

# **THE PARENT FACTOR**

## **A report on the impact of our Count on Us: Parental Engagement Programme**



**The volume and statistical significance of the evidence, both quantitative and qualitative, strongly demonstrates that parental engagement leads to increased confidence and improved behaviours in maths and raises standards of attainment.**

**BY NATIONAL NUMERACY  
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## I: Executive Summary

This report, The Parent Factor, presents the findings of work started in September 2015, when the [Mayor's Fund for London](#) commissioned [National Numeracy](#) to support the implementation of its Count on Us: Parental Engagement Numeracy Programme in 28 schools across London.

This project was designed as a direct response to the Mayor's Fund for London Numeracy Feasibility<sup>1</sup> study in which the need to encourage parents and carers to engage in their children's mathematical education was clearly identified as one of the areas where the charity could have the most impact.

Analysis of the outcomes would test how far parental engagement in children's learning of mathematics – the 'parent factor' increases confidence and boosts positive behaviours in maths, leading to improved attainment and potentially improved attendance.

To support the implementation of the project, all participating schools were offered the following:

- Funding of £2,000 for the academic year 2015/16 to buy resources and support implementation of the project.
- Family Maths Scrapbooks accompanied by a bank of weekly activities to encourage maths conversations and activities between children and parents/carers, for school years 1 to 4.
- Expert support on development of parental engagement strategies, including a parental engagement audit (Appendix 6) and action planning tools (Appendix 1 & 2 completed examples).
- Free access to the National Numeracy [Family Maths Toolkit](#) website. This offers useful advice, information and resources that help to break down barriers in parental engagement in mathematics,
- Forums for learning and sharing of ideas and best practice.

National Numeracy collected pre- and post-project quantitative and qualitative information. This included three surveys on attitudes to maths and parental engagement, involving a sample of 916 pupils, 722 parents and 130 teachers across 19 schools. Teacher assessments tracked classroom behaviours, attainment, and attendance of 950 pupils randomly selected from 187 classes in 24 schools over three terms.

### Main Findings:

- The project was successful in increasing parental engagement (reported by 79% of teachers).
- Pupils said that the Scrapbooks helped them talk about maths (82% of children surveyed).

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<sup>1</sup> Invest in a numerate London – The Mayor's Fund Count on Us Programme – A feasibility study conducted by National Numeracy to determine a focus area for a new and effective pan-London numeracy intervention.



- Parents found that using the Scrapbook activities increased their confidence in helping their children with maths (86% of parents surveyed).
- Children reported that Scrapbook activities increased their own confidence in maths (88% of children surveyed).
- There was a statistically strong relationship between children who completed their Scrapbook activities and parental support from home.
- An improvement in classroom behaviours in maths (participation, focus and problem solving) related to levels of parental engagement over the duration of the project.
- There was an improvement in attainment in maths (proportion above expected levels) over the duration of the project. This was greater for children whose parents were more supportive.

***The volume and statistical significance of the evidence, both quantitative and qualitative, strongly demonstrates that parental engagement leads to increased confidence and improved behaviours in maths and raises standards of attainment. Parents are indeed a significant factor in determining how well children learn maths and schools should work towards improving the level and quality of parental engagement.***

Based on the success of the project, the Mayor's Fund for London will develop and promote a Best Practice Guide on Parental Engagement, making this available to all schools in the UK via a website.

*The Mayor's Fund for London and National Numeracy are grateful to the MAN Group for their generous support for the project.*



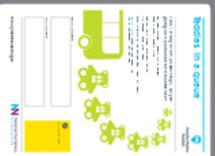
# Count on Us: Parental Engagement Numeracy Programme Findings

Our work in



London schools  
(Oct 20 15 - June 20 16)

## Parental Engagement Activities



Scrapbooks delivered

Scrapbook Activities for Yrs 1-4

School Activities with Parents

has led to...

## Confidence in maths



**79%**

of teachers reported an increase in parental engagement



**82%**

of pupils say the Scrapbooks help them talk about maths



**86%**

of parents increased their confidence in helping their child with maths



**88%**

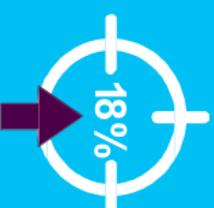
of pupils increased their confidence in maths

## Behaviour



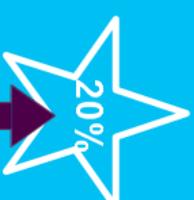
**18%**

of participation of pupils in maths class activities



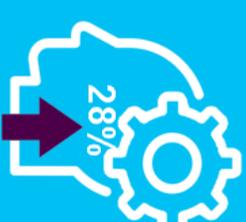
**18%**

of pupils staying on task during a maths lesson



**20%**

of pupils completing the expected amount of class work



**28%**

of pupils working through a maths problem

## Attainment



**22%**

increase in the proportion of pupils in the greater than expected category

for those with most parental support

for those with most parental support

## 2: Background and Overview of Issues

The Mayor's Fund for London Feasibility Study, conducted by National Numeracy in 2013, set out to determine a focus area for a new and effective pan-London numeracy intervention. This study identified the need to encourage parents and carers to engage in their children's mathematical education as one of the areas where the charity could have the most impact.

According to this feasibility study, parental engagement is the aspect of most concern to schools, while research shows that it is critical to securing the best possible progress for children, most significantly when parents become involved in their child's learning at home (Desforges and Aubuchaar, 2003)<sup>2</sup>.

The Parental Engagement Programme became part of the [Mayor's Fund for London](#) 'Count on Us' numeracy programme in September 2015.

### The parent factor why is it so important in maths?

Through developing positive attitudes and improving their own skills in maths and numeracy, parents can improve their own life chances and those of their children – and help to stamp out negative attitudes to maths so endemic in the UK, ([www.nationalnumeracy.org.uk/research-attitudes-towards-maths](http://www.nationalnumeracy.org.uk/research-attitudes-towards-maths)). Parents give children their first experience of maths and it is vital that this is positive. Children who hear 'I can't do maths' are likely to start believing maths is unimportant.

A large body of research has shown that children whose parents take an active interest in their learning make greater progress at school. However, many parents do not feel confident in their own maths ability and/or in engaging with their child's school, and this affects their confidence in offering support to their children.

Effective parental engagement in mathematics is a major challenge for schools. Traditional pages of calculations sent home as homework do not engage parents and are all too often a reminder of their own lack of confidence or perceived ability in the subject. This in turn is influenced by a culturally acceptable negative view of maths. The latter can also manifest itself in the ways schools sometimes approach mathematics in comparison to literacy where people often feel more comfortable with their own levels of competence. This parental engagement project addresses these attitudes and how parents are both part of, and contribute to, the wider learning environment.

Schools have found that lack of parental engagement is one of the biggest barriers to learning, and this is especially true in mathematics. Published research, together with information gathered during the pilot of the National Numeracy Family Maths Toolkit, shows that lack of parental engagement in the mathematical education of their children stems from a number of factors, including attitudes to maths, cultural norms, the belief that education is the school's job, lack of time, language barriers, low levels of numeracy, anxiety and a fear of being stigmatised by other parents if they attend maths support groups.

Although some families are very engaged with and supportive of their children's education, cultural attitudes can mean that mathematics is seen as something to be mastered through rote learning, rather than a subject to be enjoyed. Fun activities, although popular with children, are not always viewed as 'proper' homework by some parents – for example, a maths game might be seen as a toy rather than a tool for learning.

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<sup>2</sup> [The Impact of Parental Involvement, Parental Support and Family Education on Pupil Achievement and Adjustment: A Literature Review](#), by C. Desforges and A Aubuchaar, 2003



## 3: Project Aims

### 3.1 Key principles and objectives

The project drew on the guidelines outlined in the Mayor's Fund Feasibility Study (op cit):

- To encourage parents and carers to participate/engage in their child's mathematical education.
- To develop and foster shared learning opportunities among family members e.g. parent or carer/child, older/younger siblings.
- To make mathematics more fun and engaging and through this to promote and foster more positive attitudes.
- To help parents see the mathematical opportunities in everyday life.
- To help schools develop a range of activities focusing on mathematical thinking and reasoning through realistic contextual situations, i.e. not just 'fun' ways to learn times tables facts.

Key principles included the need to challenge negative attitudes towards mathematics, to increase the awareness of everyday maths and the importance of maths as a life skill, and to promote parents' engagement in learning through talk and open activities. The Mayor's Fund for London and National Numeracy agreed that:

- A core element should be that children learn to think for themselves and develop mathematical reasoning skills.
- The project should offer 'quality' mathematics – with good pedagogical underpinnings, not just an algorithmic 'skills-based' approach. Emphasis should not just be about getting the 'right' answer but the process of doing so.
- The maths of everyday life and the maths used in many jobs should be highlighted.
- Activities should be fun - for example, through the use of the Family Maths Scrapbooks produced by National Numeracy (and already piloted successfully in schools).
- Activities should be accessible to all cultures
- It would be important to make a distinction between the terms numeracy, arithmetic and mathematics. This principle was based on observations that the help parents give to their children is more often than not related to computation, which they perceive as 'mathematics'. Curricular mathematics (which in primary schools is often heavily weighted towards arithmetic) is usually far removed from 'real' mathematics found outside the maths lesson.
- The project should promote innovative approaches but be based on best practice examples, having explored both what has and has not previously worked.

With this in mind, the remit from the Mayor's Fund for London Count on Us Parental Engagement Numeracy Programme was to improve parents' engagement in their children's learning of maths and consequently improve:

- attitudes towards maths
- pupils' mathematical behaviours, including confidence in learning, academic achievement and mathematical resilience
- pupils' attainment
- pupils' attendance.



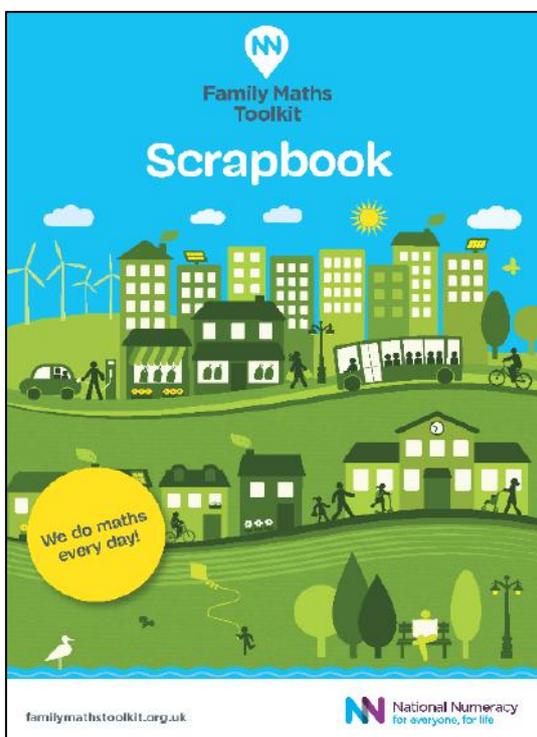
### 3.2 Resources developed for this project

This parental engagement project builds on National Numeracy's previous parental engagement pilot. The pilot project identified the barriers to parental engagement and proposed strategies to address these. It went on to develop and trial resources and approaches for engaging parents/carers in their children's mathematics education. One of these resources was the Family Maths Scrapbooks and activities for School Years 3-4. The pilot trialled 30 activities in seven primary schools (representing diverse contexts) between October 2014 and February 2015.

This Mayor's Fund for London project builds on that research and has encouraged schools to use and give feedback on the Family Maths Scrapbook activities to provide further evidence of the impact of using such an approach.

**With funding from the Mayor's Fund for London, National Numeracy's Parental Engagement Consultant created a further 90 weekly Scrapbook maths activities to complete sets for School Years 1-4.** Schools were encouraged to adopt a whole class approach for School Years 1-4 and were provided with Scrapbook activities and Scrapbooks into which the completed outcomes of the activities could be pasted. The activities were aligned to the National Curriculum for England. It was stipulated that use of these resources should be a key pillar of each school's parental engagement strategy, ensuring some consistency across all the schools. National Numeracy recommended that the Scrapbooks should be given out weekly, as a good alternative to traditional homework, and that they should be seen as an important part of learning, not as an optional fun activity (although they are intended to be fun!).

National Numeracy also updated its Family Maths Toolkit website, which is a 'one-stop' website of resources on parental engagement for parents and teachers: [www.familymathstoolkit.org.uk](http://www.familymathstoolkit.org.uk)



## Final Outputs

In addition to this report, the Mayor's Fund for London plans to disseminate case studies and a Good Practice Guide in early 2017, drawing on the experiences of schools participating in this project to support schools UK-wide starting out on a parental engagement strategy. National Numeracy also conducted interviews with maths leaders at a number of schools and these now feature on the website: [Millennium Primary](#), [Laurel Lane Primary](#) and [Purley Oaks Primary](#).



## 4: Process

The Mayor's Fund for London works with schools in areas of high deprivation in London. Selection for this project was based on demonstration of a clear interest in addressing maths and parental engagement. 45% of the selected schools provide Free School Meals (FSM) to between 30% and 47% of their pupils; a further 20% of schools provide FSM to more than 20% of their pupils. (Nb: , within the past year, schools' FSM quotas have dropped because of the new entitlement to free school meals for all KS1 children. Nationally, 15% of pupils receive Free School Meals.)

The structure of the project was:

1. **Funding:** Each school received £2,000 from the Mayor's Fund for London to kick-start the project in September 2015. This allowed schools to pay for additional staff time to run activities and pay for resources (£1,500 at the beginning and £500 on submission of all data at the end of the project).
2. **Coordination:** National Numeracy and the Mayor's Fund for London shared co-ordination duties. They worked with two batches of schools, six weeks apart to facilitate organisation and support. National Numeracy led on direct support for wave 1 while the Mayor's Fund for London led on direct support for wave 2.
3. **Launch event:** A briefing meeting was held with senior school leaders and teachers (many of whom were maths coordinators) to launch the project. National Numeracy shared their parental engagement audit tools (*Appendix 6*), resources (the Family Maths Scrapbook and activities) and monitoring requirements. Action plan templates were shared, discussed and modelled (*see Appendices 1 and 2*).
4. **Pre-project survey:** Parents/carers, teachers and pupils completed online surveys regarding attitudes to mathematics and parental engagement. These were completed by all staff in Years 1-4, a sample of at least five pupils and five parents per class across the same years. Teachers were also asked to assess the progress of the same sample of pupils over the duration of the project (*see Appendices 5a-d Survey Tools*)
5. **Analysis & planning:** Using survey analysis and audit results, schools created their strategy for parental engagement in mathematics.
6. **Sharing:** Cluster meetings of schools with National Numeracy's Parental Engagement Consultant discussed the audit and action plans and shared parental engagement strategies.
7. **Feedback:** the Consultant provided remote feedback on the final action plan to each school.
8. Schools implemented the recommended parental engagement strategy and introduced Scrapbooks and activities between October 2015 and June 2016.
9. **Learning and Sharing Forum** was held mid-year to facilitate lesson-learning between the pilot schools. It enabled schools to reflect on and evaluate key factors leading to success and identify what might be done differently in future. Teachers presented their experiences in small groups.
10. End of project survey was carried out in June 2016 with final data collection of teacher assessments.
11. **Evaluation:** Final review meeting of school leads identified best practice and considered project impact. Leads also assessed the sustainability of parental engagement strategies to help plan for next year. Opportunity was given for action plans to be shared with National Numeracy's Parental Engagement Consultant for the following year.



## 5: Monitoring and Evaluation

A comprehensive monitoring and evaluation framework across the schools allowed collection and analysis of both quantitative and qualitative data and ensured outcomes and impact could be measured.

National Numeracy also collected examples of what worked well and what was less successful. Case studies based on teacher interviews will be available on the Mayor's Fund for London and National Numeracy websites.

### 5.1 Data collection approaches

Data collection, through the surveys and information provided by participating schools, provided evidence to measure **pupils', parents' and teachers' attitudes and/or learning behaviours**.

**Survey sampling** – schools were provided with access to online surveys for pupils, parents and teachers. A paper version was also provided for parents to compensate for any lack of IT access. Teachers distributed the surveys to a random sample of five children per class and at least five parents per class. All teachers engaged in the project in School Years 1-4 were also included in the teacher survey. At the end of the project, teachers tried to select the same pupils to ensure consistency (although this was not enforced) while the selection of parents was left to the teachers' professional judgement.

#### Description of the pre- & post-project surveys

**Pupils** – the survey asked mainly closed questions with four ranked responses (using smiley faces to facilitate understanding). Questions covered: how they feel about maths, current help with maths at home, talking about maths, everyday maths and current maths homework (*Appendix 5a*)

**Parents** – were asked closed questions with four or five ranked responses. Questions covered attitudes to maths, barriers to helping their child with maths, talking about maths with their child, involvement with school and needing help with their own maths. Open questions allowed parents to specify how the school might help (*Appendix 5b*)

**Teachers** – similar format to parents. Questions focused on: attitudes to maths, parental engagement with maths, barriers to parental engagement in school, and confidence. An open question gave teachers the opportunity to suggest further parental engagement activities (*Appendix 5c*).

Post-project surveys – covered the same questions again but also added a feedback section on the Scrapbook resources/website and/or on the project.

In total, 28 schools participated in the project although not all took part in the data collection due to internal factors. 25 schools completed pre-project surveys, audits and action plans while 19 completed the post-project surveys. Schools received individualised reports to assist with planning, based on the pre-project surveys, and a comparative report if they completed the post-project surveys. The results included in this report are based on pooled data from the 19 schools that took part in the final survey, compared with the same 19 schools' pooled data at the start.



## Teacher Assessments

Data on five randomly selected children per class (participation in the project) was tracked by teachers using an Excel table (*Appendix 5d*). Teachers were asked to select the same children that took part in the survey but this was not strictly enforced. The tool covered:

- Parental support – this covered the extent to which the parent/carer support their child's learning using a scale of 1-4. The change in support was assessed at the end of the project. The final level of support was grouped into three categories: high (score 4), medium (score 3) and low (score 2 or 1). This analysis was used to further examine both attainment and learning behaviours.
- Pupil learning behaviours - questions about participation in maths, focus in maths activities and problem solving, confidence and completion of homework/Scrapbooks. These were assessed by the children's class teachers using a scale of 1-4 at the beginning of the autumn term and at the end of the summer term.
- Attainment in maths – since primary schools can now use their own system for measuring attainment and are not bound to use the previous national system of National Curriculum 'levels', teachers were asked to identify whether the child was above, at, or below expected levels in maths (expressed as +1, 0, -1) at the end of each term. In the analysis, we identified the proportion of the sample in each category to measure change over time.
- Attendance –the previous year's average termly attendance was expressed as a percentage. We compared this year's average attendance with last year's.

## 5.2 Monitoring processes:

The audit tools (*Appendix 6*), provided by the project, enabled schools to evaluate current successes in their schools with regard to parental engagement and how to build on these specifically for maths.

Action plans were completed (*Appendices 1 and 2* show examples of two completed plans) enabling schools to begin to develop universal, targeted and bespoke approaches to parental engagement. The action plans included steps needed to introduce the new style of home learning (ie the Scrapbooks and activities) more widely and developed further.

Remote monitoring of the action plans and feedback from the Parental Engagement Consultant helped some schools develop plans, which were manageable and sustainable. Some maths subject leaders were very enthusiastic at the start and produced very ambitious action plans!

Regular contact with the Mayor's Fund for London Schools Project Manager ensured schools kept on track and could access support when needed. The Manager was also able to visit and experience first-hand many of the events and activities planned by schools.



## 6: Project Findings and Challenges

At the start of the project, most schools were reporting that parental engagement was limited to parents' evenings or events such as shows or fairs. Some schools described parental engagement at the start of the project as 'poor' all round. It must be emphasised at this point that there is a clear difference between parental *involvement* in school organised activities and events, where parents simply need to be present, and parental engagement with learning, which requires some active participation in their child's learning.

It is a credit to the schools that so many pupils indicated at the beginning that they enjoyed maths and the surveys showed they would be keen to involve their parents/ families in their learning. This was a good foundation for the project.

All schools used the National Numeracy Family Maths Scrapbooks although usage was not consistent. For example, some sent home the activities alongside 'traditional' homework, some alternated weeks with other homework and some targeted specific year groups. Some teachers used the curriculum links to enable them to plan their use in line with classroom teaching. Others sent them home randomly or allowed pupils to choose.

### School Challenges

Inevitably some schools experienced some challenges when starting the project. These included:

- an extra demand on time
- some reluctant staff
- lack of responses from parents to teachers' initiatives to engage them
- parents not seeing activities as real maths
- Scrapbook activities not modelled by teachers
- Scrapbook activities given alongside other homework – seen as optional
- some pupils still not supported at home
- deciding how to celebrate completion of activities when some children have not received parental support
- English as an additional language and cultural differences in attitudes to maths and homework
- some parents expressing a feeling of stress at having to complete the Scrapbooks
- some parents finding the activities too hard
- some internal changes in personnel leading on the project slowing implementation in some schools.

These challenges have been articulated by teachers in some of the case studies:

*“Yes it is particularly hard, we live in a very deprived area of London, right by Heathrow airport. We get lots of non-English speaking parents as well as lots of white British parents who are particularly low ability in maths, and are also disengaged with the subject. Often we find they don't have any passion for it, and they don't see the point in it. So it's about showing the bigger picture and why maths skills are so important and that it's not just that about the morning maths hour but that it's across the entire curriculum, and more broadly everything they do.”*

*“When it comes to teacher training with maths you're taught how to show children strategies but you're not taught how to deal with people who have been taught a completely different way growing up or had some*



*really bad experiences. I think the difference between maths and other subjects is that it's something that parents have usually had problems with it themselves."*

*"Relationships with the school, it's also how busy everyone is; parents work and teachers have such a heavy workload that it can be difficult to find time and innovative ways to engage parents. Most schools would benefit from a dedicated person in the role to engage parents, but that is difficult to fund."*

However, schools were recognising the challenges and potential barriers, and action plans demonstrated that they put strategies and plans in place to address these. Observations and feedback in the surveys show evidence of progress. Remaining challenges have informed action plans for next year. With less than a year to implement this project, not all of these challenges were fully addressed. However, it was evident that schools saw the benefits of the project and that action plans for next year would focus on addressing specific challenges found in each school. Teachers and an increasing number of parents are keen to continue and embed effective parental engagement within their schools, as evidenced in parental comments, feedback and discussions with teachers.

National Numeracy provided paper copies of the parent survey to assist schools in getting parent input.

In order to address the variation in numbers completing the surveys at the beginning and the end of the project, National Numeracy excluded schools that did not participate in both, then analysed the data and compared percentage change between schools.



## 7: Outcomes & Impact

Evidence was collected from data provided from a sample of pupil, parent and teacher surveys, teacher assessments tracking a sample of pupils, forum discussions and case studies.

*“The culture of being afraid of maths is disappearing; children are not afraid of the subject, they want to draw their own conclusions. Parents are beginning to talk openly about maths” one teacher reported.*

### 7.1 Results from collated end-of-project surveys:

19 schools completed both the start and end of project surveys	Start	End
No of Pupils surveyed	1,064	916
No of Parents surveyed	886	722
No of Teachers survey	140	130

The following analysis is based on comparison of the **start and end of project** surveys. The results were tested for significance using Chi-Squared analysis. All figures mentioned as demonstrating a change are statistically significant. (Full analysis is available on request).

#### School Support & Barriers to Parental Engagement

Each school introduced a range of activities (*Appendix 4*) to engage parents in maths, including; formal parents' workshops, inviting parents into class, maths games clubs, creating guides for parents, newsletters featuring puzzles, problem solving, linking with family learning courses in maths, and offering one-to-one support. In terms of barriers to parental engagement, while more teachers made time to support this work, many cited the lack of responses from parents as their biggest challenge (55% mentioning it).

*“This year was the first year that we have done any sort of parental workshops”*

**There was a 13 percentage points increase from 36% to 49% of parents who attended the maths-related parental engagement activities** offered by the school. Schools are to be congratulated on the 9 percentage points fall (to 33%) in parents who felt they needed support with maths. The proportion of parents who wanted to improve their maths fell from 65% to 58%. The parents also recognised an improvement in the information shared by schools regarding maths with an increase of 6 percentage points of parents reporting they actually get updates at all and 45% indicating that it was very helpful.



## Attitudes Towards Maths

In terms of the impact on the attitudes of the children, it was noted that children at the beginning of the project were already very positive about maths, with 97% recognising that “Maths is important” – so not easy to improve on! However, there was an increase of 6 percentage points from 60% to 66% of those who strongly agreed that they would “need maths in their life”.

**The project has had a significant impact on teachers’ attitudes towards maths with a 12 percentage points increase from 32% to 44% in those who disagreed with the statement that “It’s OK to admit that you’re no good at maths”.**

The project had some influence over parents’ attitudes to maths. There was a 4 percentage points increase to 41% in the proportion who strongly agree with the statement that “People who are good at maths have more opportunities to do well”. There remains just under 50% who believe that “How good you are at maths is something you can’t change” which could form a focus for future parental engagement work in schools.

## Involvement in Mathematical Talk

**Teachers talked more to parents; there was a 19 percentage points fall to 4% of those that rarely discussed maths regularly.** Teachers encouraged families to be involved in maths activities at home. Subsequently, there was an increase from 63% to 80% in the percentage of teachers who noticed that more parents (sometimes, often or always) talked to them about maths in the home.

There was a 5 percentage points increase in families who often or always talked about everyday maths (from 33% to 38%) while out and about. Parents were more willing to speak to teachers and to each other about maths. Case studies describe teachers finding parents talking about maths and the activities in the playground!

The Scrapbooks were specifically introduced to encourage families to talk about maths. **82% of pupils indicated that the Scrapbooks helped them talk about maths.**

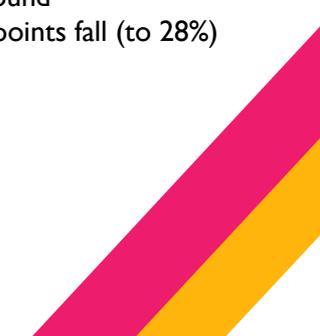
The extent to which pupils “liked to talk about maths” with their teachers or family showed little change (positive levels were already 81% and 79%). We did, however, see a 4 percentage points increase to 30% of children who like talking “quite a lot” to their friends about maths.

## Parental Engagement in Maths

**79% of teachers felt the project had helped increase parental engagement.**

**The project boosted how teachers valued the role of parents with a 6 percentage points increase in those who saw them as equal partners (from 40% to 46%).** There was a 4 percentage points increase amongst pupils saying that their families often or always have “fun doing mathematical activities together (from 85% to 89%).

The most significant change was increase of 17 percentage points increase in parents who regularly looked at their children’s homework (from 55% to 84%). According to the parents there was no change in the proportion that “always” or “often” help with maths homework (at around 80%). However pupils reported an increase in support as there was a 9 percentage points fall (to 28%) in those that “always” do their maths homework on their own.



In the surveys and interviews teachers reported that parents were talking to children in a more positive way; pupils were saying they felt they had more dedicated quality time with their parents. It would seem that the project has had a wider impact on family life.

## Family Maths Scrapbooks Participation & Confidence in Maths

National Numeracy also set out to change schools' approaches to parental engagement by introducing open activities in the form of Scrapbook activities as an alternative to traditional homework. A significant proportion of teachers had never or rarely sent open activities home before: this fell from 23% to 8%. While a few schools distributed the Scrapbooks in October 2015, the majority introduced them in January 2016. National Numeracy recommended that they should replace traditional maths homework: however, this approach was adopted by 28% of classes while 71% gave out both. **94% of teachers gave out the Scrapbook activities on a weekly basis**; the rest gave them fortnightly.

## Scrapbook Usage

Teachers were asked to assess whole class engagement of pupils and their parents in the use of Scrapbooks (NB. it was assumed that classes were the same size so that class averages could be compared). 42% of schools reported an increase in the usage of Scrapbooks between March and June with a similar level indicating an increase in parental engagement.

**73% of teachers felt that the project had helped the children talk more confidently in maths classes (QT7.1)** In Parental Engagement Consultant discussion with teachers, they reported previously reluctant speakers were now willing to talk in class about their activity. This has improved confidence and, of course, speaking and listening skills.

**86% of parents felt that the Scrapbook activities had increased their confidence in helping their child with maths and 88% of pupils thought that using the Scrapbooks had increased their confidence in maths (quite a lot 31% and 57% a lot).**

70% of teachers thought the Family Maths Scrapbook Activities were excellent (10%) or good (60%) and all 70% would like to use them again next year and were happy to recommend them. Of interest is that **100% of the project leaders (maths coordinators) thought the activities were excellent** and planned to use them again. Some teachers may view the Scrapbooks as extra work if the benefits have not been fully shared or modelled – if schools decide to continue with the Scrapbooks as a resource, there may need to be some staff INSET.

Teachers talked about an appreciation of the emphasis on thinking and reasoning in the Scrapbooks activities, in line with the demands of the National Curriculum, as they have realised that their children may not be fully equipped with the skills to complete more investigative tasks. Some teachers shared a fresh appreciation of how parents/carers feel about maths and an understanding of some of the barriers they experience.

## 94% of Pupils and Parents enjoyed doing the Scrapbooks together

In one school, a child's activity at home was shared with peers in school and the other children participated in the role-play set up by the child. This involved a sweet shop and prices and is a good example of fun maths activities led by families.





## Parental Support

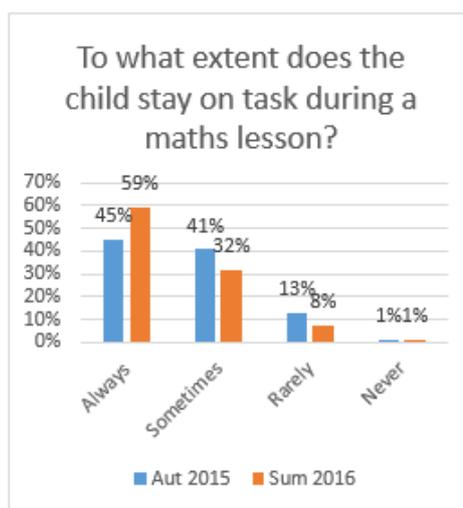
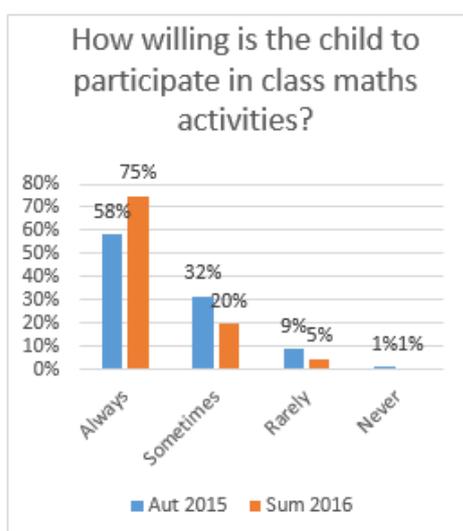
Over the duration of the project, the tracking data shows that there was an increase in the proportion of parents who always support their child's learning, up from 44% in the autumn to 57% in June 2016. There is also a very strong correlation between children who completed their Scrapbooks and the support they got from their parents. We believe that this demonstrates the positive value of the Scrapbooks in promoting parental engagement.

## Maths Class Behavioural Questions

Using the following questions, teachers were also asked to track the sample children's focus, problem solving and participation in maths lessons in the autumn (baseline) and again at the end of summer:

Classroom behaviours in maths lessons:	Statistical Significance
<i>Q1 Participation: How willing is the child to participate in class maths activities?</i>	YES
<i>Q2 Focus: To what extent does the child stay on task during a maths lesson?</i>	YES
<i>Q3 Focus: How often does the child complete the expected amount of class work?</i>	YES
<i>Q4 Problem Solving: How often does the child seek help before trying to solve a problem themselves?</i>	NO
<i>Q5 Problem Solving: How often does the child work through a maths problem?</i>	YES

A statistically significant increase towards positive responses (ie always) and away from negative (rarely or never) was found, with the exception of question 4 which showed increases of both positive and negative responses. In other words, there was a clear **demonstration of improved participation and focus over the duration of the project**. The graphs below demonstrate the improvement for all children in the sample for two questions:



Graphs 1a-b. Change in participation (Graph a) and focus (Graph b) in maths lessons from autumn 2015 to summer 2016.

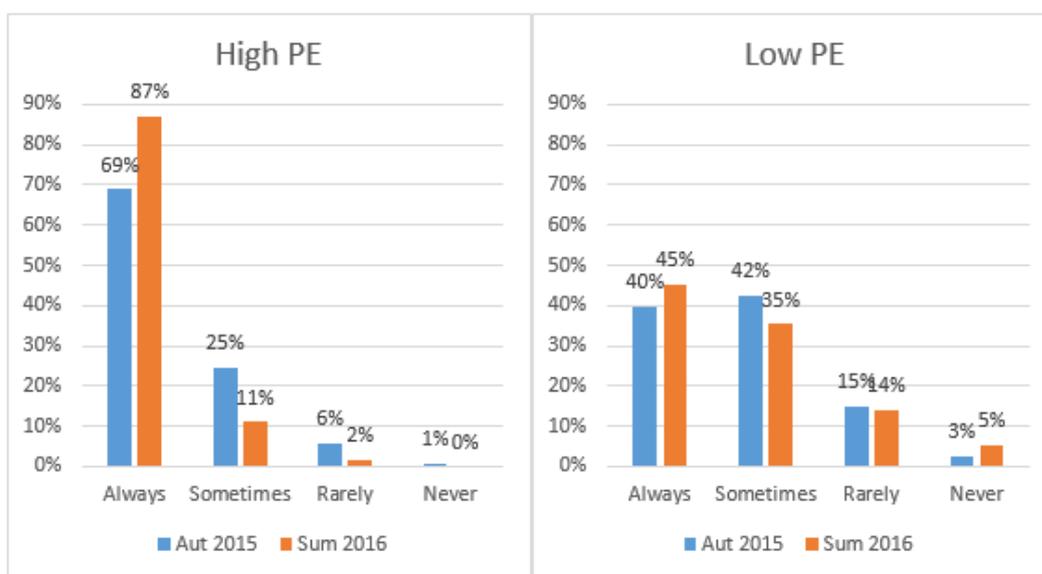


Teachers themselves corroborated this:

*“Children who were reluctant to speak out in the classroom are now confident to share and talk about the activities in their Scrapbooks” Downshall Primary*

The impact of the project becomes clearer when these questions are framed by the level of parental engagement as assessed by the teachers. There is **even stronger evidence of children’s improvement in participation, focus and problem solving amongst children whose parents are more engaged.**

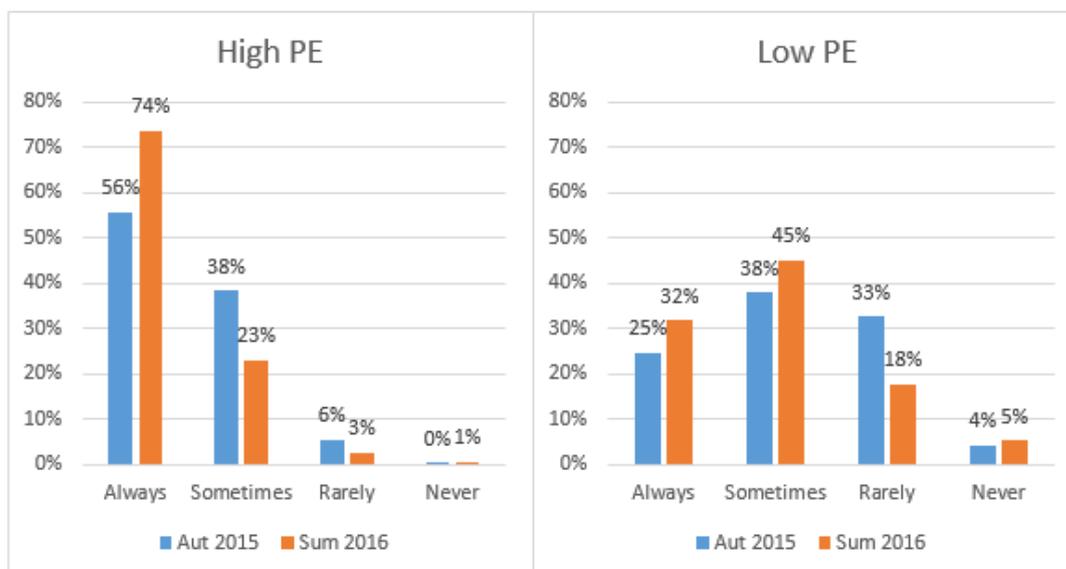
The graphs below are typical of the pattern found with regard to parental engagement for all four questions, demonstrating the change over time amongst children with high and low parental engagement. The first looks at “How willing is the child to participate in class maths activities?” This too illustrates the improvement in participation of children whose parents are more engaged. There is an 18% increase in children who always participate, increasing from 69% to 87% amongst children whose parents are more highly engaged.



Graph 2a-b. Comparison of participation of pupils in maths between autumn 2015 and summer 2016 for children whose parents provide (Graph a) high parental support and (Graph b) low parental support

The second compares “To what extent do the children stay on task during a maths lesson.” This shows a greater increase in focus between autumn and summer for children whose parents are more highly engaged compared to those whose parents are less engaged; there is an 18% increase from 56% to 74% of children who are always stay on task if their parents are highly engaged.





Graph 3a-b. Comparison of “extent child stays on task in maths lesson” ie focus maths, between autumn 2015 and summer 2016 for children whose parents provide (Graph a) high parental support and (Graph b) low parental support.

Similarly for the remaining questions we found the following improvements for this this sub-group of children whose parents had provided high support:

Focus – A 20% increase in children who “Always” complete work, from 53% to 73%.

Problem Solving – A 5% increase in children who “Never “Seek help before trying to solve a Problem, an 8% increase in those who “Always” do.

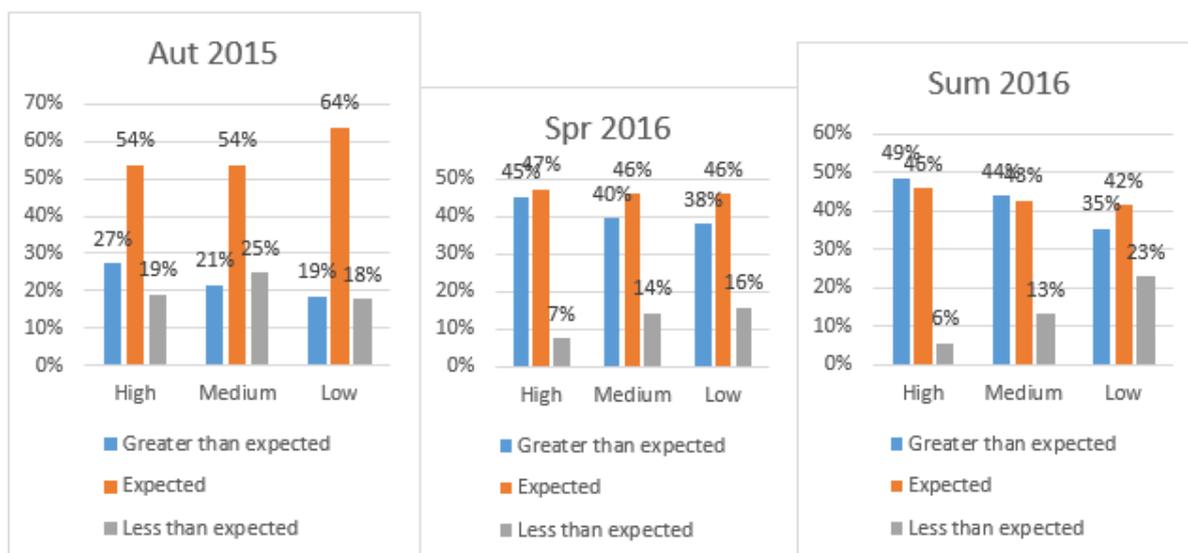
Problem Solving - A 28% increase in those who “Always” work through a maths problem, from 34% to 62%.

## Attainment

**As assessed by teachers, attainment in maths had improved** from autumn 2015 to summer 2016. 24% of pupils in the sample were identified as having “greater than expected” results in the autumn, while children reaching “greater than expected” levels increased to 42% and 45% in the spring and summer respectively.

We also found greater impact on attainment linked to the level of parental support: the lower the level of parental engagement, the lower the percentage of children assessed to have “greater than expected” results, and vice versa.





Graphs 4a-c: Attainment level in maths, analysed by level of parental engagement (high, medium, low) at three intervals (Graph a). Autumn 2015 (Graph b) Spring and (Graph c) Summer 2016).

This demonstrates that, amongst the pupils with the most highly engaged parents, the proportion who achieved above expectation rose from 27% to 49% between autumn 2015 and summer 2016.

## Attendance – Pupil Data

Tracked pupils' overall attendance in 2014/15 was compared with that in 2015/16 (the year Scrapbooks were introduced). 59% of pupils improved their attendance, whilst 5% showed no change. When analysing this by levels of parental engagement, there is no statistically significant difference in these figures. The conclusion must therefore be that parental engagement has had no discernible impact on attendance. However, given the range of factors that can influence attendance, this is not surprising.



## 8: Project Feedback

80% of teachers' comments about the project were positive:

- *Maths was more evident all around and not exclusive to maths lessons. Parents*
- *were able to see more clearly what areas their children were doing well in and which concepts needed more support. Some parents showed more involvement in their child's learning.*
- *Parents enjoyed the workshop with the different strategies and the comment box*
- *enabled a dialogue between teacher and parent.*
- *A large group of parents who were not engaged in the learning of maths are now*
- *discussing and helping children with their learning. Some parents are still not responding but it is a lot less than before.*
- *As more parents were discussing the activities they came into school more often*
- *and were taking part in the school's provision for support.*
- 

In terms of how to improve the Scrapbooks, parents gave a wide variety of suggestions including: increasing the number of activities, making it harder, clearer instructions; others thought they were too hard for the age group; and some wanted feedback from teachers. Interestingly, in school where teachers did find the time to comment on the Scrapbook activities, parents and pupils were more motivated. In some cases, the activities informed teacher planning as misconceptions or difficulties with maths became clearer.

Comments from parents (and a few teachers) that some activities were too hard might reflect the lack of understanding of the demands of the Curriculum or reflect the fact that the same activity might have been given to the whole class instead of different activities appropriate to the child's need. Where pupils were not accustomed to open-ended tasks or a degree of problem solving, this highlighted areas for development within the schools, as thinking, reasoning and problem solving form a large part of the expectations of the curriculum.

**17% of parents indicated they did not use the Scrapbooks.** Their reasons were as follows: 52% stated that they didn't have time, didn't think it was a good use of their time or they left their child to do it on their own and 23% stated that they struggled with the English. 14% hadn't seen them, a tiny number mentioned struggling to use them because they hadn't had guidance or that the activities were 'too hard'.

These comments again emphasise the need for schools to support parents with the Scrapbooks – some modelling or sending examples home would help to build confidence. If the activities were sent home 'cold' when families were not accustomed to open, investigative tasks, it is no surprise that difficulties were encountered. Schools demonstrating good practice invited parents in to a session and worked through an activity together; others organised 'drop in' sessions so that parents could ask questions. Another strategy was to 'buddy' parents so that mutual support can be given.

**95% of feedback about the Scrapbook activities from pupils was positive.** Comments included:

- *It is SUPER fun*
- *Helps me learn*
- *I love the scrapbook*
- *It is fun and I like talking about it to my friends and my mummy, daddy, brother and dog.*
- *Made me think creatively about maths*



A small proportion indicated they did not like the Scrapbook activities: feedback included that they were:

- *Boring/confusing*

**Teachers also reported some unexpected but very positive impacts:**

- Eye-opener for parents regarding children's lack of basic skills
- Changed mindset of parents regarding a 'can do' approach to doing maths
- The impact on boys was particularly notable – they could see the purpose of maths rather than facing abstract pages of sums
- Maths is whole school / everywhere / every day
- Raised parent self-confidence – now willing to help out at school generally
- School recognition of parents as partners in education
- Parents now asking questions about calculations
- Parents understanding the importance of basic skills and not just about abstract numbers
- Teachers' questioning skills improved, more confident setting problem-solving activities; quality of challenge is better
- Impact across the curriculum as teachers' skills are improving and children's systematic working and perseverance is improving
- Increased interest across the curriculum – eg Roman numerals activity prompted research on Romans
- Parents more comfortable talking to staff
- Improving vocabulary for families with members learning English as an Additional Language
- Impact on school planning, eg sentence starters implemented: "I know this because..."
- Recognising the importance of positive feedback to parents: "this is what we do at..."



## 9: Sustainability

*“It’s a slowly slowly approach, and about getting over that fear of feeling that you don’t know something” South Grove Primary School.*

Whilst all schools in the project were keen to improve their parental engagement, many factors, including change of key personnel, impinged on progress. The burden of data collection was felt to be particularly high, leading to 6 schools not completing the final survey and 1 not completing the teacher assessments. Fortunately, this level of monitoring to assess impact would not be needed going forward.

Whilst the schools received £2,000 to implement the project, sustainability of the parental engagement strategy does not require this level of financial support. Once embedded in whole school policy and practice, the ongoing cost is minimal. For example, schools could use Pupil Premium budgets to buy the Scrapbooks and activities. Organising events, workshops and in-school activities requires time and capacity – again whole school planning can facilitate this.

All schools agreed that parental engagement in maths needs to be driven by the maths subject lead. However the project has also impacted on parental engagement across the school and curriculum and therefore consistent structures and approaches would ensure sustainability. With all staff involved, parental engagement could be embedded and include maths as part of overall expectations. The impact and benefits should outweigh the additional cost in terms of time and commitment.

*It doesn’t “need to take a huge amount of extra time, once it is embedded. The scrapbooks require little effort as they are ready resources. There are benefits all round, some unexpected ones.” Jubilee Primary School.*



## I0: Conclusion

The project can be judged to be a success because the evidence shows:

note PE = parental engagement

### School Support

Schools have a clearer concept of PE and how best to develop it

More parents took up the PE activities offered by the school

### Attitudes to Maths

Teachers' attitudes towards maths changed and they talked more to parents about maths

96% of Pupils say they enjoy maths

### Involvement in maths talk

Children indicated that the Scrapbooks helped them talk about maths

### PE in maths

79% of teachers reported that the project had helped increase PE

Schools reported, in case study interviews, that they now see parents as equal partners in education

## Family Maths Scrapbook Participation and Confidence in Maths

94% of the teachers gave out the Scrapbooks on a weekly basis

73% of teachers reported that children talk more confidently in maths class

86% of parents who used the Scrapbooks reported an increase in their confidence in helping their child with maths

88% of pupils thought that using the Scrapbooks had increased their confidence in maths

There is evidence of children's improvement in classroom behaviours (participation, focus and problem solving) over the duration of the project

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### Parental support

A statistically strong relationship between children who completed their scrapbook activities and parental support from home

### Classroom behaviours

There is even stronger evidence of Children's improvement in classroom behaviours (focus, participation and problem solving) amongst children whose parents were more engaged

### Attainment

An improvement in attainment in maths (greater and expected levels) over the duration of the project

A greater improvement in attainment in maths (above expected levels) amongst children whose parents were

**The Volume and statistical significance of the evidence, both quantitative and qualitative strongly demonstrates that PE leads to increased confidence and in improved behaviours in maths and raises standards of attainment.**

The Parental Engagement Consultant's monitoring of action plans and school progress shows there is a direct correlation between success and the passion and ability to drive the project forward. Most progress was achieved when the 'driver' was also the maths coordinator and often also a member of the Senior Leadership Team. Where the Family Maths Scrapbooks were introduced throughout the year groups on a weekly basis, and where these were in turn modelled and explained clearly by the teachers, it was found that parents and pupils were able to access and fully enjoy the activities'. Where schools offered the Scrapbooks as an optional extra, the impact was diminished.

Similarly, if events were organised and parents invited, these were most successful where personal contact was made and families targeted. Appropriate support to counter recognised barriers was put in place and a variety of communication was used. In these instances, the impact was wider than just on maths, with parents being generally more confident and therefore willing to help in school or participate in events.

*"Please come to our workshop and I will show you different ways to work with your child at home" (Downshall Primary)*

Enthusiastic staff, across a whole school, had a real impact on policy and attitudes. One school now asks the question, at every staff meeting:

*"How are the parents involved in this?" (Downshall Primary)*

It was shown to be insufficient to simply send the Scrapbooks home or arrange workshops/ events without first 'selling' the initiative to parents. They need to fully understand the rationale, why their engagement is important and what impact is hoped for. If the purpose is clear and the partnership between school and parents is secure and trusted, progress can be achieved. Success breeds success



and, as other parents can see both the enjoyment and worthwhile impact, more will wish to be involved. The key features of parental engagement success in supporting children's learning in maths are outlined in Appendix 3 and examples of successful events are presented in Appendix 4.

The Mayor's Fund for London Parental Engagement project has introduced an innovative approach involving parental engagement audits, action plans, new ways of working and new resources for engaging parents and children in maths. The components fit the recommendations made by the Department for Education's 2010 "Review of Best Practice in Parental Engagement", namely introducing a parental engagement strategy that:

- Involves whole school approach
- aims to improve children's learning
- includes a programme of events to support parents and carers in helping their children learn
- encourages regular conversations between parents and children at home about what they do at school.

The investment of both time and effort made by the schools in the Mayor's Fund for London Parental Engagement Programme is to be applauded and celebrated. This project has demonstrated clearly that significant impact can be achieved in a relatively short time. If this is sustained and built upon, the future impact on children's learning in maths could be considerable.

## Next Steps

Based on the success of the project, the Mayor's Fund for London will promote the Best Practice Guide via a website available to all schools. National Numeracy will continue promoting its resources for parents and spreading the message on the importance of parental engagement in maths and hopes to do further research to demonstrate the impact on attainment.



## II: APPENDICES

Appendix 1 – Action plan: Laurel Lane Primary completed example

Appendix 2 - Action plan: St Paul's Primary completed example

Appendix 3 - Key features of success

Appendix 4 - Examples of successful parental engagement events

Appendix 5a-d Examples of surveys (available on request from [enquiries@nationalnumeracy.org.uk](mailto:enquiries@nationalnumeracy.org.uk))

- 5a Pupils' survey
- 5b Parents' survey
- 5c Teachers' survey
- 5d Teacher Assessment Pupil Tracking Tool

Appendix 6 - Audit tool (\*available on request and on the Family Maths Toolkit website (under Schools information)

Appendix 7 – List and map of participating schools



## Appendix I – Laurel Lane Action Plan



LAUREL LANE  
ACTION PLAN 2015 -



PRIMARY SCHOOL  
2016

Parental Engagement Plan - Maths

Written by: Abigail Walton

**NATIONAL NUMERACY:** To increase parental engagement in maths across the school.

**SIP: Target 1**

- Promoting maths with teachers to build up an excitement for the subject, which is evident in teaching.
- Improve the use of problem solving.
- Improve parental involvement with maths through delivering parent workshops (*Parents feel empowered to support their children at home.*)

**SIP: Target 9**

- Keeping parents informed.
- Ensuring welcome to all stakeholders is inviting and promotes a positive ethos.
- There is an increased parental engagement.

Target	Key Tasks	Completed by (time and by whom)	Resources (incl. cost Implication)	Success Criteria	Monitoring and Evaluation
To create a baseline of current opinions of maths.	<ul style="list-style-type: none"> <li>- Photocopy surveys to be sent out to parent with introductory letter.</li> <li>- Incentive for pupils to encourage their parents.</li> </ul>	Maths Leader to complete by the end of the Autumn Term.	Printing costs for paper copies of surveys to be sent home.	Maths leader will have a better understanding of current opinion.	
To launch maths scrap books in Years 1-5.	<ul style="list-style-type: none"> <li>- AW to lead session in each class introducing the style of homework.</li> <li>- Assembly to show good examples of work to engage pupils (parents to be invited to assembly).</li> </ul>	<p>Sessions to take place in Autumn 2.</p> <p>Assembly to take place Spring 1 Week 1.</p>	Curriculum leader time	<p>Parents will be supporting pupils with their homework.</p> <p>Children will have a good idea of how to complete homework.</p> <p>Pupils will be excited to complete activities at home.</p>	
To engage parents in school activities.	<ul style="list-style-type: none"> <li>- Parents to be invited into school once every 4 weeks to share good practice from scrapbooks.</li> <li>- Coffee mornings to build enthusiasm for the subject.</li> <li>- Parent Challenge with games/puzzles.</li> </ul>	<p>To start at the end of Spring 1.</p> <p>Once a half term.</p>	<p>£100 refreshments per half term</p>	<p>The number of parents attending each session will increase each half term.</p> <p>Parents will attend challenge.</p>	

		Summer 1.	£200 on games/puzzles		
To support teachers sustaining enthusiasm for the subject and parental engagement.	<ul style="list-style-type: none"> <li>- Individualised support where necessary.</li> <li>- Regular updates on the success of events and workshops.</li> <li>- Ensure all correspondence is given in enough notice.</li> <li>- INSET on developing parental engagement for staff.</li> </ul>	<p>On-going/ if and where needed</p> <p>INSET in Spring 1 to introduce homework scrapbooks.</p>		<p>Teachers will distribute homework each week.</p> <p>Teachers encourage pupils within maths.</p> <p>Teachers are approachable, supporting parents where necessary.</p>	
To inform parents of current method to help support their children in maths.	<ul style="list-style-type: none"> <li>- Re-send parent friendly calculation policy to all parents.</li> <li>- Create area on website that has policy, videos of methods and possible links for support etc.</li> <li>- Parent workshops</li> <li>- Joint workshops for parents and children so that they can show the parents how to do calculations.</li> </ul>	<p>Maths leader to organise.</p> <p>Website updated by the end of Spring 1.</p>	Curriculum leader time	<p>Parent will have clear knowledge of current methods for four rules.</p> <p>Website will have recordings of worked examples for parents to watch.</p>	

<p>To support parents in improving their own maths ability.</p>	<ul style="list-style-type: none"> <li>- Parent workshops with specific focus on ability/attitudes to maths</li> <li>- Signpost NN website.</li> </ul>	<p>Parent workshop to take place Spring 1</p>	<p>Curriculum leader time</p> <p>£100 refreshments</p>	<p>Parents' confidence supporting child has improved.</p> <p>Parents are accessing NN website.</p> <p>Parents feel comfortable asking for support from members of staff.</p>	
<p>To increase awareness of how to encourage maths in everyday life.</p>	<ul style="list-style-type: none"> <li>- Number day across the Academy</li> <li>- Display with maths being used in everyday life.</li> <li>- Maths challenge to be placed on the weekly newsletter.</li> <li>- Include in parent workshop.</li> </ul>	<p>Number day in Spring 1</p> <p>Display to be up Spring 1</p>	<p>Curriculum leader time</p>	<p>Children can identify maths in everyday life.</p> <p>Maths is visible around the school.</p>	

## Appendix 2: St Paul's Action Plan



### MATHS ACTION PLAN 2015-2016

Aim	Action	Responsibility	Timescale	Resources & costs	Success Criteria	Evaluation
-To ensure consistency in the methods used both at home and at school for calculations.	Review the Calculation Policy in the light of the changes in the new curriculum. Involve staff in this process.	JR	AUTUMN TERM 2015	-	-Calculation Policy is in place and all staff are aware of the progression in the methods used for calculations.	
→	Share this policy with the parents at a meeting possibly using some Y6 and Y5 children to help demonstrate.	JR	JANUARY 2016	-	-Parents are aware of the methods used to perform calculations and are able to support their child in using these methods.	
-To disseminate resources and information that support both parents/carers and those who work with them.	<ul style="list-style-type: none"> <li>Send out helpful resources to each year group outlining where they can go for support and resources and a detailed overview of the year's work. <b>(As requested in the Parental Survey)</b></li> <li>Include 'Rising Stars' yearly</li> </ul>	JR & RC	DECEMBER 2015	Photocopying costs Time to make copies	-Parents feel more informed about what their children are learning and where they can go to get some support in helping their child's learning.	

	overview booklets and info about <a href="http://www.nnfamilymathstoolkit.org.uk">www.nnfamilymathstoolkit.org.uk</a>					
-To break down barriers to parental involvement and transform attitudes to maths.	<b><u>24 Parent Challenge Club</u></b> For ½ an hour a week on a designated morning, parents have the opportunity to come to Y4 and Y5 classroom where the children can challenge them with the 24 game. Parents can also take a group to help the children improve or become involved in a supportive way.	JR & YR	Parent Meeting Friday 11 <sup>th</sup> Dec to launch the club.  Weekly ½ hour lesson thereafter.	-More packs of the 24 game required.	-Parents turn up to the weekly sessions to challenge and support the children. A buzz and excitement is evident which will help to raise the profile of maths and of parental involvement.	
-To break down barriers to parental involvement and transform attitudes to maths.  -To create opportunities to practice with children outside of regular homework tasks. ( <b>As requested in the Parental Survey</b> )	<b><u>MATHS BLOG CHALLENGE</u></b> Create weekly opportunities on the blog for children and parents to work on joint tasks and post their answers to the problem. E.g. post some 24 problems or some maths riddles.	JR & CM initially  Each class teacher will then assume responsibility for setting these tasks.	DECEMBER 2015  JANUARY 2016	-	-Parents and children complete the maths challenge regularly and post their answers and responses on the class blog.  <i>Be aware that a few children do not have access to internet at home so alternative arrangements will have to be made to allow them to become involved if they wish to.</i>	

<p>-To break down barriers to parental involvement and transform attitudes to maths.</p>	<p><u>SCRAP BOOK LAUNCH</u></p> <p>Whole school assembly to launch with children.</p> <p>Parent Meeting to be held to introduce the scrapbook challenge.</p> <p>Tasks to be set on weekly / fortnightly basis thereafter.</p> <p>Opportunities for parents to feedback weekly.</p>	<p>JR &amp; RC</p>	<p>JANUARY 2016</p>	<p>Funded</p> <p>Order scrap books for Y1 – Y4</p>	<p>Parents and children complete the scrapbook challenges together. Parents have an increased knowledge of expectations and are more enthusiastic to get involved in their child's learning.</p>	
<p>-To bring aspects of numeracy in to everyday situations.</p>	<p>MATHS ALL AROUND US DISPLAY</p> <p>Designate a display board. Parents can send in pictures to the school email account or take photos and bring them in showing maths in our environment.</p>	<p>JR</p>	<p>FEBRUARY 2016</p>	<p>-</p>	<p>Parents and children become more aware of maths around us thus raising its status and importance as a life skill and not just a subject to be learned.</p>	
<p>-To bring aspects of numeracy in to everyday situations.</p>	<p>MATHE WEEKEND DIARY CHALLENGE</p> <p>Whole school task. Parents and children note down all the different ways that they use maths over a weekend and present it as a diary.</p>	<p>ALL STAFF</p>	<p>MARCH 2016</p>	<p>Offer a prize for each class</p>	<p>Increased awareness of how maths impacts on all our lives and how important it is.</p>	
<p>-To break down barriers to parental involvement and transform attitudes to maths.</p>	<p>NRICH PARENT/CHILDREN LESSONS (<i>Links with SIP too</i>)</p> <p>Yr 1+2</p>	<p>JR</p> <p>ALL STAFF</p>	<p>APRIL 2016</p>	<p>-</p>	<p>Parents have greater awareness of the expectations in school and feel more confident and enthused to participate in</p>	

	<p>Yr 3+4</p> <p>Yr 5+6</p> <p>Parents have the opportunity to join a problem-solving lesson and work with children to solve it.</p>				their child's learning.	
Other Possible ideas: MATHS WEEK						

## Appendix 3: Key features of parental engagement success in supporting children's learning in maths

FEATURES OF GOOD PRACTICE	COMMENTS
Completed National Numeracy's Parental Engagement Audit Tool (PEAT)	Many schools commented that this presented surprises
Action plan written in direct response to audit and stakeholder views	In the project, the surveys informed this but a simple questionnaire would also suffice
Shared calculation policy with parents	Check for readability, language, access, examples, possibly videos. Mathematical talk key part of policy
Action plan fully supported by SLT	Embedded in whole school policy and supported financially – time and resources
School belief in parents as co-educators and equal partners	
Link to National Numeracy <a href="#">Family Maths Toolkit</a>	
Supporting parents with their own subject knowledge and learning	Consider the <a href="#">NN Numeracy Challenge</a>
Involvement of a Parents' Champion, PTA members or Parent Governors	PTA representatives for each year group involved in planning maths events
Doing a launch event	
Weekly use of the Family Maths Scrapbooks	Scrapbooks must not be additional homework (if difficult to drop then we suggest alternating homework with the Scrapbooks)
Teacher modelling of the activities and expectations	Sharing of completion and range of ideas when activities completed
Use of maths blog/twitter	
Making explicit to parents how the school has responded	Celebration of successes on a regular basis
Family maths certificates	
Variety of communication	Flyers, website, letters, texts. Twitter
Sharing classroom resources with parents	
Providing resources when necessary for activities	
Crèche for some school events	

Weekly tips on how to include maths in everyday life	
INSET for teachers on Parental Engagement	Include how to talk to parents about maths
Invitations to lessons	
Buddy parents for those unsure/ EAL/ ParentPal link up	Non English speaking parent linked with a bi-lingual parent
'Ways to help at home' leaflet	
Parent Liaison Learning Mentor	
Maths visible and celebrated around the school	
Use of NCETM ( <a href="http://www.ncetm.org.uk">www.ncetm.org.uk</a> ) CPD materials to increase staff subject knowledge	
Interpreters when needed	
Personal approach to parents/ invitations from pupils to events/ parents targeted	Adopt a 'universal, targeted and bespoke' approach to meet the needs of all families
Ensuring all children have the opportunity to complete Scrapbook activities (eg with TA or older pupil)	Sadly some families will not engage- ensure those children do not miss out on the Scrapbook activities and subsequent discussion in class
After school clubs involving family, including younger/older siblings	
Dedicated time in school to compare scrapbooks and talk about with confidence and enjoyment	

## Appendix 4: Successful events to promote Parental Engagement

EVENT/ACTIVITY	COMMENTS
Puzzle club	Parents and children invited – puzzles, board games, tangrams – developed problem solving and talking about maths
24 Parent Challenge Club	For ½ an hour a week on a designated morning, parents have the opportunity to come to Y4 and Y5 classroom where the children can challenge them with the 24 game. Parents can take a group also to help the children improve or become involved in a supportive way
144 division challenge	Parents to take more responsibility in practising basic skills in a 'fun way'
Money Maths Meeting	Using money in everyday real life
Winter Fair	Pupils make goods to sell and manage the finances
Bring a Dad day	Research shows that father involvement is a powerful motivation for children
Coffee mornings	A chance to chat about maths in a non-threatening environment
Professionals' Day	People from the workforce visit school and talk about the importance of maths in their jobs
Videos	Pupils produce and present videos demonstrating methods of calculation used in their school
Calculation workshops	Most successful when with parents and children
Maths surgeries/ drop in sessions	Teachers available to answer any questions regarding teaching/ learning in maths
Family numeracy classes	
Maths trails	
Weekly maths competitions	
Weekly home learning in the form of NN <a href="#">Family Maths Scrapbooks</a>	
Celebratory displays around the school	Parents directly involved in the displays



**Appendices 5 & 6 available on request: [enquiries@nationalnumeracy.org.uk](mailto:enquiries@nationalnumeracy.org.uk)**

## Appendix 7 – Project Schools

School	Borough
Beavers Community School	Hounslow
Brecknock Primary School	Camden
Colham Manor Primary School	Hillingdon
Copenhagen Primary School	Islington
Downshall Primary School	Redbridge
Harris Academy Kent House	Bromley
Jubilee Primary School	Bexley
Kingsmead Primary School	Hackney
Laurel Lane Primary School	Hillingdon
Millennium Primary School	Greenwich
Minet Junior School	Hillingdon
Newport School	Waltham forest
Orchard Primary School	Hackney
Peareswood Primary School	Bexley

School	Borough
Pinkwell primary school	Hillingdon
Purley Oaks Primary School	Croydon
Rabbsfarm Primary School	Hillingdon
South Grove Primary School	Waltham forest
St James' CE Primary School	Southwark
St Joachim's Catholic Primary School	Newham
St Monica's Catholic Primary School	Hackney
St Paul's Catholic Primary School	Haringey
Sunnyfields Primary School	Barnet
Townsend Primary School	Southwark
Trinity Primary Academy	Haringey
Tweeddale Primary School	Sutton
West Drayton Primary School	Hillingdon
Willowbank Primary School	Bexley

