

Maths Champions Case Study (EXAMPLE)

Champion: Molly Smith

Setting: Little Bears Nursery

STRATEGIC DIRECTION

Introduction

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

Last year I was successful in gaining promotion to the deputy manager role in the setting. As part of the role, I lead in supporting and developing the quality of provision across the nursery, also helping to identify and support staff to use their own interests, skills and abilities to improve outcomes for our children and families.

Our nursery takes children from three months to five years and we are open 8am-6pm, all year round. We have a high proportion of funded two year-old children in our nursery and many of our children enter the setting below age-related expectations. Research tells us that attending pre-school can improve later life chances and that long-term gains are more likely if provision is of high quality (EPPE Project). We know that it is the poorest children who have the most to gain if they are given the opportunity to master basic skills before they reach statutory school age – and the most to lose if they are not accessing high-quality early education.

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 staff. We were keen to develop our own knowledge and practice; identifying new and interesting ways to support maths in order to further enhance children's holistic development. I was nominated as Maths Champion and the room leader in the three – five's room was nominated as the Deputy Maths Champion.

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. We knew the courses were optional for the Deputy Maths Champion but we wanted to invest time into upskilling ourselves, enabling us to work closely together to have the greatest impact. The courses were extremely informative and introduced us to a wider range of maths concepts such as the 'big ideas of number sense', which immediately made us question whether we had been assessing children's knowledge and attainment in mathematics correctly. We wrote down some key things we wanted to move forward with from the training; one was to provide staff with an overview of the main points from the training to help increase their knowledge and confidence, and the other was to work towards a moderation system for assessing children's knowledge and progress in maths.

We then carried out the staff confidence and learning environment audits. One of the biggest things this highlighted for us was that we needed to review the resources we had available across the setting. We had a good range of adult directed maths activities planned into our curriculum but we felt there were limited opportunities for natural exploration of everyday maths. It also highlighted that we had some long-standing staff members who had a good knowledge of how to support children's maths learning and some newer members of staff who weren't as confident, and could benefit from some coaching support.

TAKING EFFECTIVE ACTION

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?

We immediately moved forward looking at opportunities for everyday maths exploration. Myself and my deputy were inspired by the loose parts information available on the Maths Champions resources section of the development zone. We had heard about using loose parts but did not have these available as part of our continuous provision and wanted to know more about the extent of the learning loose parts provided, especially for maths. We carried out some research and investigation, and decided to introduce some loose parts into our continuous provision in our three - five's room. We worked closely with staff to research and choose what resources we made available, so we knew these would be safe for our children and also ensured that staff knew how to confidently support children to use these resources and what possible maths learning could come from exploring them.

We decided to start with a small range of loose parts organised into baskets on shelves with a range of containers, so children could freely access these to explore and knew where they needed to be returned. We then observed the children to see what happened. Staff spent dedicated time supporting children who were very curious about the new resources. Staff explained and described what the resources were, if children didn't know, and they modelled using them in play, focussing on the use of mathematical language.

We observed one group playing with large pebbles. When comparing the pebbles, they used phrases such as 'biggest ever' 'biggest in the world.' They set about sorting out which stones would fit into which containers, exploring size and shape in great detail. They sorted them into groups of sizes and also propped a plank of wood up on the cupboard to see which would be the fastest/slowest if they let go of them at the top, having a pebble race.

We observed children transporting loose parts to the construction area to add to their structures. They puzzled at how to balance and build with different shaped objects and items of different weight. The children worked extremely well together to problem solve, leading to wonderful discussions as to why some resources worked and others didn't. There was also an increase in use of positional language as children narrated their play, talking about things being inside, in front, on top etc.

The children decided to use all of the new resources they had alongside their blocks to build towns with shops, cars and roads. Staff played alongside children and encouraged them, extending their use of mathematical language and asking questions to challenge their thinking, such as; "I wonder where the cars park?" "How many houses do we have now?" "Can we make the street longer?"

Following the success of the introduction of loose parts, and through observing children transporting these to other areas of the settings, staff have increased the range and amount of loose parts available (following our risk assessment guidelines) so these are accessible more freely for children to explore. Staff have also provided parents with some information on loose parts and held a workshop for parents to attend where they could explore loose parts. Staff explained to parents why we have started using these resources in nursery and the benefits, they also explained how to keep children safe when using the loose parts.

We held a staff training session and provided an overview of the main points we felt would support staff from the online training. We provided them with discussion time where they sat with the other members of staff from their rooms and wrote down what they could think of which currently supported children's maths learning and some suggestions about what could be done.

A couple of our newer staff, who we had identified as being less confident, were very courageous and expressed in their small group discussion that they would benefit from some support to help them know what to look for when

assessing children. We decided to buddy these staff up with a more experienced member of staff in their room, so they could develop their confidence in this area. We arranged to allow the staff member and their buddy to be released together to carry out moderation assessments where they were able to discuss a couple of key children and come to an agreement about what the children knew and what the next steps in supporting them were.

EVALUATING 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 us to make some major changes to our environment and the resources available to children. As a result of this we have seen a big increase in children's engagement in open ended play and this has led to increased use of math's language and language in general, as children are engaging in meaningful conversations with each other and staff.

Children's confidence has increased massively through the introduction of loose parts into the setting. Some of our more reserved children have been intrigued by the resources on offer and have engaged in free play with less adult support than usual, which was amazing to see. We can see the children's confidence growing daily as they give ideas and suggestions about what they can do and become more and more animated as they play and test out their ideas. The increasing range of loose parts on offer means children can work more collaboratively together and this, again, has had a big impact on all the children learning from each other.

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?

Parents tell us how they recognise the value of simple things they can do at home with their children to support their maths learning, such as singing rhymes, counting out snacks, talking about patterns on clothes.

Some parents have told us how they have been collecting loose parts for their children to play with following the information session we provided and how such a simple, low cost idea has provided lots of fun. Children have been counting, constructing and more with the resources.

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?

Staff feel they have learnt a vast amount from the training we delivered to them; about the big ideas of number sense and through buddying-up with each other, and sharing ideas and good practice. Myself and the deputy Maths Champion have observed this in practice where we have seen the staff we identified as being less confident taking a much more active role in supporting and enhancing children's learning by asking the correct questions and using everyday experiences to use maths language. These staff have openly expressed that prior to the Maths Champions programme they were anxious about maths and were not confident in assessing children's learning in this area, where as now they feel that not only has their knowledge increased but, more importantly, that there is now a culture of being open and honest about what support you need and working collaboratively to support each other. In general staff confidence has increased greatly across the whole setting, They are suggesting and carrying out engaging activities using loose parts and are keen, and motivated, to look for new and exciting ways to teach maths to our children. A staff member in each room has taken a lead on supporting maths and spends some time researching new ideas and sharing these with the rest of the staff team, which is helping us to sustain the improvements we started through the programme.

In general, attitudes towards maths is a lot more positive in our setting; children and staff smile, laugh and explore maths as they learn through play.

For the Maths Champion & Deputy Maths Champion

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

As Maths Champion and deputy Maths Champion, the programme has given us access to a range of CPD opportunities which have inspired us and increased our knowledge. It was extremely helpful having resources available so we could access these as and when we needed; also knowing someone was on the end of the phone to share ideas with and keeping things on track, kept us motivated.

We found the online training particularly useful. It gave us a greater understanding of the mathematical concepts children need to develop a strong foundation in and this learning will help us, and the rest of the staff, to support countless children who come through our doors following this programme.

Thank you.

For the setting

What has been the impact been on your environment?

Maths is much more prominent in our nursery since being involved in the Maths Champions programme and the children are benefitting from this, which can be seen by observing them and by their attainment.

The introduction of loose parts has had a massive impact on children's play. Use of loose parts has undoubtedly been a positive addition to our construction area and has led to so much investigation and discussion which otherwise would not have taken place.

There are lots of new resources available to support maths across the whole nursery now, such as numbers lines, measuring tapes; stop watches, sand timers, clocks, scales etc. These have all come about through our audit of the environment and we will continue to look for new and exciting ways that the environment can support children's maths learning.

For families

What has been the impact of the changes for families? How has being involved in the programme made a difference for families? Has this impacted on children's learning and development at home?

Parents commented that their children are showing an interest in talking about numbers and using more maths language at home. All parents were provided with information about loose parts and we had ten parents attend a loose parts workshop, which was arranged and delivered by the Deputy Maths Champion and key workers. We had positive feedback about the workshop and parents commented on how they use to play with stones and pine cones when they were little and it was good to know how this helped their children to learn. A couple of parents said they were really glad they attended as it helped them to realise that they didn't have to buy expensive toys to support their children to learn and play at home, as long as they kept their children safe whilst exploring. They appreciated the ideas staff shared with them.

Next steps

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

We plan to further develop the range of loose parts we have available for use outdoors as a next step, on both a large and small scale, linking this to maths opportunities. We are currently auditing our outdoor provision and are developing a plan for this.

We also plan to carry out a further workshop for parents to get involved in developing our outdoor plan; to see if they have any ideas or suggestions, or can donate any items. We hope this will further strengthen our parental engagement.

We will continue to have a lead on maths in each of our rooms and support them to research and implement new ideas to support children and staff within this area.

