

Our Numicon Journey

Doris Nicholson Kindergarten Upper Hutt - New Zealand

June 2010 - August 2011

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Introduction

Does Numicon Improve
the Quality of our
Teaching Practices
within Numeracy?

A photograph of a child's play area on a blue tablecloth. The area includes a blue bin with colorful blocks, a white grid mat, a brown bowl with stones, a wicker basket with blocks, and a blue bin with colorful blocks. A child's hands are visible reaching into the blue bin.



Stage One, Term Three 2010

Free Exploration and Discovery

- Children explored Numicon freely without any adult direction - Teachers wanted to observe how children would use it themselves
- Teachers also needed time to become familiar with Numicon -
- Parents were provided with basic information through posters, newsletters and follow ups
- Children had access to Numicon everyday - it had a home next to our literacy table
- Children could use it in all areas inside the kindergarten
- Numicon sat well with natural resources e.g. stones, shells, acorns, sticks, glass beads, (we changed these resources weekly to maintain it interest)
- Teacher's started to actively think of ways of integrating it more with other curriculum areas e.g. placed Numicon into block area - children did not use these together (more thinking was required)
- Numicon could be easily used during mat times with waiata, books and finger rhymes.
- Numicon Boards were popular with the children
- Children also enjoyed putting Numicon back into their boxes at the end of the session

Numicon Environment



Using Numicon at the light table



Using Numicon with the boards



Numicon at Mat time



Some formal teaching happens

Predicting pattern



Children close their eyes while I swap two of the numbers. Which two cards are in the wrong place?

Stage Two Learning and Development



Stage Two, Term Four 2010

Learning and Development

- Teachers introduced the children to more of the Numicon resources e.g. template covers, boards, scales, and pegs etc
- Teachers received training through the innovation grant from our Kindergarten Association.
- Teachers felt they used more mathematical language
- A parent has drawn us Numicon characters which will be painted on our fence when entering our kindergarten
- Numicon worked very well with the low tables where resources could be used and changed.
- Numicon linked well with our writing table; children explored ways of using it. This increased after the Numicon characters were developed and demonstrated to children how to use it creativity
- We have made some large laminate Numicon that children use in range of ways e.g. placed objects into the holes - and also seriated these into order
- Starting to collate formal data on children mathematical knowledge using the stages outline in Numicon assessment. While also collating photos and learning stories of children' learning in this area.
- Formal data and teacher training allowed teachers to consider specific children who would benefit more from some 1-1 support teaching rather than learning in group like situation often given.
- It's noted that mat time appeared to be the time where we taught or reinforced new Numicon concepts the most

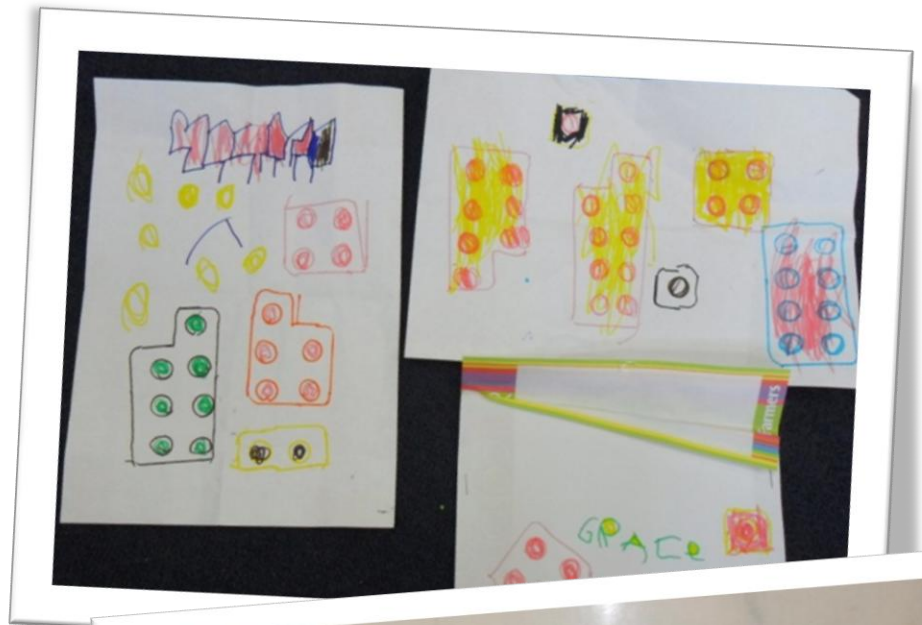
How many shells/fish have you got?



How many fish have you caught? 1,2,3



Numicon links with Literacy



How many
eggs did I
find? 9



How many
basket
ball hoops
did we
get?



Stage Three

Implementation and integration



Stage Three, Term One 2011

Implementation and Integration

- Appears to be hard to gain the momentum we achieved by the end of 2010.
- Numicon is available however its interest is low. e.g. Children are mostly using it with the boards (like an activity) and not in other ways as had initially observed.
- We need to set ourselves some team goals that will further Numicon's integration into our kindergarten
- We have looked at ways of integrating Numicon into everyday routines within our kindergarten. E.g. 2 paper towels, label lunchboxes with numbers 7,8,9 (which were not known as well)
- We have developed more resources and placed these visuals into all areas of the kindergarten. Having more Numicon visuals appears to heighten teacher's use of mathematical language
- Teaching Numicon during mat times also supports children initiating the use of Numicon within their natural play.
- Teachers are now better at noticing more teachable moments where they can integrate Numicon concepts into children's natural play
- This term we have collated a wide range of learning stories where children have linked Numicon to their learning

Numicon within our Routines



Numicon outside



Counting in Te Reo



Numicon
with
dough



Numicon
used as
dice



Cooking with Numicon



Measuring with Numicon



Celebrating
birthdays
with
Numicon



Throwing with Numicon



Making connections to their world



Singing with Numicon



Sharing information with Numicon



I am 4
and Tyson, my
friend is 5.

Shopping with Numicon



Sequencing Numicon at the light table



Stage Four Whanau Involvement Parent Workshop

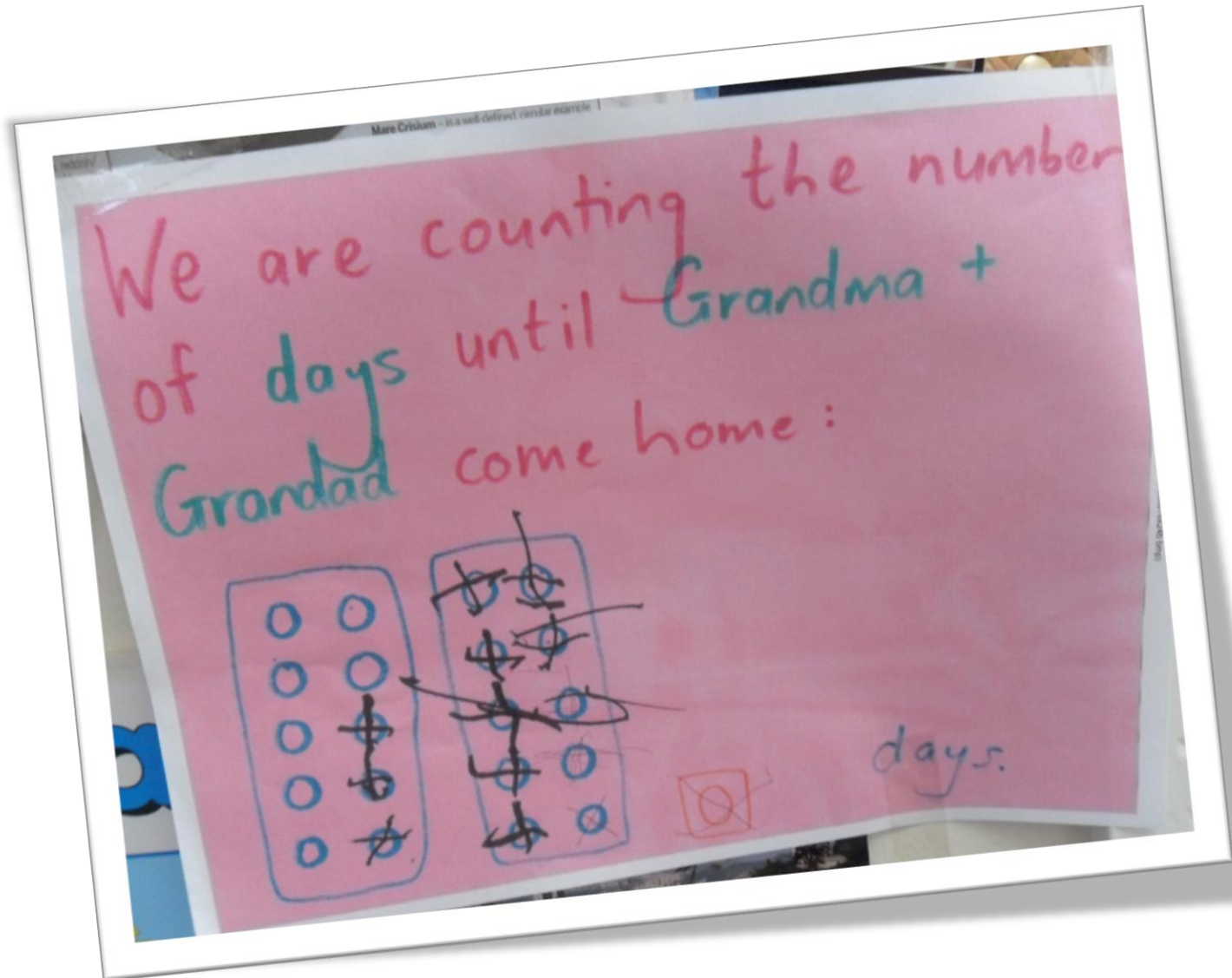


Stage Four, Term Two 2011

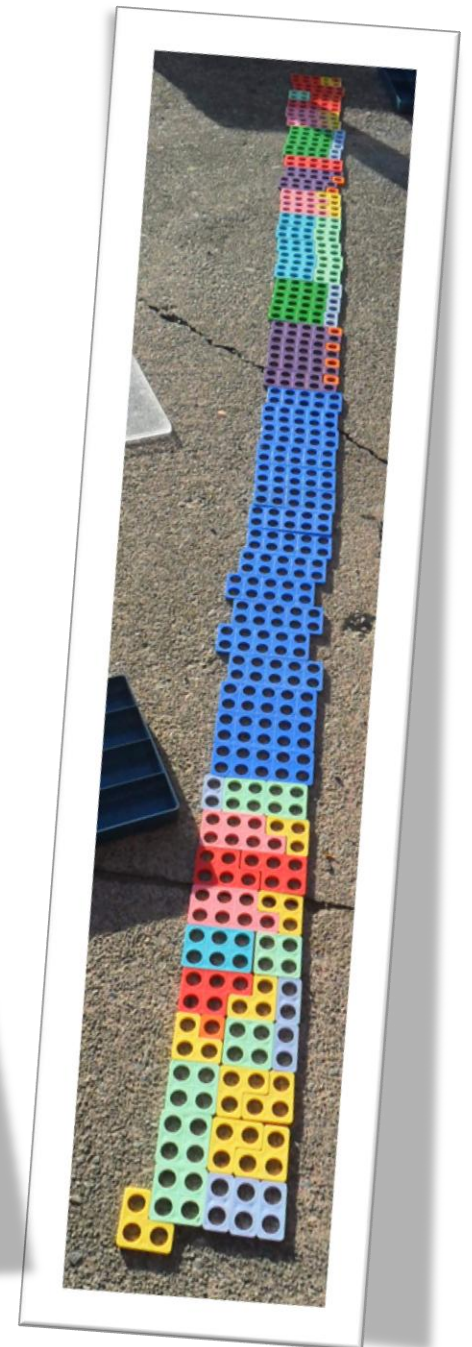
Parent/Whanau/Community Involvement

- We have provided our Parents with an opportunity to attend a workshop about our journey with Numicon
- Parents were very keen to be involved especially after the workshop we provided. Unfortunately we have not been able to keep up with this enthusiasm. We are in the processes of offering simple kits for them to purchase and providing homework which would help them and their children see that early math concepts are everywhere e.g. go down the street and write down four letterbox number; make these with your Numicon plates
- We have received more anecdotal information from parents about their child's knowledge of number after this workshop.
- We have also noticed parents using these plates on their child's kindergarten letters; so can clearly see how passing on this knowledge supports the whole process.
- We are now in the process of sharing this resource with our teaching colleagues as we can see how this resources supports teacher's numeracy practices within early childhood settings.
- We would also like to connect with local schools as we think it would be valuable to see what they noticed about this resource. Its important that we also understand its ongoing use. We have already received positive feedback from some schools.
- We have been able to get this mural up near our entrance. You will have noticed that these are not in the Numicon colours as we want children to identify the shape of these numbers too. Having it 3d supports the tactile experience. Placement up our driveway also gives children daily opportunities to share Numicon with their families/whanau.

Parents start to use it with their children



How many steps does the Skycity Tower have?



What else makes ten?
 $8+2$ & $9+1$ is the same as 10



Fun with large Numicon at mat times



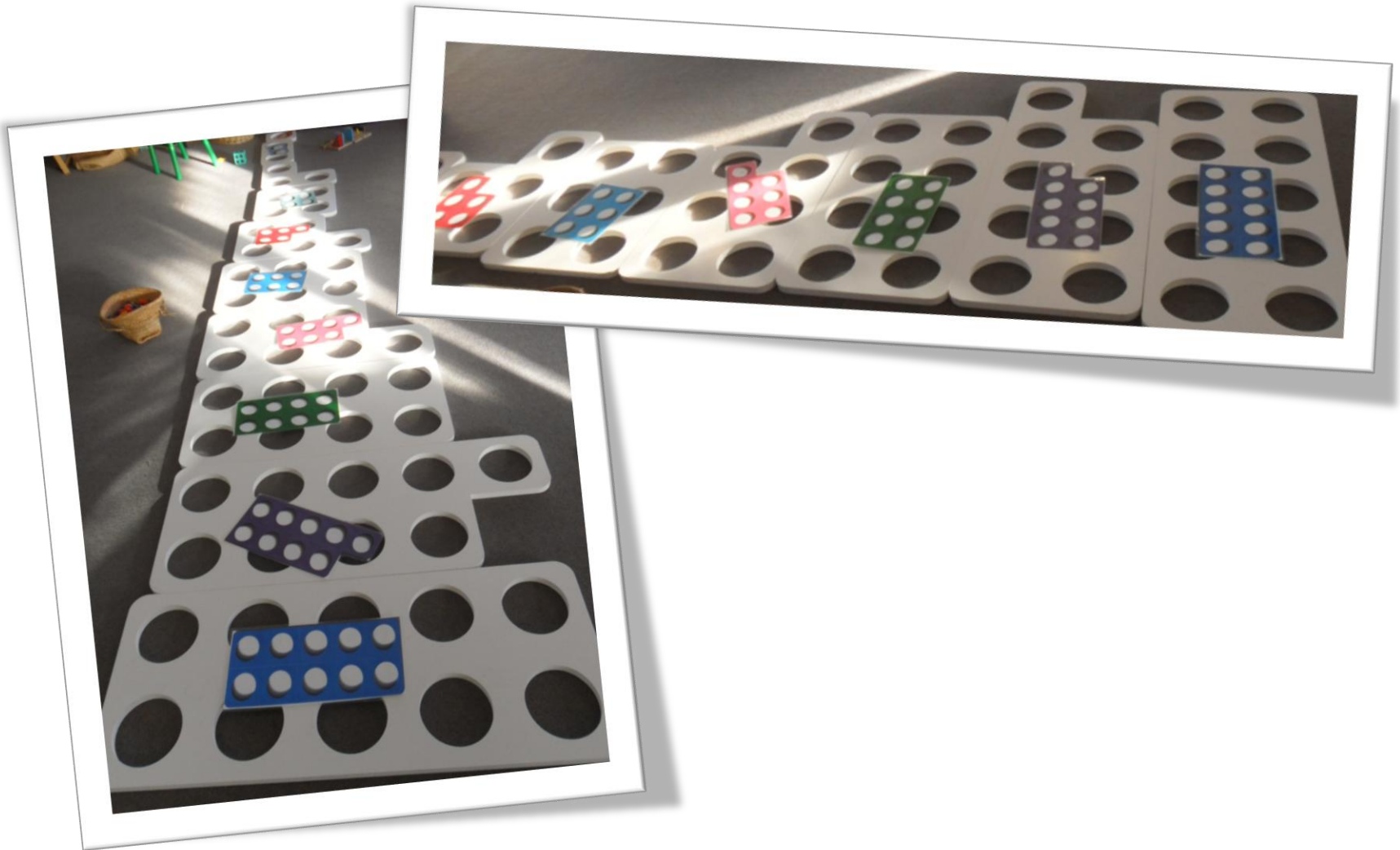
Tikanga Maori, Numicon, Song and Action united



7 hands, 7 feet



Matching Numicon

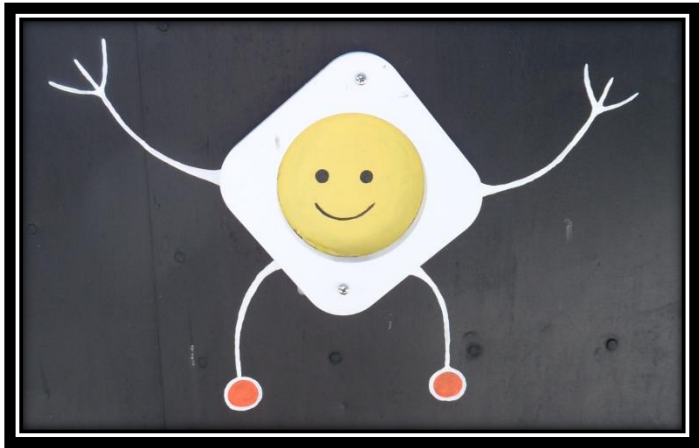


10 Little Ducks went out one day...

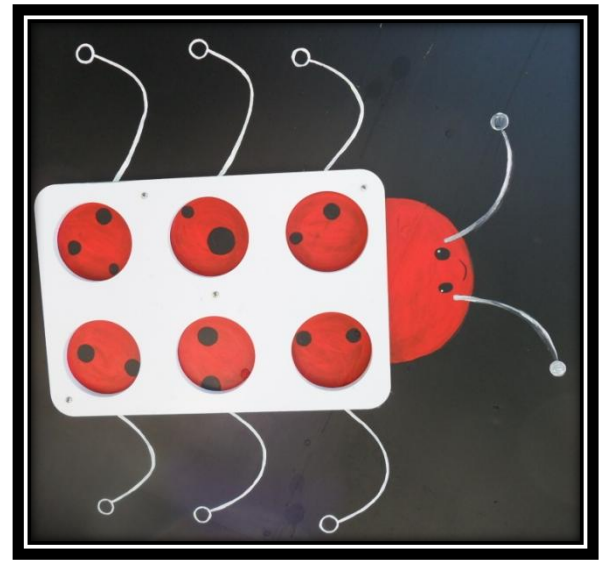


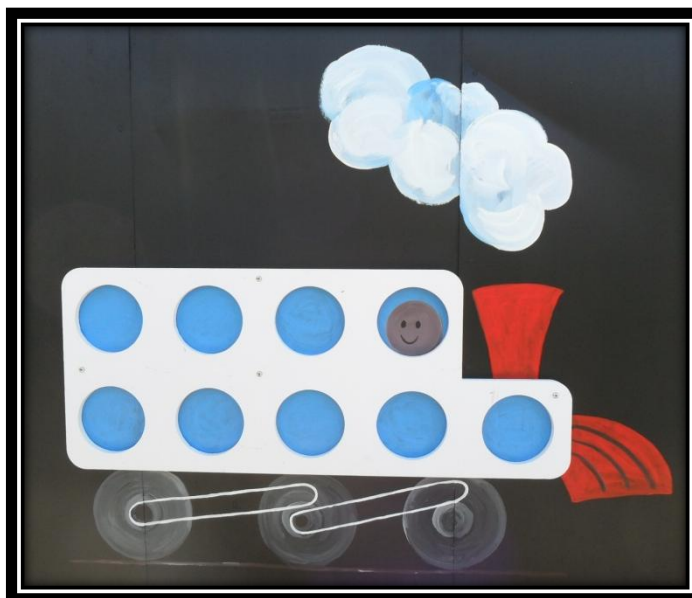
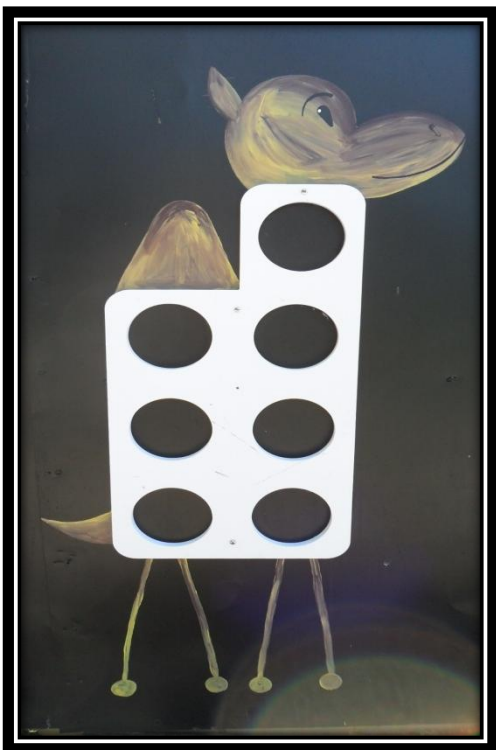
Storytelling - Hungry Caterpillar



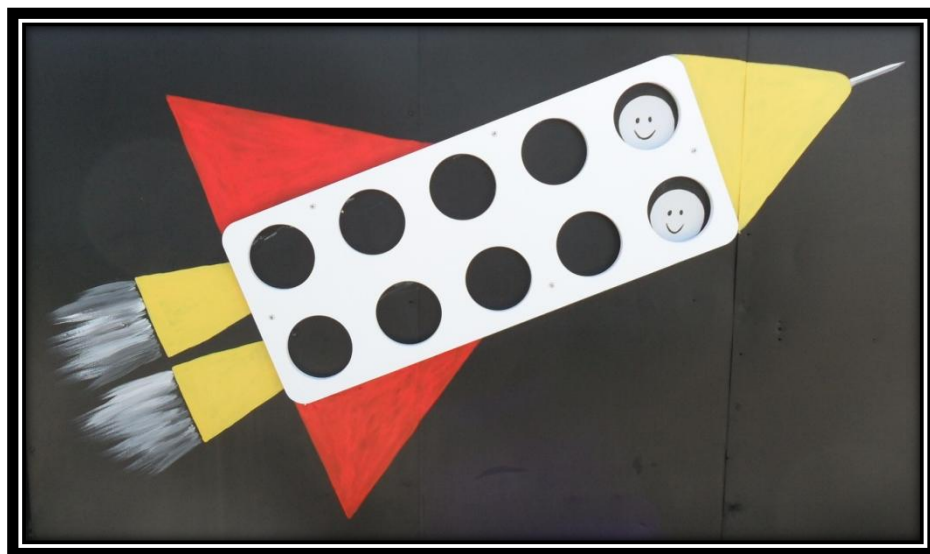
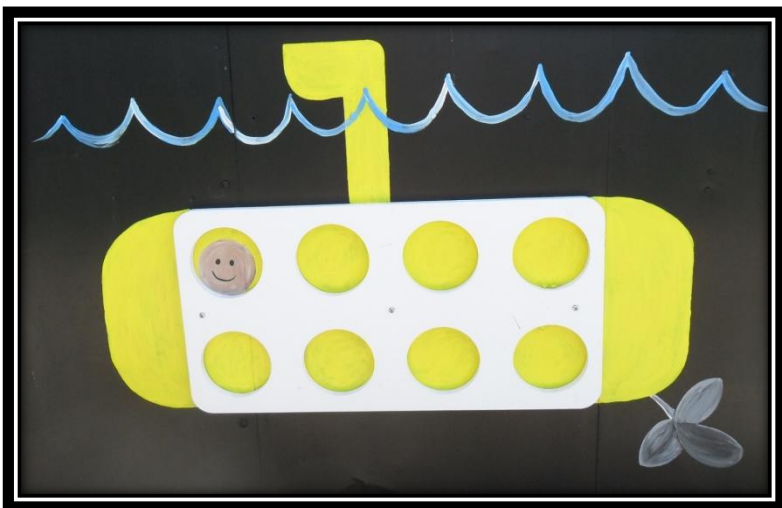


Our Numicon Mural (Down our Driveway)





Our children can
touch, count and
talk about these
numbers with
their family and
whānau before
arriving to
kindergarten



Evaluation

Does Numicon improve the quality of our teaching practices within Numeracy?

- Children, Teachers and Whanau have responded positively to Numicon and its use throughout our play experiences at kindergarten.
- Teachers have been able to gain a better understanding of children's thinking purely by watching them interact with this resource. We can see their processes for problem solving as they manipulate the plates themselves. We gain a knowledge that allows us to effectively scaffold and support children in their mathematical journey which they themselves have initiated.
- We have learnt how to integrate Numicon effectively within all aspects of our programme. Teachers need to notice the opportunities where Numicon can be naturally integrated into children's play; always being mindful that it complements the play and not changes the direction.

Evaluation

Does Numicon improve the quality of our teaching practices within Numeracy?

- Teachers also acknowledge how children support each other in their learning, modeling strategies and using language that naturally takes others on the Numicon pathway.
- Children can feel, hear and see that numbers are everywhere, playing shops, singing songs, giving them a time when granddad comes home from Europe to measuring the deepest hole in the sandpit. Numicon has made numbers REAL for all of us.
- There is no limitation to its uses with the exception of our own imaginations.
- We as a team continue to celebrate each day that Numicon can be used in new and different ways.

Evaluation

What is fundamentally needed to make Numicon work?

- Numicon needs to be seen and available at all times for its ongoing use to occur. Teachers need to be flexible about where it goes and how it is used.
- It takes a team to successfully implement Numicon. No one enthusiastic person can effectively do this by themselves. Everyone needs to be committed.
- This resource needs to be viewed as a teaching approach e.g. Similar to supporting Ti Kanga Maori or literacy within early childhood.
- The day this resource is seen as a lovely activity which we can be used at the table is the day where you will place huge limitations on its possibilities for children.
- It is essential that teachers use language that enables children to develop a deeper understanding of the numeracy journey they are taking. When using this rich dialogue children begin to use and understand these mathematical themselves.
- Without taking this documented journey we know that we would have not explored this resource in such depth. It has made us understand the importance of a formal process for future resources we introduce into our Kindergarten eg mimio board

Evaluation

What are the challenges?

- As children continually leave our service we naturally loose our young 5 year old Numicon experts. This can sometimes largely impact on the peer tutoring that is happening; teachers need to monitor this and at times take more responsibility for modeling its use with our children.

Evaluation

Where to next for us?

- Our team has had recent discussions about how boys and girls assess and use it. Some teachers felt that boys had been noticed more in the documentation we have collated. When actually counting the number of boys and girls, it was found that for every girl involved there were 2 boys. This insight has encouraged us take a closer look at these differences. Recent observations have begun to highlight how girls appear to use it more imaginative ways whereas boys tend to use it more formally. We will carry out further observations and collate data that enables us to evaluate this.
- Now having completed our first year of our Numicon journey we are beginning to understand the fundamental teaching practices that ensure its ongoing use - We will continue to monitor these evaluating whether there are further ways to support its ongoing maintenance and use.
- We really have only begun our Numicon journey with our whanau and local community. We can see that this pathway will lead to more understandings and connections.

How do you see Nunnicon
working in your early
childhood setting?



- **Websites**
- **www.numicon.com**
- Watch the 8 minute video about Numicon – easy to watch
- Also lots of free resources you are able to use print off
- **www.numicon.co.nz**
- Also NZ website with similar free resources – this will tell you when there are courses available in NZ if you are interested