

EEF Case study:

Catherine House Day Nursery

Key points of your Maths Champions improvements

- Maths Story Sacks
- Mud Kitchen redeveloped
- Manmade pallet car with numbers seats
- Number lines in all rooms including outdoor
- Numbered bikes matching the bays
- New maths resources (jigsaw puzzles, magnetic numbers, books, wooden circles numbers, stepping stones, flash cards with numbers, etc)
- Maths weekend bag
- Maths resources created by staff across all age groups
- Workshop with parents on 3D shapes
- Maths language on a daily basis

Background detail

Catherine House is a chain of five.

Catherine House is in a residential area close to main bus and train routes to the Birmingham City Centre. Our setting is registered for 40 children, between the age of 3 months and 8 years. We operate all year round except for bank holidays.

Within our setting we have 5 groups Cubs (under 12 months) Koalas (12 months to 24 months) Pandas (24 months to 30 months) Polars (30 months to 38 months) and Brown Bears (38 months +) We also house for school children.

We have taken part in the Maths Champ project so we can develop our practice further in terms of enhancing continuous provision that would enable the children to benefit from new learning experiences. As the children are naturally curious in their first five years, they will have many opportunities to develop their imagination, thinking and reasoning skills. We believe that through fun learning activities at the nursery, the children will get to like maths at school and this would lead to successful choices they would make later in life.

By being part of the Maths Champion Programme, we wanted to promote the staff's knowledge on how to integrate maths in daily routines, role play situations and how to scaffold the children's play by introducing maths related language. In addition, we aimed to involve parents in our project and make them aware of how easy it is to incorporate maths at home by drawing the children's attention to their environments, and the importance of promoting maths from an early age.

Section 2 – Champion's section

How has the programme developed your own and your team's CPD?

The course had a positive impact on the team's professional development, it has enhanced their maths knowledge, and they often used the online tools/resources available to support their

development. The team particularly benefited from the online training offered by the NDNA (brain development, shapes, space and measure, let's look at maths; number).

Donna feels the course has helped her to embed maths in everyday activities. Donna has also accessed online maths courses which she researched independently to support her training and development.

Neeta, the Room leader in Koalas room (1-2 years) has said it has helped her to look at maths from a different point of view, made her more aware of different ways of using maths with young children, i.e. singing number songs regularly, counting objects and reading books with numbers or shapes.

Kate the Room Leader Pandas room (2-3 years) said that it has had an impact on how and when she plans for maths, in all areas of learning. Kate feels that overall the programme has had a positive impact on the children. Kate said the course has helped her to rethink her personal attitude to maths, and trigger some areas that she has forgotten. It has helped her to become more confident in maths again.

I, Svetlana, the maths champs leader, run the Brown Bears, Pre-school room, feel more passionate about presenting maths to children across all ages, ranging from birth to five. I often model various activities to staff both indoors and outdoors. I have found the webinar training sessions most useful, they were informative and interesting. I often refer to the NDNA resource bank to support my personal practice.

What has been the impact of the training?

(e.g. training courses / staff meetings / in-house training / mentoring / peer observations / key changes / overall practice)

The staff who was involved in the project took an opportunity to cascade their knowledge from the training which they received online, to other members of staff during staff meetings.

During staff meetings, a time slot each month was allocated for Maths champs team. This gave the staff the opportunity to share their practice, discuss new ideas, how babies and toddlers can adapt activities and share resources.

In house training was given to all staff on nursery closure day, ½ day session was allocated. Looking at resources, discussing resource books – Maths outdoors, maths in early years and maths from stories. From this session, the staff put an action in place to start our story sacks.

Svetlana (maths champ lead) supported and guided staff, she encouraged and gave staff targets. Staff could go to Svetlana if they were unsure and wanted further to advise, the staff truly worked as a team and it has brought the nursery forward in many ways.

Peer on peer observations are regularly completed on random days/times. All now prove that maths has a strong lead in the staff's practice. Maths is linked into all areas of learning and this is clearly supported by children's observations, peer on peer observations and supervisions.

The project provided us with some positive changes, it has enabled staff to embed maths into everyday activities, it has provided us with "homemade resources" in which the children take a great interest. We have many story sacks linking to maths, children cook on a regular basis and the

practitioners strongly focus on maths language. We have developed “bus stop/depo area” using the man-made car (which has 8 seats) into a bus, with a table near by “depo area”. The children mark make tickets and labels and look at timetables. The children daily observe resource clock using key events throughout the day to look what is happening next and the time.

From your starting point to today, what have been the changes in the following:

- ***Children outcomes***
 - ***Staff development***
 - ***Parental relationships***
 - ***Environment indoors***
 - ***Environment outdoors***
 - ***Attitudes towards maths***
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- Overall children have made good steady progress linking to Math’s in the EYFS. They have become more independent and are turning into active learners. The children thoroughly enjoy activities like treasure hunt or minibeast detective, which give them a sense of responsibility, control and purpose. We continue promoting maths around us i.e. numbers on stairs, number lines linking to amounts, recipe books, math language is displayed by sand, water play and builders tray. The children spontaneously use it when they see or play with a particular resource.
 - The practitioners use maths talk in activities that the children are already engaged in and ask open ended questions such as “In what ways is a ladybird different or similar to a bee?”
 - On June 28th Parents attended a parents’ evening, Preschool children parents commented that the project has seemed to have a positive impact on maths language used at home. Most children enjoy counting still objects at home, count when they are going upstairs, and they have become more curious about the natural environment. Parents were interested how they can develop the children’s learning in maths further. Svetlana provided parents with maths extension ideas. Following the parents’ evening, workshops are now going to be based around maths and each of the other areas of learning. This will enable staff, children and parents to focus on one area. Staff can provide parents with ideas with hands-on approach. Parents of the pre-school children take Math’s weekend bag home to help support children’s development. Father’s Day workshop was based on “build it yourself” idea, using a range of different size wood and building equipment. The children and their dads have managed to build a range of moveable constructions (cars and trucks) by using a range of shaped wood.
 - Parents kindly donated equipment for the mud kitchen
 - One of our parents kindly constructed our mud pie kitchen
 - Parents were asked to donate herbs, spices and other household food items and they continue to provide us with everyday items.
 - Environment indoors – since taking part in the project all rooms have bright and colourful number lines; each number line has amounts as number reference. All rooms have had new resources to support maths for all ages. We have number lines on the stairs in both of our buildings, we have displayed colours and shapes at children’s heights. We have purchased maths reference books to support and guide staff with activities. We have created resource bags. The practitioners are dedicated to contributing to maths resources on a regular basis. They have created for an example, playdough mats, numbered dinosaur cards, plastic

money, animal bingo games etc. Overall the maths project has been a positive journey to our nursery setting.

- Environment outdoor – Since taking part in the project we have created number lines outdoors, laminated sheets for the use in the bug hotel area – each page has a different animal printed asking children how many legs does it have etc. We have updated and moved our mud kitchen and we have developed a dinosaur area. We take advantage of the builder's tray for maths lead activities. We have created number bays for our bikes with laminated numbers attached to bikes. We have created a bus depot with maths related activities to support role play. We have set up a shop to help to learn about money. The children use maths language during gardening and forest sessions.
- The practitioners deliver activities at a higher standard and have become more motivated and enthusiastic about promoting maths.

Tell us about any new initiatives or projects relating to maths? E.g. parental partnership development

To develop our parental partnership, we will be organising our workshops around maths, including fun activities, in order to demonstrate how to apply maths in a variety of situations. Parents have been invited to attend forestry school which has been set for 26th July. Parents will have first-hand experience on how to support children's development during a simple trip to the woods.

We are in the process of developing balancing scales using spirit levels and wood attached with buckets.

We have also started to implement a D.I.Y board with a range of padlocks and keys to investigate. The board also display a range of open and shut everyday objects. The D.I.Y is still a working project

Section 3 – staff

How has the programme developed your CPD in relation to maths?

It has supported staff to use math's in everyday situations, it helped staff to revisit maths and support their knowledge. It has helped staff become confident in an area they were unsure before. It has helped staff to realise how maths is a massive focus in everyday nursery life, Maths supports all areas of learning.

It has enhanced forestry school by observing patterns in nature and looking for differences and similarities in the environment, measuring a range of non-moveable items, collecting natural resources, sorting and categorising them, creating maps and making tally charts graphs.

Pandas room (2-3 years) are using puppets to do actions i.e. Cat is going to do a little dance (the cat moves) Cat will stretch, crouch and jump (demonstrated by cat) Repeat and encourage children to join in.

Children cook on a weekly basis which helps children to recognise larger numbers (500 grams) and children predict (how many bun rolls do you think will fit on the tray) using a range of tools.

What has been the impact of the training on your day to day practice?

Maths is used during the day. Maths is incorporated in all aspects of the nursery life. Maths open ended questions are used regularly.

What resources did you find most useful and why?

Ice cube trays – used to discuss fractions with ice cubes, making different amounts/level of water

- Ice cubes tray with seeds to sort and match numbers
- Ice cube trays exploring in mud kitchen

Cocktail sticks to form shapes, counting and sorting amounts

Natural resources – pine cones, conkers, twigs and leaves. The children are keen to collect natural objects and then make decisions on how to use them.

Mud kitchen is the children's favourite area. It gives them a sense of freedom, independence and exploration through fun, they are eager to learn new maths concepts, like fractions, for a example.

Objects for positional language

Growing area – life cycles, size, position

Outings – going on a journey, creating maps

Books

Can you tell us the biggest change the Champion has introduced for maths across your setting?

Mud kitchen

Pallet car

How did you find the BKSB element of the programme? If you did not use this, please tell us why?

Kate Smith – She found the BKSB helped her to refresh what she already knew, and look at new changes and methods to solve problems.

Donna Large – Had trouble logging on, could only log on from initial email. Found the maths side good, enjoyed the activities once she found time to do it. But it was a little bit time consuming trying to fit it into everyday time.

Neeta Amliwala – Enjoyed the activities but sometimes could not log in. Overall the activities were interesting and helped me to learn areas I was not confident in

Svetlana Callan – Found the site helpful with examples, progress bar, could access easily, enjoyed the activities. Visited regularly.

Can you tell us the difference in your confidence and attitudes towards your own maths and teaching children maths since the start of the programme?

Kate Smith – She feels it supported her to seek new ideas and explore the internet. It has made her more aware of using maths in everyday routines. Kate feels it has had a positive impact on her and her room.

Donna Large – Noticed a slight impact and found the activities provided on NDNA website useful. Children have become more confident in using maths in play. I work with the younger group in pre-school and I feel it has given them a head start when they move groups in September.

Neeta Amliwala – Children in younger group are using numbers to count the amount of food they serve themselves, the Koalas use simple maths language (one, two and more)

Svetlana Callan – I have noticed a great positive change in the children's knowledge and development. I believe that my own awareness of maths has helped to advance the children's interests and abilities. Many of the children are using addition and subtraction in practical situations. Children are modelling the language when they play with one another e.g. Child A says, "how many pegs do you think I have"? Overall, the children have grown in confidence and now are ready to move on to the next stage in their schooling.

Next steps

How are you going to develop your practice further and why, what will the impact be? Who will be involved? How will your practice support good outcomes for children?

Balancing scales – using spirit levels – to balance and explore outdoor items created by staff and pre-school children

D.I.Y board to complete – for all children to explore and investigate

D.I.Y box – keys and padlocks – for pre-school children to investigate

Create sitting area made from Pallets - all children created by parent. Time yet to be confirmed

Mud Kitchen – lotions and potions

Final thoughts on the programme.....

Overall the programme has equipped our staff with knowledge and understanding of the importance of maths from the early age. It has been a positive learning journey, and we will continue to seek new ideas on how to enhance maths in the setting.

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