

Maths Champions Case Study

Champion: Lindsey Robinson

Setting: Flatts Nursery School

INTENT

Introduction

A little bit about your setting, why you joined the programme and what you wanted to achieve from it.

I joined Flatts nursery school 4 years ago, after successfully achieving the role as Assistant Headteacher. I also teach part time Monday, Tuesday full day and Wednesday morning. I have worked in Early years for over 20 years and have a wealth of knowledge and experience and I am very passionate about the EY's.

Our nursery takes children from two years old to four years old and we are open from 8am-4pm. We offer both funded places and paid places. Our morning sessions are 8.30-11.30am and afternoon sessions 12.30-3.30pm. Children who attend 30 hours are 9-3pm. We have 99 children currently on role- which is soon to increase after Easter. We have 35 2-year-olds and 64 3- and 4-year-olds. 73% of our children are EAL (English as an additional language) and 45% EYPP (Early years pupil premium). 13% of our children are on the SEND register.

We are proud to be the only Kirklees Local Authority maintained Nursery School. As a Nursery School we are staffed with a Headteacher, qualified teachers and a very experienced staff who provide the highest quality learning experiences for children who attend Flatts Nursery School.

Within my second year at Flatts, the whole team had in depth training around subitising which spiked my interest and curiosity in maths. Within senior leadership meetings, we often look for projects and the Maths Champions project was on offer at this point. My Headteacher asked me to take a lead on this and it has formed part of my appraisal for this academic year 2024- 2025. I felt that the Maths Champions programme was an excellent opportunity for our nursery to take part in something that would have a long lasting, positive impact on our children and families as well as upskilling staff members. Maths was always a challenge for me as a child, however, throughout my career in Early years I seem to have wanted to learn more about early maths and how I could support the children in my care learning and extending their own mathematical knowledge. But, mainly for children to enjoy maths and see themselves as mathematicians. I was excited in leading on this project to upskill myself and staff and to offer the best opportunities for the children.

When initially embarking on this adventure, we had nominated a member of the three- and four-year-old team to become the Deputy Maths Champion, but sadly this member of staff left our nursery at the end of summer term 2024. Therefore, I enlisted the support of my two-year-old senior practitioner who accessed the training.

How did you decide what to do?

What did the audits highlight, what changes did you consider and how did you identify the change/s to be made?

Did the changes you considered come from the online training or resources etc?

Myself and the Deputy Maths Champion firstly completed the three on-line training courses. Whilst training, I found myself jotting lots of my ideas and thoughts of what I was wanting to achieve and what this would look like for staff members, children and within the environment. I found the courses to be informative and loved the practical, hand on experiences they demonstrated as ultimately, when working with young children, this is the best way of capturing their interests and curiosity.

I was particularly focused with the Developing Mathematical Thinking: Shape, Space, Measures and pattern training as I felt this was a weaker area for us in nursery compared to number sense. Although there were and still are areas of number sense that needs to be a focus and has been a focus, SSM was ultimately a priority for me in terms of developing this across nursery both indoors and outdoors.

In July, I asked staff to complete the staff confidence audit, which was an interesting read, with staff indicating medium to high confidence and expertise in some areas, then some indicating 3's and 4's in others, so this was quite difficult to use as a "What is next for us?" plan as it varied so much. There wasn't one area that stood out. At this point, I felt that I needed to complete the Learning Environment Audit to attempt to highlight areas of need. I completed this alongside my Deputy Maths lead. I focused on areas where we had initially assessed ourselves around 3 (Working towards) and within SSM. Some of these areas highlighted were as follows:

- All staff inviting children to explore and investigate different shapes of natural and manmade resources, indoors and out.
- All staff using shape language
- Opportunities to spot patterns in different areas

Throughout, my Maths Champions journey, my initial actions plan written for Environment and staff confidence, changed and I amended and updated as I went along, as I found the further, I was into the programme, things came up and many changes were made and actions put into place. I do strongly believe that Early Years does not sit still and whilst interacting with children and through assessment and communicating with staff, I made small manageable changes within the environment quite frequently. I also found the core activities refreshing as these allowed me to reflect on my current practise and how I could either make a change, if we were not already doing it or adapt our already good practice. This said, SSM was still the main focus of change.

IMPLEMENTATION

What did you change or implement?

Outline a positive change, or changes, that have taken place as a result of being part of the Maths Champions programme. How did you plan for it and what did you do? How did you plan to assess the benefit of the change on staff practice and children's experiences?

Throughout my Maths Champions journey there have been many changes I have implemented, most of which have been successful.

My initial job was to audit the resources, we had to support mathematics and I spent time reorganising and labelling the resources so that these were more accessible to staff members.

It was through the discrete teaching of the core activities that had me thinking about what small changes I could make that would be quick wins. For example, number cards for the home corner 4 plates with a picture so the children could identify the number of plates that should be there at tidy up time. I did the same in mark making. I have questioned what other areas I could potentially do this for?

Whilst addressing SSM, I devised some training for staff which was successful and through monitoring of their evaluations and through observations of staff and children, the level of mathematical vocabulary has been clearly evident. The vocabulary children are now using has been enriched for example using words like "gigantic" instead of big and are using it more confidently within their play. Discussions around the weekly maths focus in our lunchtime meetings has been recorded and supported staff in terms of giving them a focus and a challenge within that week.

Our curriculum has opened up greater opportunities in developing maths through our curriculum milestones such as "Play a game until someone wins", there is also sewing linked to pattern and making food linked to capacity. All of which have been successful this year. We cover these milestones over a two-week period, so the children have had access to many mathematical concepts and learning, extending and consolidating knowledge. Assessment across these milestones has increased as has children's attainment. The milestone I am most proud of, is the playing a game until someone wins. I wanted outdoor play to improve and adults to be more accountable for teaching maths through play outdoors. I have seen a huge impact here, as have other staff and this has made a difference to our children in terms of being excited about playing a mathematical game, joy and sustaining listening and attention but also having the ability to share and wait for their turn, impacting PSED positively. I have analysed data more closely and this has allowed me to highlight any gaps and have addressed these promptly. Our attainment does show an increase in comparison to other years.

Prompt sheets for snack time and outdoor are supporting adults with ideas and I have evidenced staff looking at the outdoor prompts and then actively carrying out the activity.

I spent a whole day monitoring observations of our children that have been written by staff and I was impressed by the amount of maths that was coming through our children's play and the thought-provoking questioning being asked by staff.

I made the decision to remove the maths area we had originally set up in nursery. The children did not understand how to use the resources as this was not being modelled and quite often the children were transporting the resources to the cooking area or other areas within the continuous provision, so I felt this was not serving a purpose. I strongly believe that maths is everywhere and through careful planning, modelling from experiences practitioners, then children should be accessing maths through all areas of the continuous provision. For example, capacity through sand/water. There are so many ways of engaging children in maths. I feel this has been beneficial to the children and staff have become more confident and skilled in asking provoking questions to get the children thinking, or making deliberate mistakes etc.

IMPACT

The success and benefit of what you did:

For children

What has been the impact of the changes on children's learning and development? How has being involved in the programme made a difference for children in your nursery?

The Maths Champions programme has led me to make many changes within the environment both indoors and outdoors which has directly improved and impacted on children's learning and progress. They have had access to range of resources linked to SSM amongst number sense opportunities and weekly maths discrete teaching sessions. As a result, in this, I have seen sustained engagement particularly within construction both indoors and outdoors, increased level of math's language and children engaging in meaningful conversations with each other and staff members. I have been able to assess children's mathematical knowledge through observation and there has been an increase in the number of observations recorded linked to maths, which is pleasing. What I wanted to see, was children's enjoyment and this is something I have greatly evidenced. It is knowing how to make maths fun and the children having engaged with the core activities with enthusiasm.

Data analysis has given me a clear picture of their starting points on entry and how much progress is evident when looking at February data. The on-entry data (October 2024) in maths for children aged 36 months plus came in at 71% which has been an upward trend from the previous 2 years, where maths was only at 20% in 2022 and then 60% in 2023. By December, the data had slightly increased to 78% and has sustained when looking at February data. On entry, the girls were outperforming the boys 85% (girls) to 71%(boys). By February the boys are outperforming the girls 81% (boys) compared with 76% (girls).

For families

What has been the impact of the changes on families? How has being involved in the programme made a difference for families whose children attend your nursery?

Sadly, I have not had efficient time to involve my families as much as I would have liked to due to constraints of my role as Assistant Headteacher. I have got planned to carry out a Maths workshop in the summer term, which I would be happy to send you photographs of once complete and share my experiences and parents' voice. I have however, created my own booklets for supporting Maths at home and Maths out and about where I had been inspired when I participated in the webinar "Supporting Maths at home".

I have also uploaded a link to some home school learning linked to a maths focus on to OPAL, which is our platform for observations of children and their assessments that our parents have access too. I have had some positive results with this and parents have been carrying out the activities and uploading photographs of their children. An example being- looking for numbers within their home environment or outside. One parent uploaded a photograph of her child identifying some numbers on their washing machine.

For staff

How has being involved in the programme made a difference to your staff team/individual practitioners? What has been the impact on their practice?

I feel the greatest impact for staff was sharing the Mathematical focus or key vocabulary in the weekly lunchtime meeting. Staff have commented that this has kept them informed, focused and challenged and has been a good idea. For example, the focus for this week is language of size- challenge the children by modelling different words such as “huge, large, giant, teeny”. My Headteacher and I monitor practise regularly and we added maths as a focus to the bottom of the monitoring sheet. We could evidence that staff were modelling mathematical vocabulary well and children were responding to it. I have openly praised and celebrated staff success when I have heard them modelling key vocabulary within children’s play.

I carried out quality training around SSM in January that the staff enjoyed and this included two newer members of staff. It was an hour training and the feedback was positive. After the training I asked all staff to complete a quick evaluation sheet. The responses were excellent. These were:

- 9/9 felt that the training met their needs
- Following the training, 4/9 felt very confident teaching SSM and 5/9 felt confident.
- I asked what other areas of maths they would be interested in- 3- Maths outdoors, 2- Loose parts, 3- Number sense, 1 all of the above.

I asked what the staff took away from the training- example comments were as follows:

“Raised awareness of SSM in our everyday lives with useful reminders of where/how this might pop up in nursery. Thinking more about extending the vocabulary particularly of the higher achievers to understand short, tall with comparisons. This is something I would like to do more”.

“Maths is everywhere, all around indoors and outdoors. The focus should be creating a hand on and engaging environment that encourages and helps children to develop mathematical skills”.

“Being able to look at children’s play differently e.g., instead of assuming they are lining up cars and start counting them- look closer as it might be a pattern” Never assume

“I really enjoyed the maths training and I felt like I got a lot from it. When we talked about mark making and that we automatically assume its literacy and how it could possibly be linked to Maths. This has definitely some thing that has stuck with me”.

“Lindsey was very good, kept us engaged through real examples of practise. I am going to try get my girls to engage in block play, number patterns and repeating patterns. Thanks Linz”.

As part of the data analysis, we had highlighted that some children were not meeting 42 months in Maths. Through further investigation we found that the statement: **“Recognises some numbers and shows interest in counting”**, was the objective where staff were saying the children were not achieving. On our INSET training day in January, we discussed the statements in maths from 36 months to 54 months and explained what this might look like in practise. We didn’t want children to not meet that statement because they were not meeting recognition of numbers. We explained to staff that this could be a next step for them, and recognition of numbers didn’t have to be 1,2,3, it could be them indicating they are 4, showing 4 fingers as this is a form of identifying number. I feel that staff feel more confident now and have more understanding of what a child should be doing. I also ensured that opportunities for number recognition was then put in place for example, “Number hunt in forest”.

I have staff in nursery who already embrace and enjoy teaching Maths to our young children and some that perhaps are less confident and more reluctant. I feel that all staff now are having a go with more confidence and

coming to ask me questions or asking for support in what they could do next to support within a particular area of maths. The teacher in nursery has commented on the impact we have made across nursery in regards to exposing the children to new mathematical vocabulary.

I feel that staff have become more actively engaged in promoting games outdoors, utilising the resources and space we have and the children are learning maths through games play without realising so. I have evidenced staff leading on playing games such as "What time is it Mr Wolf?", or skittles, playing hop scotch etc. Staff are now on an outdoor rota, so they have the opportunity to lead. Staff have found the A4 list of games I have put up outside to support them when thinking of mathematical activities to do.

When completing the staff confidence audit- I had noticed progress, whereby some staff felt they were now 1 and 2's if they had been less so when they had initially completed the audit.

I am proud of my team and the work they have achieved. May this continue.

For the Maths Champion and Deputy Maths Champion

How has the programme helped you as Maths Champion and Deputy Maths Champion to develop your own practice? What has been the impact on your practice?

As Maths Champion lead, the programme has offered an extensive range of training and materials which I have accessed often. I have fully embraced this opportunity and have worked incredibly hard to offer the best experiences for our children and for staff but mainly for my own learning. As I mentioned earlier, maths was never a subject I enjoyed as a child and found myself to be in the lowest group with very little understanding. I took my GCSE maths exam three times before eventually gaining a C. Once I came into teaching, I always wanted to be that teacher that embraced teaching mathematics and grew to love it particularly within the Early years. The training has inspired me further and I have created my own journal of my Maths Champion journey. This experience has also helped me in developing a long-term plan for maths within our school.

I have been motivated all the way through and have found myself looking for maths opportunities with the children all the time.

I would like to thank the team, in particular Justyna who was my mentor and who always championed my work and was very complimentary.

For the setting

What has been the impact on your environment?

Maths is certainly more prominent in our nursery since being involved in the Maths Champions programme and the children are benefitting from this, which is evident through observation, attainment and staff knowledge. There are lots of new resources available to the children and I have loved seeing the pure enjoyment

Next steps

What further improvements might you make and how will you continue to monitor the quality of maths opportunities within the setting?

This is a good question as I still have lots of thoughts and would like to carry out more training for staff in other areas of Maths as well as continue the good practise now already in place and changes that have been made.

I am excited to continue my journey and the environment will always be a passion for me. As this is an area, we are going to be looking at a senior leadership team within the summer term, I would like to ensure that maths continues to be at the heart of it all.