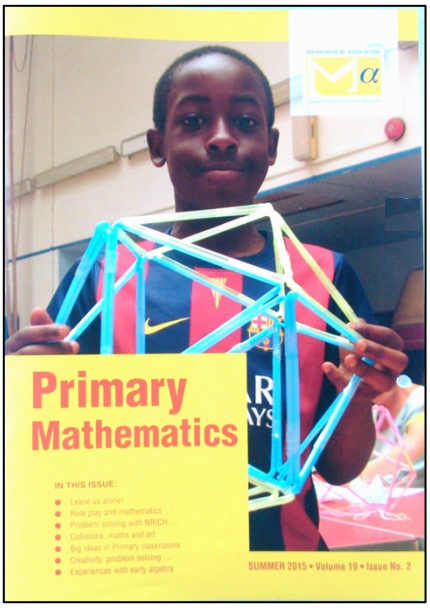
Alongside our grant funding, we continue to explore other revenue streams, including sales of our events to a greater number of schools and, as we move into our fourth year, the development of high quality but affordable products for families to enjoy at home. Our experiences so far have given us a growing appreciation of the sales margins for our events and products, whilst we continue to monitor our costs to ensure we are managing them as efficiently as possible.

As our schedule of school and community events became busier during the year, and additional funding was secured, we were able to employ our **CEO**, Alexandra Fitzsimmons. Alexandra is Maths on Toast's founder and has previously worked on a freelance basis for the organisation, but is now employed on a part-time basis. We also recruited a further **part-time employee**, Francesca Piacentini, who has been able to support our CEO in leading events and developing new activities. Our **Trustee Board** was joined by Rebecca McCaffry as our new Treasurer, following the resignation of Bhavini Pandya who left Maths on Toast with our huge thanks for her contribution.

Maths on Toast staff and participants

As a relatively young organisation, our **partnerships and collaborations** remain essential in helping us to raise our profile and extend our impact. Our work with schools, community centres, museums and other organisations has enabled us to engage with a diverse range of audiences – involving children, families and communities in our activities, and seeking their feedback and insight and what does (and doesn't) work most effectively. Two partnerships in particular have been very significant this year – our work with Pancras Square Library and the Winch, both in Camden, has given us a new understanding of our audiences.

We continue to grow our **public profile** – Maths on Toast was featured in www.theschoolrun.com, and the Borehamwood & Elstree Times ran an article on the Festival of Triangles event at Summerswood School. Primary Times, Londonist and Time Out featured our events in their Listings sections. We were also featured in Primary Mathematics magazine, which is the Mathematical Association's publication for primary school teachers, including providing the cover image for the Summer 2015 edition.



Featuring on the cover

Alexandra Fitzsimmons has continued her role on the panel of **National Numeracy**'s Parental Engagement Expert Group, and was appointed to contribute to their Parent Toolkit (now online as the Family Maths Toolkit).

Moving forward, our plans are for growth. We anticipate that next year will not be without its challenges, but we look forward to expanding what we do and understanding further how it benefits our audiences.

Coming up! Our plans for 2015-16

As we move into our fourth year, the pace shows no signs of slowing down! Our plans for next year include more collaborations with schools and family friendly places, the further development of our existing events, and the launch of Number Rumbler.

Homes

As we reached the end of our 2014-15 year we were poised to launch our fun family maths game, Number Rumbler, via an Indiegogo crowdfunding campaign. We believe that Number Rumbler will enable us to bring Maths on Toast's philosophy to a whole new, and much more geographically diverse audience – giving parents a new way to support their children's maths learning in a fun way.

Schools

As the year ended, we were in the final planning stages for three upcoming Festival of Triangles events with London schools. We hope to bring the Festival to at least double that number of schools during the year. We're looking into strategic partnerships which will enable us to scale significantly our school offering and spread the word more effectively, and into developing a termly newsletter aimed at keeping teachers up to date on what Maths on Toast does.

We are also considering how we may be able to deploy Number Rumbler in schools. Teachers have told us that they see it as a potentially valuable classroom resource. In addition, we are excited about the potential for state primary schools to support us in reaching the communities and families who will most benefit from the game, and we plan to explore this during the year.

Family friendly places

Our successful programme of museum events will be continuing with events at Tower Bridge and the Petrie Museum during the autumn of 2015, together with a further series of events at Bletchley Park. We also have community events planned in Rotherhithe and Croydon towards the end of the calendar year.

We're Stuck! has been taken on by theatre producers China Plate, and has won funding for a further stage of development from the Wellcome Trust. We remain a key partner in the project, supporting with marketing, evaluation and input into family maths elements. As the year drew to a close, we submitted a funding application to develop 'wraparound' activities which will be carried out before and after the show, further deepening its impact.

2014-15: in facts and figures

People we reached

Participation

Between 1 September 2014 and 31 August 2015:
Around **370** children and parents attended our family maths events in school.
2,420 adults and children were counted at Maths on Toast public events
In total, at least **2,790** people were counted directly participating in our events.

Reach

A further **780** children were reached through our work with schools, almost all carrying out elements of our activities.
As of 31 August 2014, we had:
385 people on our mailing list
1,147 Twitter followers
150 Facebook friends – a 200% increase on last year
During the year, we had **5,239** users of our website, including 22% returning users.
Total reach: **7,701**

Finances

Please see our accounts for the year ended 31st August 2015 for full details of our financial position for the year.

Volunteer time and support in kind

From 1 September 2014 to 31 August 2015, we benefited from nearly **12** days in total of volunteer time supporting with running and evaluating our events. We also appreciated 7 days' worth of behind-the-scenes and administrative help.

We received support from:

UCL Volunteer Services Unit and **STEMnet**: help with volunteer recruitment
NCVO: free membership, updates and information
National Numeracy: who helped to promote our events
The Winch, **Pancras Square Library and Kentish Town Community Centre**: working in partnership with us, including offering free use of spaces for our projects and marketing support
The **London Maths Hub Conference** – provided significant support towards our attendance at the conference.

We are very grateful to all of the people and organisations who have made our work possible.

Issued by the Board of Trustees, March 2016

Alison Clark-Wilson
Holly Marshall
Rebecca McCaffry
Sophie Smith
Paul Wilmott

Further information

If you would like further information about our activities, would like to enquire about running a Maths on Toast event within your organisation, or have any other queries or comments, please do not hesitate to contact us:

020 7645 3798
www.mathsontoast.org.uk
info@mathsontoast.org.uk
@mathsontoast

Thank you to our funders and supporters:

Thank you to our partners and our clients:

Thank you to the schools that hosted our activities:

And thank you to all the individuals who supported us so generously whether with time, money or advice.