

**Name: Julie Doughty****School: St Aloysius Federation****Project title: To improve the quality of teaching and learning in maths through introducing and developing a whole school approach to teaching maths using the mastery curriculum (with a focus on increasing the percentage of disadvantaged pupils achieving GDS at the end of KS1).****NPQ level: ML**

I work as a middle leader in the infant school of a two form entry primary school federation situated in a deprived area of the North East of England. I took over the role of Maths lead in September 2018. The focus of my project was to improve the quality of teaching of maths throughout the school through the development of a mastery curriculum. The aim was for all maths lessons across both schools to be consistently good or better, thus increasing the rate of progress in maths for all pupils.

Outcomes from the previous year's Year 2 cohort had shown me that although all children made excellent progress in maths, there was a significant difference between all children and disadvantaged children achieving GDS. I needed to increase the percentage of disadvantaged pupils achieving GDS. My role was to lead and develop my team, ensuring that teaching and learning was developed to ensure that children had a deeper understanding of the concepts being taught and not just a procedural knowledge of abstract ideas.

I increased the capabilities of my team by using many different strategies to monitor and evaluate teaching and learning. I completed book scrutinies, observed lessons and talked to children to hear pupil voice. I provided feedback to my team both individually and during group feedback sessions with other staff and pupils. I created evaluative documents that I presented to staff, governors, the School Achievement Partner, Ofsted and other external providers. I also developed 'Maths Cafes' where we could share our vision with parents and carers. Through producing these documents/ presentations I was able to keep all stakeholders in the school up to date with my initiative and I definitely became more confident in presenting, an aspect of the leadership role which had previously filled me with fear.

The impact of my initiative was that maths teaching became more streamlined. Teachers took on board the ideas I introduced and they continue to work hard to embed the new ideas within their day to day practice. This is evident from book scrutinies, lesson observations, conversations with both staff and students and from the data. Our end of year data showed rising standards at the age expected standard and above, improving progress from EYFS to Year 2. A recent Ofsted visit graded the school as 'Outstanding', inspectors observed a range of maths lessons and commented on the progress made and the development of problem solving skills.

The course made me realise the importance of leading by example. I recognise that to lead with impact means to be a role model and having talked about the effectiveness of different leadership styles during the face-to-face days, I became aware of the way I presented myself in school and the language I had used previously around my own subject knowledge of maths. I was very aware of the stigma that is often associated with maths in school I worked hard to create an enthusiasm around the subject. It was apparent that many members of staff had the notion that they were 'not good at maths', a common belief that I wanted to dispel from our school. I shared with my team that this was something that I had previously said myself. This enabled barriers to come down as it created an open, supportive atmosphere, which was conducive to experimenting and exploring new ways of doing things with the interest of our children at the centre.

I was able to reflect upon my own emotional intelligence as a leader and found that although I was self-aware, I needed to work on developing my self-management, particularly when it came to using language when faced with challenges. The 360 diagnostic tool used on the course alongside my performance management and discussions with my head teacher helped me to recognise my strengths and weaknesses as a leader. I identified that I needed to be more willing

to delegate tasks and use the experience of my team members to enable myself to manage workload better and to grow the skills of my team.

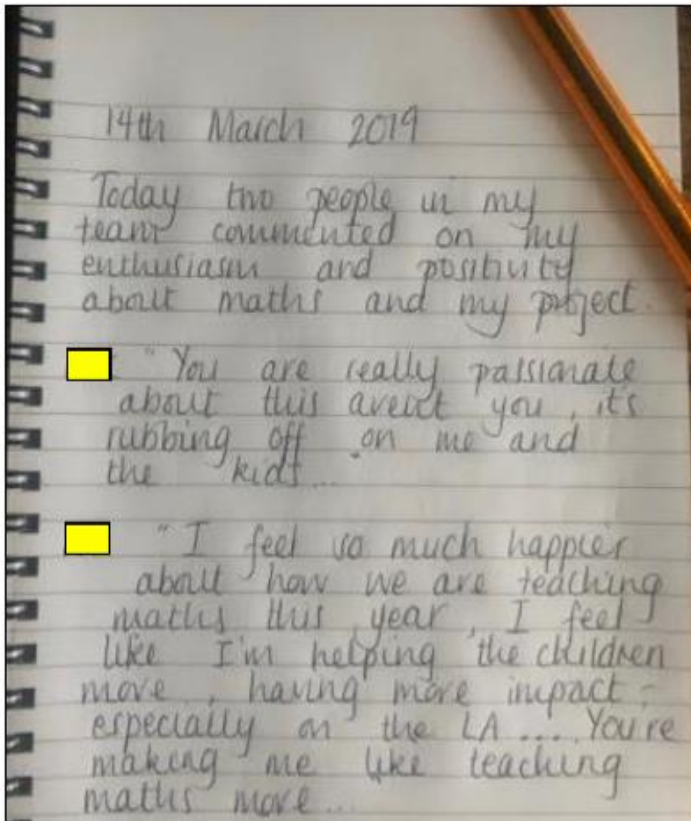
As a leader, I have learnt many skills whilst developing my initiative, one of the main ones being, holding others to account in a supportive but firm manner. Over the course of the project, I realised how vital this was whilst working to improve outcomes. Through face-to-face days and through reading more about Whitmore's coaching technique (2009), I have also worked to effectively coach staff in my team by establishing a desired goal (a more practical approach to maths), a clear understanding of where we are as a school (data and monitoring) and I have then worked to explore options for where we are headed, working in partnership to establish a clear plan of action.

I have made lots of progress in many aspects of my leadership skills. Something I am most proud of is that I have learnt how to manage my time and delegate more effectively, this has benefited my team and I greatly. I have worked alongside the SLT to establish a learning culture which has encouraged staff engagement, built a growing mind set, enhanced creativity and innovation and improved motivation. This was demonstrated when one of the members of my team approached me with some of their own research they had been doing into the mastery curriculum. The fact that my team was beginning to react, conducting their own research and learn more themselves about the initiative demonstrated the positive impact that the initiative had had.

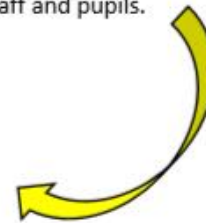
Overall, the project has had a very positive impact upon the maths curriculum in our school. The quality of provision in maths has improved as a result of the initiative, and this is demonstrated by the improved outcomes, the progress made, the quality of teaching and learning and the pupil feedback.

## Supporting Documents

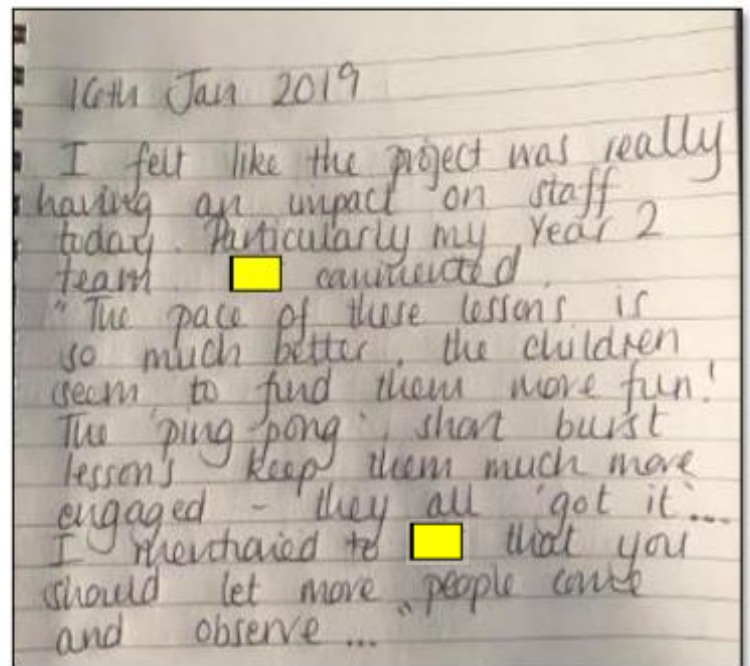
### Extracts from Reflective Journal



This was approximately half way into my initiative and staff member 1 was quite resistant to the new approach to teaching maths. It helped me to see the positive impact my leadership was having on both staff and pupils.



This particular member of staff (staff member 1) who had initially been resistant to the initiative was becoming more enthused by the impact she was seeing towards attitudes in maths lessons. She took her feedback to the head teacher and was vocal to other staff in applauding the way the new initiative was having a positive effect. Following this feedback I arranged for different members of staff to come and observe my practice in Year 2.



**This is an outstanding school**

- The headteacher and his senior team have inspired a culture of high expectation that infuses all aspects of the school's work. Teachers and teaching assistants have sustained high standards of care and academic progress for pupils over time.
- Senior leaders provide staff with training and leadership opportunities that continually reinforce the quality of leadership at all levels across the school.
- Pupils show strong and purposeful attitudes to learning. Teachers have developed an exciting learning environment where pupils thrive in their work and play.
- Leaders and teachers use training and research highly effectively to inform and improve the quality of teaching.
- Leaders ensure that the quality of teaching is consistently effective. Teachers plan and pitch work sharply to enable pupils to make very strong progress from their starting points.
- High-quality teaching is complemented by customised interventions for individuals and small groups that are deftly managed to meet pupils' needs.
- Governors are passionate in their commitment to the school's values. They have developed thorough and distinctive systems to check school performance.
- The arrangements for safeguarding pupils are effective. Teachers are attuned to pupils' welfare needs and their social and emotional well-being.
- Teachers provide highly effective support for pupils with special educational needs and/or disabilities (SEND). As a result, these pupils make very good progress.
- Teachers have developed high-quality provision in the early years. Children develop interests in reading, writing and numbers and gain confidence through the stimulating activities on offer.
- Subject leaders provide a broad and rich curriculum, enabling pupils to acquire knowledge and skills across a range of subjects.
- Thoughtfully planned systems are in place to support the progress of disadvantaged pupils. As a result, they make good progress, although differences in attainment and attendance remain.

During the most recent Ofsted inspection effectiveness of leadership and management was graded as outstanding. As part of the leadership team I was interviewed about my role as maths lead. I explained my initiative to the inspector and shared examples of children's work. I was also observed teaching a maths lesson using some of the new teaching approaches I was implementing. I was given very positive feedback as were my team. This helped build my confidence in my role as a leader and it also built the confidence and morale of the team. Some members of staff told me that they felt like all of the changes we were making were 'paying off'. I felt it important to stress that although it was very positive to have our work validated and commended by Ofsted, it was also important to remember that we knew ourselves the impact that the initiative was having due to the enthusiasm of the children and the impact on their learning and progress.

■ The headteacher and the leadership team have inspired a culture of high expectation for pupils and staff. They work with their team to continually review and improve the quality of teaching. These high standards of teaching enable pupils to become keen learners who make excellent progress.

■ Teachers successfully help pupils to develop their mathematical understanding. Pupils build their awareness of number through regular practice and by using apparatus that helps them to understand place value. As they progress through school, they have increasing opportunities to solve problems and explain their answers.

■ Pupils are making strong progress in mathematics. As they develop their understanding of operations such as subtraction and multiplication, they are becoming increasingly effective in solving more-demanding problems.

Slides shared at staff meetings

**What does 'Mastery' look like?**

1. A mastery approach; a set of principles and beliefs.
2. A mastery curriculum.
3. Teaching for mastery: a set of pedagogic practices.
4. Achieving mastery of particular topics and areas of mathematics.

**Procedural variation**

Carefully selected activities which gradually unfold through the session to emphasise what stays the same and what changes in each step?

Being able to identify and see connections leads to children being able to generalise – find a rule which works!



Slides from various staff meetings aimed at sharing my vision and explaining why I was implementing my project. I gave many examples of positive practice and ideas for staff to implement in their planning.

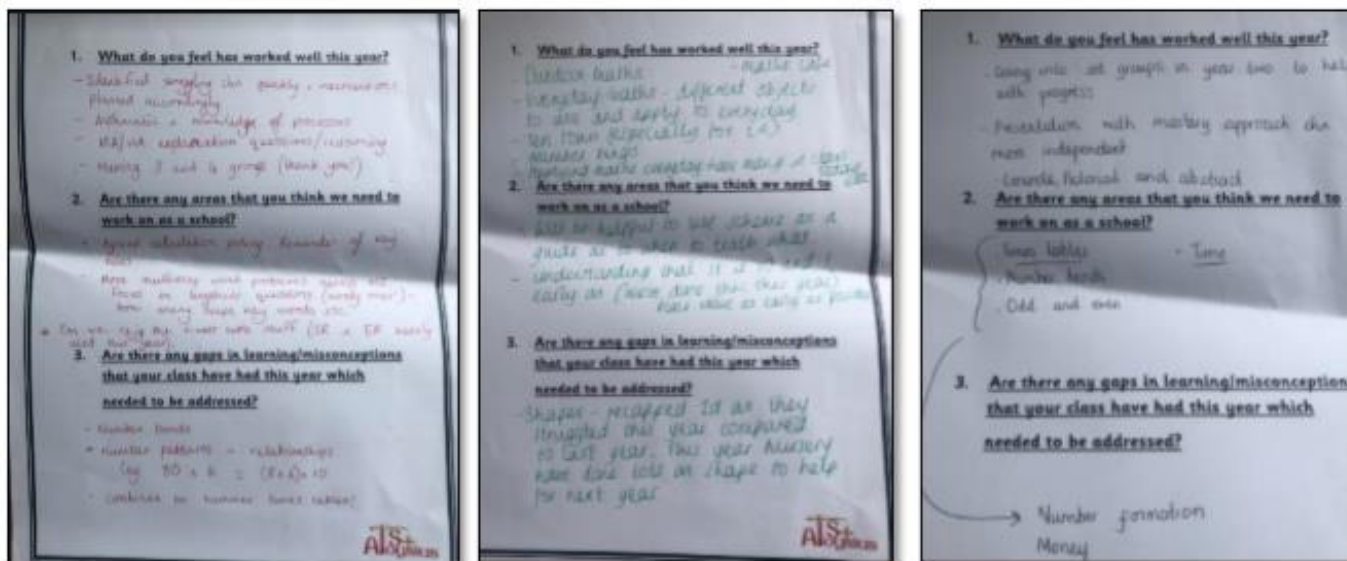
**Key Features to include!**

- key difficulty points
- a range of representations to support deep conceptual understanding of the objective
- variation
- stem sentences
- opportunities for making connections and going deeper
- links between concrete and abstract
- careful choice of examples and use of variation

**Maths Staff Meeting**

GOOD MATHEMATICS IS NOT ABOUT HOW MANY ANSWERS YOU KNOW... IT'S ABOUT HOW YOU BEHAVE WHEN YOU DON'T KNOW.

Staff questionnaires and leaflet shared at meetings



In one of my initial staff meetings, I asked staff to sit in year groups and discuss what they thought had worked well/hadn't worked well in Maths last year. I then asked Nursery and Reception to sit together, Year 1 and 2 to sit together and so on. This created lots of discussion and helped the staff identify key areas that we could work on as a team. It was a very useful process as it helped identify shared goals.

Information leaflet I shared with governors, school achievement partner, staff, SLT and maths hub specialist to inform them of my vision.

**A Maths Cafe - Why?**

- To share with you the areas in which your children are **assessed** at the end of Year Two.
- To show some **simple** yet very **effective** ways of supporting your children to achieve a Good Level of Development.
- To **answer** any **questions** about the way we teach maths in Year Two at St Aloysius.

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**How can you help?**

**Practising number facts**

- Start out with number facts your child is learning at school (**addition, subtraction, multiplication, division, etc**). Try to practise for a few minutes each day using a range of resources.
- Have a 'Fact of the Day'. Pick the fact up around the house. (Number reading is a quick, fun, engaging idea. Ask your child if they can recall the fact).
- Play 'Ibuprofen' to practise complements with your child. Use any number. They reply with how much more is needed to make 10. You can also play this game with numbers totaling 20, 100. Encourage your child to answer quickly, without counting or using fingers.
- Throw 2 dice. Ask your child to find the **total** of the numbers (**+**), the **difference** (**-**) or the **product** (**x**). Can they do this without counting?

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**How can you help?**

**Develop Reasoning Skills**

- Why is that the answer?**
- How did they find that out?**
- Prove it!**
- Teach me how you did it!**
- What if...**

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Slides from the Maths Café that were shared with parents, showing the different ways in which we teach the mastery curriculum. I made a template and then gave staff time during staff meeting time to amend each PowerPoint so that it was relevant for their particular year group. Many parents commented on how useful this session was in understanding what was expected of the children at each key stage and the strategies we put in place to help them get a deep understanding of the concepts. Staff commented that it was a very useful way of building relationships with parents.



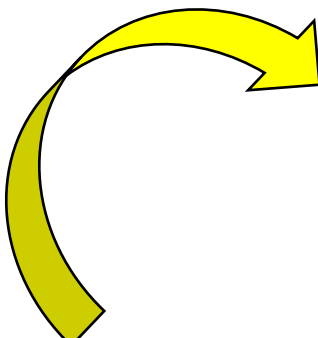
A copy of the parent feedback sheet which I asked all staff to collect in at the end of the Maths Café.

**Year 2 Maths Café Feedback Form**

	Strongly Agree	Agree	Disagree	Strongly Disagree
My child enjoys Maths in school.	✓			
I found maths Café useful.	✓			
I would recommend Maths café to other parents.	✓			

Please comment on how useful you found our Maths Café today

*I loved the opportunity to come into school and discuss with the teachers the different way they teach maths in school as it has all changed since I was at school. Thank you for everything you do for them.*



The poster template I created and shared with staff to encourage parental involvement and teach the strategies we were using at school to help their children understand maths.

**1 2 3** **1 2 3**  
**4 5 6** **4 5 6**  
**7 8 9** **7 8 9**

**YEAR \_\_ PARENTS**

Would you learn how we teach maths to your children at school and gain some ideas to help you support your children with their number work at home?

Why not come along to our

**Maths**  
**Café**

**5.00PM - 10.30PM in the Infant hall**

Please sign up in the Infant hall to attend one of the sessions!



I understand that in submitting this case study, I am permitting NETSP and Newcastle University to place it on their website, and use it for future research and marketing. I also understand that it will be published alongside other case studies and distributed and shared with NETSP's partners.

I have confirmed with my school that they are happy for this case study to be shared.

Name JULIE DOUGHTY

Signature [Handwritten Signature]

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