

Maths Champions Case Study

Champion: Amber Miller/ Catherine O'Neill

Setting: Chapel Green School

INTENT
Introduction <i>A little bit about your setting, why you joined the programme and what you wanted to achieve from it.</i> I became a qualified teacher in 2020, having worked as an unqualified teacher for several years. I have always worked in early years in our special school setting. I work with a small group of 11 pupils with a range of abilities, from complex needs to autism. Many of the pupils in my class are non-verbal, this provides an additional challenge. Teaching maths, especially to a group of children with addition needs was something that I have always found difficult. In the past I have researched techniques and resources and taught what I think is best but I have never been sure if what I am doing is right and although I have seen some progress in maths with the pupils that I have taught in the past, I have not seen definite progression. I am always keen to learn and develop my teaching skills and when I heard about the Maths Champions course, I knew that it would be a perfect opportunity to develop my skills in teaching maths.
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> I discussed Maths Champions with my colleague, Amber Miller, she also thought that this would be a good opportunity to develop our practice. As a newly qualified teacher, she discussed her insecurities in teaching maths. Amber became 'Maths Champion' and I, her deputy. We both completed the online training courses. We both found the courses really useful, especially when supporting our higher achievers. Some of the concepts may be at a higher level than some of our pupils will achieve but it was useful to see the progression and will hopefully be useful for the future as our pupils develop and to support new incoming cohorts. We spoke to our teams about the course and then asked them to complete the staff confidence audits. We found that many of the staff were unsure about some mathematical terms such as 'cardinality' and they lacked confidence in how to progressively teach maths in our setting. We also completed the environment audits and found that although we had a maths area in which we rotated resources, following the training I suggested that it would be better to add additional maths resources to all areas of the room (we did have a few resources around the room but nothing significant) to expose the children to maths in a variety of contexts as some of the pupils did not engage with the maths area independently. Staff also expressed the need for guidance on how to use these resources effectively.
IMPLEMENTATION
What did you change or implement? <i>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?</i>

We were inspired by the Maths Champions resources and found resources that suited the needs of our pupils. I found that some of the resources aimed at younger pupils suited my older pupils better as with their additional needs, they are working at a lower level. I was particularly inspired by the treasure baskets and decided to add these to my classroom to our 'Curiosity Corner'. Many of the children were interested in exploring the treasure baskets, taking items out of the basket to explore further. Experiencing the properties of objects by rolling, turning and bending them and experiencing objects of different weight. This was a particular success for our pupils with profound and multiple learning difficulties as when presented with the treasure basket, it provided them opportunity to explore with increasing independence. They were supported by staff who modelled mathematical language to describe the objects such as 'heavy' 'light' 'round' as they explored.

I also used the Maths Champions resources to enhance different areas of the classroom, for example, the sand tray, which is a very popular area of the room. Adding inspirational posters to the area, which adults could then use to illustrate mathematical language used. The posters also acted as a prompt for adults. We also added additional resources to the area such as a variety of containers, scoops, shovels and sieves, tools to make marks in the sand and small objects to hide and count. The children spend long periods in the sand tray, it is a large tray on the floor, so they can sit in it. Staff supported the pupils to fill and empty, to count shovels and objects. Some of the pupils could be heard saying some number names as they played. Staff modelled using the sticks to make marks and draw numbers in the sand. One pupil was observed to make a mark in the sand as they said 'one' then made another mark and said 'two'.

I also used the resources to add props to different areas to encourage number songs in play for example, adding 'Two little dicky birds' and 'Incy wincy spider' resources to the story corner. These resources proved popular as many of the children love song and rhyme. Some of the pupils could be heard repeated words from the rhymes.

I was also very inspired by the loose parts resources. I decided to add loose parts to several areas of the classroom, but had to proceed with caution as several of the pupils in my class, often mouth objects. Since I am also our environmental sustainability lead, I decided that it would be nice to use recycled loose parts in our classroom. We started collecting objects such as lids, curtain rings and small containers to add to specific areas. I found that staff needed further support to understand how to use loose parts effectively, and that it was not just 'junk'. Training and the Maths Champions posters placed around the room supported this. Several of the children were interested in the loose parts, some to pick up/ put down and mouth- staff supported these pupils with some mathematical language, modelling counting and sorting the objects and putting them into/out of containers. Other pupils were interested in gathering and rearranging the objects. Putting them into a container to take to other parts of the room such as the water tray. Staff supported these pupils to count and sort the objects. One pupil was fascinated with putting the objects into a tall measuring flask, she would then fill it with water until the objects reached the top of the flask.

I also needed to improve staff confidence in using these resources with the children to develop their mathematical understanding. I created quick, simple 'Maths Champions' posters near the resources with a simple guide (taken from the Maths Champions resources) to support staff with mathematical language appropriate for the task and how to support the pupils. This guidance included guidance on modelling how to use the resources and suggestions of how to comment on play using mathematical language. We had an Ofsted visit recently and staff told me that the Maths Champions posters supported their confidence to interact with the children and talk confidently about what the children were learning about in different areas of the classroom.

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>	
Staff confidence to support our pupils has increased, children are hearing more mathematical language modelled to them as they play and explore. Pupils are receiving more support to develop their mathematical skills- tasks are broken down into smaller steps, for example, in the block play area, some pupils explore and mouth the blocks, these pupils are supported to make lines and towers with the blocks. Pupils who are able to build towers are supported to build more complex structures including bridging between towers. Changes have been made to the environment; children are able to access mathematical resources in more areas of the classroom. The resources are pitched at a level that suits their needs; therefore, we have seen more interest and engagement with the resources. The addition of number lines around the room create opportunity for pupils to begin to use number names by pointing if they are not yet ready to say the number names as they play and count objects with the support of the adults. We have heard some of the pupils use much more mathematical language in their play. One pupil in particular, had very limited vocabulary. This term, although her speech is sometimes unclear, she is clearly making an effort to say number names as she plays. Another child, who loves to play in the water tray filling and emptying containers, is now using mathematical language such as empty and full.	
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>	
Some families have noted that they have seen an increase of mathematical language used by their child at home, we have celebrated these successes together. Each term a newsletter is handed out to parents, suggestions of ways of supporting their child in each area of learning is given. The resources and activities in Maths Champions provided practical, fun ideas for families to try at home. We also share daily emails which break down our activities of the day with some suggestions for parents to replicate.	
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>	

The staff confidence audit clearly shows that staff have gained confident in supporting our pupils with maths. Prior to Maths Champions, staff were unfamiliar with some mathematical terms and were unsure about how to support our pre-verbal pupils with mathematical language. They were also unsure how to support pupils working at a very early stage with their mathematical knowledge.

Staff have noted that the Maths champions posters around the room offer them prompts when supporting a child in a particular area of the classroom. This has led to an increase of the use of mathematical language in everyday activities. Staff know that by modelling the language, it will increase pupil knowledge and they have been surprised to see some of the pupils using this mathematical language independently.

Training has helped clarify some of the less familiar mathematical terms such as cardinality and subitising. The training has also supported staff to break down the steps of developing mathematical skills. Staff are more aware of creating environments to give pupils the tools to develop their maths skills, the use of treasure baskets and loose parts have proved to be particularly useful as pupils have shown engagement with these resources. With the combination of engagement and staff confidence of modelling and language, staff have noted the increase in pupils mathematical development.

Overall, Maths Champions has created an awareness of the importance of maths in everyday activities and has made maths a priority.

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?

I, as deputy maths champion together with my Maths Champion lead, feel that the Maths Champions programme has been beneficial. We feel that our knowledge in each area of maths has developed through the online training. We now have an in-depth understanding of the different mathematical terms and we feel more confident in supporting our teams to deliver this.

The resources have been invaluable, we have downloaded and created folders of the resources to continue to help us and our teams in the future.

The course has really opened our eyes about the importance and maths and how easily it can be added to everyday activities.

For the setting

What has been the impact on your environment?

Maths Champions has had a massive impact on staff confidence and the classroom environment. Maths has become a priority and as a result, over the last year we have seen many of our pupils make outstanding progress in maths. It has been very rewarding to see that all of our hard work has paid off.

As we are in a school setting, other classes in our primary department have shown interest in our success and have visited our classroom for ideas on how to improve maths in their own environment. It has also sparked an interest in practical, hands-on maths experiences as others have noted the engagement of our pupils with the resources.

Next steps

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

Our cohort changes from year to year and although we have worked this year with a group of pupils working at a very early stage of maths, we now feel more prepared to work with pupils working at a higher level when they arrive.

We plan to further develop our maths resources in our outdoor area, particularly in anticipation of the warmer weather.

We would like to further support families to support their child to develop their maths skills at home. We hope to run some parent workshops in the near future.