

Maths Champions Case Study

Champion: Rachel Reed and Cara Maund

Setting: Alverbridge Nursery

INTENT
Introduction <i>A little bit about your setting, why you joined the programme and what you wanted to achieve from it.</i>
Alverbridge nursery is a standalone charity-run nursery that has been an outstanding provider since 2006. Our nursery is open from 8 to 6 all year round, and our breakfast provision is open from 0730. We currently have 89 children on our register aged 0-4. We currently have 8 EYPP, 4 who receive 2 year old funding, 5 EAL children, 9 Forces families and 12 children who live in an area of deprivation (IDACI-Income Deprivation Affecting Children Index) Last year, I completed the Early Years Development programme. One of the sections of the course was around maths. I felt this was beneficial and would help to empower staff who struggle with maths. I then came across the Maths Champion programme with NDNA on Social media. Growing up I had a dislike for maths, I found maths challenging and it made me feel anxious every lesson because I knew I didn't understand the concepts being instructed. Working in Early Years for over 19 years I felt I have always avoided maths, I would stick to the typical counting, and shape activities. When I originally began the programme I was unaware that many of the staff felt the same as me. I signed up as The Maths Champion, predominantly working in the over 2's room, with my colleague signing up to be my Deputy in the under twos room. We were both similar with our thoughts towards maths. With each of us being in a different room this would enable us to support the staff in each room effectively and for us to work together to achieve a positive impact on the children's development by enriching the environment and developing staff skills.
How did you decide what to do? <i>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?</i> Although it was optional for the Deputy Maths Champion to complete the training we decided to get the most out of the programme and we would both complete it. We both work in different rooms so by both completing it we knew it would have a greater impact across the whole nursery. We began by asking all the staff to complete the 'Staff Confidence' audit and completed the learning environment walk. We found quite a mixture of results, staff's initial assessment of their confidence ranged mainly from 2's and 3's however we did have some staff who put 1's and 4's too. We collated all the information and created action plans to develop staff confidence and the environment. We were keen to share with the staff the highlights and what we were already doing well. When looking at quick fixes we looked at what the areas needed. From our audits, we noticed that all areas were lacking in number opportunities, we looked at ways to incorporate maths in each area, this included number cards to be added during 'Invitation to play' or used during play to extend the children's learning. Adding shadowing to our block play area to develop the understanding of shape and space has helped them to develop skills. Staff needed support and encouragement with the importance of the role of the adult and maths knowledge in areas. We looked at ways to support staff with this and wanted opportunities to coach and share information. We emailed staff some of the information and then covered it more in depth during our training days. We supported staff during the working day when they required support. The first obvious change was that children were

beginning to subitise and staff were feeling more confident in the role of the adult. Questioning the children changed, the staff asked “What do you see?” instead of “How many?”

One of the main areas we looked at was how maths can be used in the under two’s room with the babies. I provided staff with a document “Nurturing mathematical development from birth” that was shared through the training. Staff looked at this document and highlighted elements they could act on quickly.

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?

We began by exploring the environment audit, quick fixes such as numbers in areas, shadowing for block play were the initial priority for us. We both enjoyed the loose parts training and felt this would also benefit some staff. We added more loose parts to our under twos room as well as looking into what resources we had before. We found that we had lots of resources already in place and that it was definitely down to staff’s understanding and confidence. Staff were confident to set up invitations to play to encourage children to engage in loose part play.

We looked at all the areas and started by creating a plan for our training days. We knew we had three over the course of the year and felt that the training and the email communication would be beneficial to the staff. Our first training day we delivered training around ‘Big ideas of number sense’ and the main areas of maths: number, measure, cardinality, pattern, composition, comparison, and shape and space. We provided examples of what these could look like in different developmental stages across the nursery. During the training we discussed the characteristics of effective learning and how sustained shared thinking was an important role of the adult.

We delivered the video from the training around loose parts and maths and staff found this most interesting as we had only introduced loose parts three years ago and not all are confident in this area. It gave them more insight into the impact of loose part play. We use loose parts to support play, including transient art. I found an activity shared on the NDNA Social media page and had a go at creating my own. The children were really engaged and I was amazed at how many areas of maths could be covered with one simple activity. The activity involved placing masking tape on the floor, alongside a selection of loose parts for the children to explore. The children were really engaged in this activity. There was lots of counting, talking about longer and shorter and creating AB patterns. Lots of the older children recognised the square in the middle. One child made a long line of mussels and said “It’s not as big as a beanstalk” showing an understanding of comparison.

We introduced the staff to the core activities and although some staff felt a little unsure we received good feedback. Staff were also beginning to develop their own maths activity ideas. We could hear more mathematical language around the room and staff are keen to share when they have a positive observation and progress. For one of the activities the children had the opportunity to explore bubbles with a mathematical intent. They were able to hear numbers, quantities and sized words as I said them. We sang a bubble song (included on the sheet) and the children said ‘pop pop’ joining in! Some of the children were able to show fingers whilst saying number 1, 2 and 3. Staff requested maths cards to support them with understanding the definitions.

I created a map activity where I created a road on paper to add to the small world. The role of the adult was key here as I used directional language as I moved my vehicle around to find my house. I drew my house on and children began getting excited and wanted to draw their own house. I encouraged children to use directional language and those I knew couldn’t model the language. This activity led to exploring locations online and talking about the numbers on our houses which I added to each house too.

IMPACT
The success and benefit of what you did:
For children <i>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?</i> Children have developed skills in maths, children are subitising more and staff are using the correct terminology to support their development. Maths has been more successful in all areas of the nursery with staff noticing and commenting. Children are counting out loud at snack and those who need support are supported by staff to help them understand counting and that the last number counted is the total. Resources to support their mathematical learning is readily available. Loose parts and block play have been a big success with children combining resources alongside small world to build, construct and create with staff role modelling language and children using more maths language in their play. There has been an increase in children showing us their counting with their fingers and more understanding around "one more" and "one less". Staff confidence in delivering maths support shows through the high increase of Maths in observations.
For families <i>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?</i> Parents asked if we had been doing maths in nursery as children were now counting at home. One parent said "My child can frequently be heard counting at home. Although his latest efforts including substituting fruits for numbers. Last weekend we had "one, two, banana, orange, grapes, nine, ten" This child is only two and is developing his mathematical language. One parent asked if we had been doing lots of maths at nursery as their child's maths skills such as counting was developing well at home too. Feedback from one of our parents - "S has been working on her numbers with Karen at nursery. She recognises the numbers 1,2,3,4 when she sees them. Karen has put posts on Tapestry to show the types of developmental activities (counting etc.) they have been doing and praising S. We have then been trying to replicate these at home! We wouldn't have thought to develop this skill yet without the support of the nursery!"
For staff <i>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> Staff say they feel more confident and know where to find information to support next steps better. Staff feel like the training has made them much more aware of maths in all areas, they have better knowledge of each area and what they don't know, they know where to find out more. They have learnt more about maths and the different categories within. They have been able to come up with different activities to do such as posting and counting with songs and props. They have also recognised other educators providing more maths related learning experiences. Management has noticed this has also been evident when uploading observations on Tapestry. They feel much more aware of the language they are using and can link maths to probably most if not all of the activities they provide. They have used more maths during adult led play, incorporating it into observations and further developing children's knowledge of number size and shape.
For the Maths Champion and Deputy Maths Champion <i>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?</i>

Maths Champion:

Completing the programme has developed my confidence in maths greatly. I have been able to support my own key children more as well as others in the nursery. I notice maths more around the room where I didn't know maths existed before. The training was great and easy to follow and share with staff.

I particularly enjoyed the coaching part of the training and I feel this has helped develop my confidence in supporting the staff through this journey. Seeing maths progress across all areas of the nursery has been extremely rewarding. I have felt more confident during training days, delivering material and supporting staff with how they can support children's next steps.

I have created and sourced new ideas for the maths resource section, which has been beneficial to supporting the children's development.

I feel more engaged with maths activities when supporting children, observing and extending their understanding.

Deputy Maths Champion:

The programme has really helped me become so much more confident with implementing it into the environment. I feel a lot more confident to provide activities and make them age appropriate for the under twos.

It's made me more confident placing different resources into the environment to support this. For example placing more puzzles, shape sorters and numbers into the environment. I use a lot more mathematical language also during the children's play.

It has affected my practice in a positive way because I now feel positive about maths when I didn't before. The coaching part of the training has been massively with talking to people about maths and helping them feel more confident around maths.

Overall I feel this programme has been really successful and helped myself and other members of staff become a lot more confident in understanding and supporting maths in different way.

For the setting

What has been the impact on your environment?

The environment is maths rich, and in areas where maths isn't as strong staff now know how to use their role as the adult as the key resource to helping their development using more mathematical language to support their learning and play. Maths is held more in mind and this is demonstrated through the children's developing skills and the increase in maths in observations.

There are more opportunities in areas for children to include maths in their play and staff feel more confident to extend and challenge children.

Next steps

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

Maths is going to stay on our development plan so we can keep maths in mind and continue to support staff to engage more in maths to increase the children's mathematical development.

On the next training day we will look at maths outdoors. I would like to develop our outdoor maths skills and show them how this can be done.

Myself and the Deputy maths champion will continue to provide support to the staff and keep up regular audits to make sure the environment continues to be maths rich and provide staff with inspiration and ideas around supporting maths.