

# Getting Started With Numicon Firm Foundations





# Planning:

Where to start?

- ▶ What are your school expectations for planning- long term, weekly etc.
- ▶ What does Numicon have to support this?
- ▶ Activity cards A and B:

A has ideas to integrate Numicon throughout the day

B is counting based activities, great for warm ups

- ▶ Numbered cards:

Teach over 2 weeks

Contain everything you need!

- ▶ How do I plan with the activity cards?

Start with language/communication

Pull out my ideas

A and B activities

‘Activities with structured apparatus’

Independent activities and provocations

‘Exploring maths around us’ to get strand ideas, play, how to integrate into the day

What do I need to make?

- ▶ Record in my planning (next slide)





## Long-term planning

The long-term planning chart provides the recommended order for the activity groups. Activity Groups A and B (Daily maths opportunities and Daily counting activities) are a flexible planning tool. They contain ideas for incorporating meaningful mathematics into everyday practice.

Activity Group Number	Activity Group Title	Space, Shape and Measures Focus
A	Daily maths opportunities	No single focus
B	Daily counting activities	No single focus
1	Introducing Numicon Shapes	Size
2	Introducing number rods and ordering Numicon Shapes	Height and length
3	Introducing Numicon Shape patterns and number rod trays	2D and 3D shapes
4	Linking Numicon Shapes with numbers and numerals, and comparing number rods	Capacity
5	Securing links between numerals, Numicon Shapes and patterns, and ordering number rods	2D and 3D shapes
6	Finding how many by grouping, and teen numbers	Length
7	Using Numicon Shape patterns and teen numbers	Lengths of number rods, weight
8	Adding with Numicon Shapes	Time (night and day)
9	Adding one more	Money
10	Taking away with Numicon Shapes	2D and 3D shapes
11	Subtracting one and adding one with number rods	Opposites
12	Halving and sharing	2D and 3D shapes
13	Adding – parts and wholes	Weight
14	Subtracting – parts and wholes	Positional language
15	Connecting adding, subtracting and number lines	Length and distance
16	Halving and doubling	2D and 3D shapes
17	Subtracting – finding the difference	Capacity, height
18	How many more, how many fewer, how much less?	Money
19	Exploring adding and subtracting, and sequences	Height, length, time

## Medium-term planning

The medium-term planning chart provides the recommended order for the activity groups, along with Activity Groups A and B which are designed to be used every day. Learning opportunities and the activities with structured apparatus have been listed, but each activity group also includes a range of creative ideas for exploring maths in every environment across the setting. The shape, space and measures focus has been provided for each activity group using the abbreviation 'SSM focus'.

Activity Group	
<b>A: Daily maths opportunities</b>	
<b>Activities with structured apparatus</b> Ideas for using structured apparatus are incorporated throughout this activity group.	<b>Learning opportunities</b> A broad range of learning opportunities to demonstrate the relevance of maths to other aspects of school life and develop fluency in counting and calculating.
<b>B: Daily counting activities</b>	
<b>Activities with structured apparatus</b> Ideas for using structured apparatus are incorporated throughout this activity group.	<b>Learning opportunities</b> Within their counting range: <ul style="list-style-type: none"> <li>Recite the conventional count sequence forwards and back, starting from any number.</li> <li>For a given number, say the next or previous number.</li> <li>Understand that we count to find out 'how many'.</li> <li>Count a collection of objects accurately, saying one number name for each object.</li> <li>Understand that the last number counted tells us how many there are.</li> <li>Relate counting forwards and back to a number line.</li> <li>Have a sense of where to find a given number on a number line.</li> <li>Develop strategies for counting accurately.</li> <li>Make a reasonable estimate of the number of objects in a collection.</li> <li>Count in twos, fives and tens.</li> </ul>
<b>1: Introducing Numicon Shapes</b> SSM focus: Size	
<b>Activities with structured apparatus</b> <ol style="list-style-type: none"> <li>Introducing the Numicon Shapes</li> <li>Naming the Numicon Shapes by colour</li> <li>Matching Numicon Shapes to the Numicon Number Line</li> <li>Cover the Numicon Baseboard with Numicon Shapes</li> <li>Cover the Numicon Baseboard – feeling for Shapes</li> <li>Cover the Numicon Baseboard – using fewer Shapes</li> <li>Playing with Numicon Shapes and Picture Overlays</li> </ol>	<b>Learning opportunities</b> <ul style="list-style-type: none"> <li>To recite the count sequence in the conventional order.</li> <li>To count objects using one number name for each object counted.</li> <li>To become familiar with the Numicon Shapes and their colour names.</li> <li>To notice the order of Numicon Shapes.</li> <li>To cover the Numicon Baseboard with Numicon Shapes by matching and manipulating them to fill the available spaces.</li> <li>To use the language of size and make simple size comparisons, e.g. big and small.</li> </ul>





This activity group contains a variety of activities that can be incorporated into the routine of the school day. These will support Activity Groups 1–19 and should be referred to regularly throughout the year. As this activity group covers a wide range of numeracy skills, and is intended to support children's learning rather than introduce new concepts, there are no assessment or learning opportunities listed. Instead, the aims are more general: to demonstrate the relevance of maths to other aspects of school life and to allow children greater opportunities to develop fluency in counting and calculating.

Throughout the school day children encounter many opportunities for meaningful counting, adding, subtracting, sharing, doubling and halving, in a range of contexts. These provide a wonderful resource for helping children to practise their counting skills, develop their mathematical communicating – in particular their communicating about number ideas – and recognize that they (and adults) use maths every day in real life.

As children encounter these everyday problems, encourage them to explain how they might solve them, using, e.g. Numicon Shapes or number rods, a number line or a number relationship that they know.

Ask children to talk about when and why we need to count things during the school day. Suggestions might include counting at register time to find out how many children are at school, counting to find out how many children are having a school meal, counting to find out how many pieces of fruit are needed at snack time, and so on. Discuss children's suggestions and the need to count accurately.

Adults play a crucial role in showing children how to count accurately in a variety of ways and how to work out simple problems involving adding and subtracting. Modelling the language regularly will allow children to hear it and gain confidence in using it appropriately and independently.



Children need to count every day, for a variety of purposes and in a variety of ways. This activity group provides a menu of activities to help children learn how, why and when to count and to maintain their interest in counting. Along with Daily maths opportunities (activity group A), which suggests ways of incorporating mathematics into daily class routines and activities, it is a key component of Numicon Firm Foundations: both are used throughout the year alongside the other activity groups. Note that the points listed in the Learning opportunities and Assessment opportunities sections on this card are specific to counting activities, and are not necessarily repeated in the other activity groups.

In counting, it is important to monitor two key aspects of children's progress: first, the development of their verbal counting range and second, their ability to count objects accurately.

Initially, children learn to recite numbers in order ('verbal counting'), before recognizing the patterns in our number-naming system. They usually enjoy this and revel in extending their verbal counting range as they begin to master these patterns; however, a considerable amount of time and experience are usually needed before they understand what counting is for.

As children's use of number words develops, they gain a sense of 'cardinality', that is, of the numerical size of a collection or how many things are in it. They begin to make sensible estimates of the number of objects in a group and develop strategies for counting objects accurately.

Numicon Number Lines provide visual support for this learning: the sequence of Numicon Shapes shows how numbers increase or decrease in size in equal steps (that is, it illustrates the cardinal values and the successor relation between numbers). This lays the foundation for children to make connections, later in the year, between the patterns of increase and decrease on the number line and adding and subtracting.

### Key mathematical ideas

Before teaching this activity group, refer to the key mathematical ideas in the Teaching Guide:

Contrasting, Comparing, Equivalence, Order, sequences and direction, One-to-one correspondence, The successor relation, Counting, Grouping and place value, Zero, Adding, Subtracting, Reasoning and logic

### Learning opportunities

Within their counting range:

- Recite the conventional count sequence forwards and back, starting from any number.
- For a given number, say the next or previous number.
- Understand that we count to find out 'how many'.
- Count a collection of objects accurately, saying one number name for each object.
- Understand that the last number counted tells us how many there are.
- Relate counting forwards and back to a number line.
- Have a sense of where to find a given number on a number line.
- Develop strategies for counting accurately.
- Make a reasonable estimate of the number of objects in a collection.
- Count in twos, fives and tens.

### Assessment opportunities

Look and listen for children who:

- Recite number names in the conventional order (forwards) (note children's counting range).
- Recite number names forwards and backwards, from any number within their counting range.
- Say the number that comes after and before a given number.
- Count when they need to find out 'how many'.
- Use a counting strategy (moving or rearranging objects).
- Count objects accurately, saying one number name for each object counted (note children's counting range).
- Know that the last number counted tells how many are in a set.
- Have a sense of where to find a given number on a number line.
- Count a collection of objects and know they will have the same number if they count them in a different order.
- Make reasonable estimates of collections of objects.
- Recite the count sequences of twos, fives and tens.



# Using the activity groups

Activity Groups 1-19 follow the structure detailed below. Activity Groups A and B are structured differently so they can be used throughout the school year and provide suggestions for introducing maths into all the elements of the school day.

The suggested activities for all **doing maths together** provide activities for the whole class.

The **communicating** section indicates mathematical language to be used throughout the activity group.

**Activities with structured apparatus** may be modelled by the teacher and then take place independently.

Each activity group starts with a **clear outline** of the content covered: how it builds on children's prior learning, how it connects with other activity groups, and the foundation it establishes for children's future learning.

## All doing maths together

Select from the activities suggested in:

- Activity Group A: Daily maths opportunities
- Activity Group B: Daily counting activities

## Activities with structured apparatus

**Activity 1 Making Numicon Shape patterns without the Baseboard**  
Have ready: Numicon Large Format Table-top Number Line, Numicon Spinners with 1-5 and 6-10 Spinner overlays cut from photocopying master

**Increased challenge:** ask children to make Numicon Shape patterns on the tabletop.

**Activity 4 Exploring rod trains**  
Have ready: number rods  
Ask children to make 'train' with rods of the same type. Encourage them to compare their trains by number of rods and length.

**How many 'carriages' does your train have?**  
What is the longest train you can make with five rods? How do you know?  
Which other rods would make a train of the same length?

**Activity 5 Making trains with white rods**  
Have ready: number rods  
Children choose different rods (other than a white rod) and, for each one, experiment to find how many white rods are needed to make a train the same length.

**Activity 6 Unlinking rods, number ideas and Numicon Shape patterns**  
Have ready: number rods  
Give children a container of 10 white rods. Children take some without counting, and find how many by grouping them into a Numicon Shape pattern.

## Finding how many by grouping, and teen numbers

Activity Group 6



**Communicating**  
Use the following words and forms and listen for children using them:  
number names (one, two, three...), teen numbers, how many?, pattern, arrange, group, less, order, equal, the same, estimate, guess, words for comparing (e.g. longer, longest, shorter, shortest, between)

### Learning opportunities

- To use Numicon Shapes, Numicon Shape patterns, number names confidently to represent number ideas.
- To begin to group objects into Numicon Shape patterns as an efficient way of finding out how many there are.
- To begin to represent numbers greater than 10 with Numicon Shapes and Numicon Shape patterns.
- To build 'trains' with number rods and compare their lengths.
- To compare lengths in a range of different situations.
- To sort objects into sets.
- To create repeating patterns.

### Assessment opportunities

- Look and listen for children who:
  - Show understanding of the words and terms for communicating in what they say and do.
  - Use structured apparatus to communicate their ideas.
  - Are beginning to represent numbers greater than 10 with Numicon Shapes and Numicon Shape patterns.
  - Use some number names for the number rods.
  - Make comparisons about the length/width/height of different objects using non-standard measures.
  - Describe two objects that are the same length as being of equal length.
  - Devise simple repeating patterns.
  - Arrange and organize equipment in a logical way.

### Key mathematical ideas

Before teaching this activity group, refer to the Key mathematical ideas section in the Teaching Guide.  
Counting, comparing and contrasting, Equivalence, Order, sequences and decision, One-to-one correspondence, the successor relation, Counting, fast counting, Grouping and place value, Pattern and generalizing, Measuring, Shape and space, Reasoning and logic.

The **shape, space and measures** focus shows which other topics are interwoven with the number content.

The **have ready** section at the start of each structured activity provides a clear list of equipment.

The **key mathematical ideas** clearly highlight the important ideas children will meet within each activity group. These are explained in detail within the Teaching Guide.

The **learning opportunities** identify the key ideas in an activity group.

The **assessment opportunities** signal what to 'look and listen for' at any time to establish how much children have understood.

The different sections provided in **exploring maths all around us** offer suggestions on how the activities can be reinforced and extended to all areas of the setting, indoors and outdoors.

There are regular opportunities for **increased challenge, variation and extension** throughout the activity groups.

**Speech bubbles** model potential conversation across all the different areas of the setting.

## Exploring maths all around us

### Outdoor maths and physical play

- Ask children to run, skip or hop, then, when you give a signal and hold up a large Numicon Shape, stop and arrange themselves into groups with the number of children matching the Shape. Begin with, e.g. the 2- and 3-shapes, and move on to larger numbers over time.
- Increased challenge:** children arrange themselves into the Numicon Shape pattern for the number.
- Provide ribbons and scarves of different colours, lengths and patterns for children to play with creatively. Model and invite children to 'draw' 2D shapes in the air with dance ribbons.

**Can you make big circles?**  
**Can you make straight lines?**  
**What shapes can you make?**

Encourage children to talk about the different patterns, lengths and widths of the ribbons and scarves. They can select several and order them from shortest to longest or longest to shortest.

- Provide skipping ropes of different lengths.

- Play 'snake hide and seek': hide soft-toy snakes or laminated snake pictures (see Expressive arts and design) for children to find and then order by length.

Encourage children to describe where they find the snakes using positional language, e.g. behind, in front of, above, below, on top, under, inside, and to talk about length when ordering the snakes.

- Set out objects, e.g. cones, shapes, toys, in repeating patterns of, e.g. type, colour, encourage children to describe and continue the patterns, and create their own.
- Extension:** ask children to sort objects into sets by, e.g. colour, shape.

### Sand, water and messy play

- Buy collections of small objects of different types, e.g. plastic lids, shells, pebbles, in wet sand for children to find and sort, then find how many in each set by grouping them into Numicon Shape patterns. Encourage them to think about different criteria for sorting, e.g. type, size, colour.
- Push shovels of different colours and lengths into wet sand so that the length left above the sand is the same. Ask children to pull out two shovels and say how they compare, e.g. 'The yellow shovel is longer than the pink one'.
- Increased challenge:** children pull out a third shovel and compare it to the first two, or pull out three or more at a time.
- Invite children to make modeling dough snakes, and compare and order them by length.

**Can you make three snakes, all of different lengths?**  
**Can you make two snakes of the same length?**

Children may also like to decorate their snakes with repeating patterns by scaling them with different marks or making impressions with different objects, e.g. pen lids, paper clips.

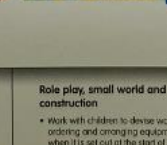
- Make Numicon number line headbands: children cut out their Numicon Shapes (available on the Oxford Owl website) and stick them on a strip of paper or card to show a number line, then join the ends to make a head band to wear and keep.

### Expressive arts and design

- Set up an area with, e.g. a piece of garden netting or a bicycle wheel into which children can weave different length strips of interesting materials, e.g. fabric, ribbon, plastic from plastic bags, all string. Encourage children to talk about what they are doing and how the design is developing, describing and comparing length, shapes and materials.

**Why did you choose that ribbon?**  
**What shapes can you weave in?**  
**Could we weave that in again, but make it bigger? Smaller?**

- Provide cutting pictures of snakes of different lengths for children to decorate with repeating patterns. They might create patterns of, e.g. thick and thin lines, large and small marks, different 2D shapes, different colours. Cut out and laminate the pictures for children to use in 'snake hide and seek' (see Outdoor maths and physical play).



**Role play, small world and construction**  
Work with children to devise ways of ordering and arranging equipment when it is set out at the start of the day or session. Encourage them to know it the same way at the end.  
Provide several dressing-up items of the same type, e.g. scarves, scarves, shirts, skirts, in different lengths or sizes, for children to use and discuss. As children explore how the clothes fit, they will be discussing size and length.

**Set up a role-play we'll surgery or toy hospital with different-sized toy animals and bandages for children to play with and talk about.**  
**Which bandage will you use for this today? Why?**

Include a cash register, coins and bank notes for children to use to pay for treatment, write invoices and receipts, and so on.

**How much will it cost to treat my horse?**

At the beginning or end of a session or day, set out objects, e.g. natural objects, toy cars, in lines of different lengths. Talk about the lines with children.

**Which line is the longest?**  
**Are there any lines of equal length?**

### Stories, songs and rhymes

- Share and talk about stories that refer to length.
- Sing songs involving different lengths or add new verses to songs. Discuss these with children, encouraging them to describe and compare them, e.g. how a song is getting longer and longer.
- Recite new number rhymes with children, including numbers beyond 10.

### Other curriculum links

- Understanding the world - People and communities**
  - Role playing being at the vet's surgery.
- Understanding the world - The world**
  - Thinking about an oasis at the vet.
- Sorting and ordering objects, including natural objects**
- Understanding the world - Technology**
  - Guessing on-screen pictures into Numicon Shape patterns.

Learning is consolidated through **stories, songs and rhymes** and links to other curriculum areas.

**Photos** illustrate the activities and indicate the learning at a glance.



# Introducing number rods and ordering Numicon Shapes

Activity Group

2



language:  
forwards, backwards  
how many  
more, less, same  
big, small  
long, tall, short  
days - yesterday, today, tomorrow  
first, last

create their own pictures and images for 'one'. Children need the fine motor skills to record their ideas. Refer to guidance on supporting children with writing numerals on page 15 of the Teaching Guide.

**Shape, space and measures focus: height and length**

The activities extend children's vocabulary relating to height and length, and encourage them to apply familiar terms about position and time, e.g. before, after, first, next, to ordered objects and events, e.g. using a visual timetable to talk about their day.

At this stage, encourage children to explore the number rods for themselves. They may describe and compare them in terms of colour and size, perhaps arranging them in order; linking them with number ideas comes later. Decide together on suitable colour names for the rods, e.g. (in order, shortest first) white, red, light green, pink, yellow, dark green, black, brown, blue, orange, and use these consistently.

## Key mathematical ideas

Before teaching this activity group, refer to the key mathematical ideas in the Teaching Guide:

Contrasting, Comparing, Order, sequences and One-to-one correspondence, The successor relationship, Part-whole relationships, Counting, Measuring and space, Reasoning and logic

## Communicating

Use the following words and terms and listen for children using them:

number names (one, two, three, ...), number, count, forwards, backwards, how many?, words for comparing quantity (e.g. more, fewer, less, same), words for comparing size (e.g. big, bigger, biggest, same size, small, medium, large), words for comparing length and height (e.g. long, longer, tall, taller, short, shorter), year, week, day, yesterday, today, tomorrow, timetable, first, last, before, after, next, between, order

## Learning opportunities

- To recite the count sequence up to 10.
- To compare and order Numicon Shapes by size.
- To describe the positions of ordered Numicon Shapes in relation to each other.
- To begin to explore relationships between number rods and to learn their colour names.
- To compare and order three or more objects of different sizes, including by height.

## Assessment opportunities

Look and listen for children who:

- Show understanding of the words and terms for communicating in what they say and do.
- Use structured apparatus to communicate their ideas.
- Put the Numicon Shapes in size order.
- Identify the bigger/biggest, smaller/smallest, larger/largest Shape by touch from the Feely Bag.
- Use the colour names for each number rod.
- Order three or more objects of different sizes, different heights/lengths.

## All doing maths together

Select from the activities suggested in:

- Activity Group A: Daily maths opportunities
- Activity Group B: Daily counting activities

Also:

- Count forwards with children while pointing to Numicon Shapes and/or numerals on the Display Number Line. When they are confident, extend to counting back.

Shall we point to the Shapes or the numerals or number words while we count today?

Variation: choose numbers for children to say the number that comes 'next' or 'after'; extend to 'before' and 'between'.

- Discuss what children notice about the Numicon Shapes on the Display

Intro who is the chart  
- calendar - heights  
- birthday tube  
- canary to 10 birds  
- whisper, clap, march  
- into number line  
x m ups  
apes on whiteboards  
canary birds to 10  
ad numbers

next after before, both  
making number line together  
rods - colour lengths heights  
photos of day & put in order (into visual timetable)  
Shapes on wall line  
pattern w/ Shapes & rods

## Activities with structured apparatus

### Activity 1 Comparing Numicon Shapes - bigger and smaller

Have ready: Numicon Shapes, Numicon Feely Bag

Play this often: children find the bigger of two Shapes in a Feely Bag, then repeat for the smaller Shape.

Start with very different Shapes, e.g. 10- and 2-shapes.

Talk about what children can feel.

Is there a sticking-up bit?  
Are there lots of holes or just a few?

### Activity 2 Comparing Shapes - biggest, smallest and in between

Have ready: Numicon Shapes

Play this often: show three Shapes; children pick up the biggest, then smallest, then the Shape that is neither biggest nor smallest.

Model making comparisons. Encourage children to talk about, e.g. bigger, smallest, in between, middle-sized.

What can we call the Shape that is neither biggest nor smallest?

### Activity 3 Comparing and ordering Numicon Shapes

Have ready: Numicon Shapes

Ask children to put the Shapes in order, smallest first. Help to, e.g. find the smallest Shape, identify the next, align Shapes so they are compared.

Increased challenge:

choose any Shape for children to find the next or previous Shape ask children to order the Shapes from largest to smallest.

### Activity 4 Which Numicon Shapes have been swapped? (swaps)

Have ready: Numicon Shapes

Play 'swaps': show Shapes 1-10 in order. Children close their eyes as you swap two Shapes. They look, point to the swapped Shapes and put them back.

Increased challenge: ask children to describe what has happened, before putting Shapes back.

### Activity 5 Which Numicon Shape is missing? (fill-the-gap)

Have ready: Numicon Shapes

Play 'fill-the-gap': show two sets of Shapes, with one set in order and one set jumbled. Children close their eyes as you remove a Shape from the

Individual activities:  
- Feely shapes - which is bigger/smaller?  
- number mat - match shapes to numbers  
- shape - making number lines  
- "Shapes" (teach first)

rods - patterns - cards  
rod game (8)





**Activity 7 Exploring with rods**

**Have ready:** number rods  
Children explore making rod models, pictures and patterns.  
Talk about their work. Listen for how they describe and name the rods. **4**

Do you have a favourite rod?  
How many rods do you think you have used? Can you find out?

**Activity 8 Matching rods to pictures**

**Have ready:** Numicon Feely Bag, number rods, Number Rod Picture Cards (available on the Oxford Owl website)  
Put only those rods that appear on a Rod Picture Card in a Feely Bag. Children complete the picture by taking rods from the Bag one at a time.

Are you feeling for a long rod or a short rod?

**Activity 9 Naming the rods by colour**

**Have ready:** Numicon Spinners with Number Rod Colours Spinner Overlays or pocket dice with Number Rod inserts (both available the Oxford Owl website), number rods  
With children, spin or roll a colour, name it and find the matching rod.

What shall we call this colour?  
What colour is the longest rod?

Invite children to repeat regularly, using the agreed colour names.



**Exploring maths all around us**

**Outdoor maths and physical play**

- Invite children to build towers with blocks. Encourage them to talk about what they are doing, in particular about height. Listen for their use of related language, e.g. tall, taller, tallest, short, shorter, shortest. **5**

Which is the tallest tower?

- Give each of 10 children a Large Foam Numicon Shape for them to arrange themselves to show the Shapes in order, smallest to largest. **6**

- Invite children to use movements or poses to show tall and short, or even, e.g. tall, taller, tallest. **7**

- Invite children to take turns to do an action or movement, create a repeating, lengthening sequence, e.g. hop, hop, jump, hop, jump, touch the ground; hop, jump, touch the ground, turn around...

- Work with children to devise a sequence of warm-up exercises to do in order.

- Invite children to hunt for sticks of different lengths. Encourage them to describe and compare their sticks according to length.

Who has the longest stick?  
Can you find a shorter stick?

- Count items of equipment (e.g. tricycles, hoops, buckets) with children as they are handed out or collected in. Emphasize that the purpose of this is to find 'how many' and why this is useful, e.g. it means we know that there are enough to go around, or that we have collected in all the items that were given out.

Would everyone like a hoop? How many do we need?  
How many tricycles should we have? How many do we actually have?

**Sand, water and messy play**

- Have a set of different-sized containers for children to put in order.
- Bury Numicon Shapes in sand. Children choose a Shape and see if they can find Shapes in the sand that are larger or smaller. **8**

- Invite children to use a net to fish a few Numicon Shapes out of the water, then place them in size order.

- Provide rods for children to construct fences and barriers for small-world animals or vehicles in wet sand.

Encourage children to make height comparisons.

Is this animal tall or short? Is this fence taller or shorter?

What might happen if we put the animal in this pen?

Build towers  
large shapes to order  
make patterns \* make visuals.  
hop, jump, jump  
stick hunt \* take pics.  
Shapes in playground  
Shapes in sand  
Water play - use net to



during the day  
'My family'

- Provide rods for children to make models, repeating patterns or pictures.
- Provide puzzles that involve counting, e.g. Russian roulette.
- Provide pictures and pictures of the difference, parts or pictures of an image, set or
- Invite children to make pictures of their family. Talk about their pictures with them, encouraging them to describe and compare the heights of the different family members.
- Show children how to use rods to print repeating patterns onto strips of paper. Children could use the strips to make simple headbands, bracelets, belts or similar.

How can we use rods to print patterns?  
-writing about my family

**Games, puzzles and tabletop**

- Let children choose number rods to represent a group of people, e.g. a family. Prompt them to choose rods to show the different heights.

Encourage them to explain their choices, describing and comparing the different rods. **9**

Which rods have you used for the father or mother? Why?  
Who is tallest? Who is shortest?

Encourage children to count the rods and say how many people are in their group. (Model strategies for one-to-one counting, as appropriate, e.g. touching or moving each rod in turn while saying the appropriate number word.)

Increased challenge: encourage children to compare others' groups, e.g. by asking which of two groups has more or fewer people in it. Discuss children's approaches to the challenge.

How many people are in this group? How many in Ella's?  
Does your group have the same number of people as Ella's? Whose has more? Whose has fewer?

rods for children models, repeating patterns or pictures. puzzles that involve counting, e.g. Russian roulette. and pictures of the difference, parts or pictures of an image, set or

**Stories, songs and rhymes**

- Continue to read counting stories, recite number rhymes and sing number songs with children. Use Numicon Shapes alongside the songs and rhymes.
- Share stories, rhymes and songs that involve repetition, e.g. Three Billy Goats Gruff, songs with a chorus.
- When sharing other books with children, take opportunities to count or talk about size as they read.

make:  
Visuals for body patterns  
painty materials for rods & family pics.  
large, laminated shapes  
net for water play.

teach how we tidy up.  
-organise & sat.





**Communicating:**

Use and listen for the following:  
Forwards, backwards, how many, more, less, same, big, small, long, tall, short, days, yesterday, today, tomorrow, first, last

**Choosing board ideas:**

Using activities from previous days activity cards and...  
Feely shapes  
Number mat- match shapes to numbers  
"Swaps"  
Rods- pattern cards  
Rods box  
Rod game  
Block towers  
Ordering large shapes  
Movement patterns (visuals)  
Stick hunt  
Shapes in playdough  
Sand  
Water play- net to scoop  
Coloured rice

**Learning opportunities**

- To recite the count sequence up to 10.
- To compare and order Numicon Shapes by size.
- To describe the positions of ordered Numicon Shapes in relation to each other.
- To begin to explore relationships between number rods and to learn their colour names.
- To compare and order three or more objects of different sizes, including by height.

**Assessment opportunities**

Look and listen for children who:

- Show understanding of the words and terms for communicating in what they say and do.
- Use structured apparatus to communicate their ideas.
- Put the Numicon Shapes in size order.
- Identify the bigger/biggest, smaller/smallest, larger/largest Shape by touch from the Feely Bag.
- Use the colour names for each number rod.
- Order three or more objects of different sizes, different heights/lengths.

**Lesson breakdown:** Warm up, quick mini lesson to intro concept, look at choosing board together, reinforce expectations, let children settle into their activities and play then work with 2 groups (10 minutes each max). Use activity card (activities with structured apparatus), children will use the activity in tomorrow's choosing board independently. Spend a bit of time joining the children in play. Listen and observe, take pictures.

**Resources to make and have ready (see activity card for numicon equipment for each lesson):**

Scrap books, phone for photos, choosing board activities, large laminated shapes, painting materials for rods, net for water play

**Exploring maths around us:**

Extra indoor/outdoor activities to have ready for choosing board- twig hunt, coloured rice, sand pit, water play

**Ideas to continue throughout the day, fun Friday activities:**

'My family' -paint and record children's discussions on tallest/shortest, rods for printing patterns, writing about my family

**All Doing Maths Together/ Warm up:**

Activity Group A (daily maths opportunities)- calendar, hometime line up, after morning tea and lunch, snack time counting, 100 days of school, heights when we line up

Activity Group B (daily counting activities)- counting songs daily: counting forwards and backwards to/from 10(whisper, clap, march) , intro number line

Activity card ideas: shapes on whiteboards, counting forwards and backwards, add numbers, "next" 'after' 'before' 'between'

Making number line together, rods- colours, lengths heights, photos of the day- place in order, shapes on washing line

NZ maths <https://nzmaths.co.nz/problem-solving>

You Tube numbers: <https://www.youtube.com/watch?v=VlFQhHOAUCY>

**Group teaching focus for next two weeks:**

Activities 1-6

Extension for Andre and Piper

**Extra: routine around pack up time and expectations**



# Classroom management and lesson organisation:

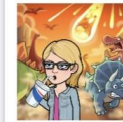
- ▶ Classroom management: what will the children be doing while you teach?
- ▶ Rotations/stations/task board, what works best for you?
- ▶ How do you manage the activities?- too many at one activity? Some activities being avoided?
- ▶ How do children move around activities? Timer, tick chart, Seesaw
- ▶ Equipment: How to define a space so equipment doesn't end up everywhere!
- ▶ Do you pack up everything or leave things out at the end of the session?

At pack up time, the Numicon corner looks like this:



## When is it ok to interrupt Mrs Jarkiewicz?

There is a fire.



I'M OK



You are feeling sick or have hurt yourself.



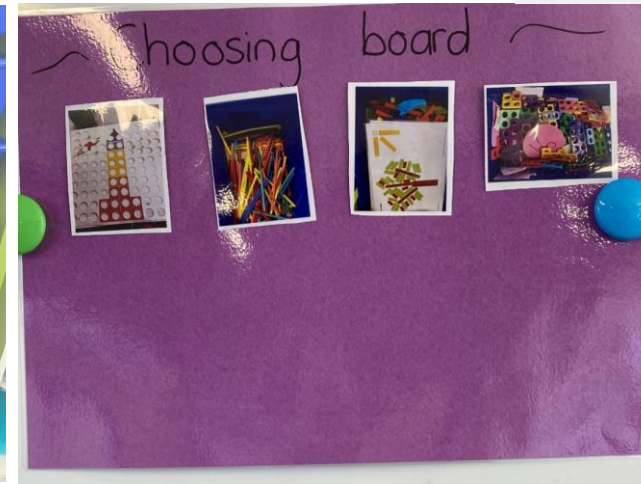
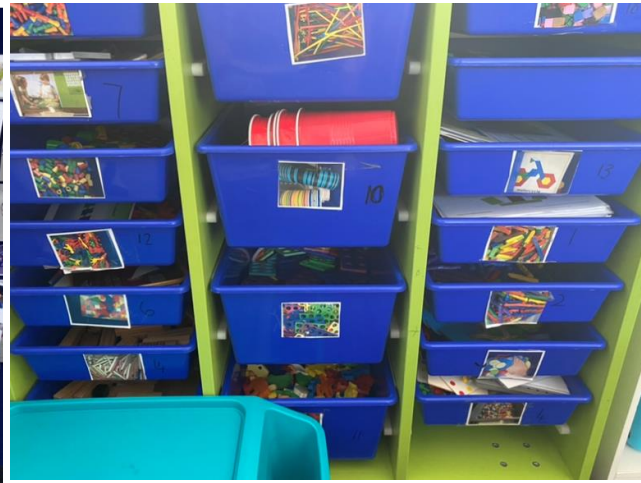
There is a flood.



You have food for me.



There is an alien invasion.





# Assessment:

- ▶ Think about what works for you and your tamariki as well as what requirements your school has (data gathering)
- ▶ SEA
- ▶ Activity Card B
- ▶ How/when do you find the time?
- ▶ Evidence





Date \_\_\_\_\_

Skill and knowledge	y/n	Comment
Make a pattern of two coloured pegs and ask the student to: Copy it below yours Continue it Then make up their own using three colours.		
Recite number names in the conventional order. (Note final correct one.)		
Point to/select the colour in response to verbal instruction for Numicon Pegs: Red Blue Yellow Green		
Name the colours Numicon Shapes and Cuisenaire rods: Orange Light/pale/other similar blue Light/pale/other similar green Turquoise Purple Dark blue Brown Black White/cream		
Match Numicon Shapes to pictures		
Match a Numicon Shape to its Large Foam Numicon Shape or large printed set.		
Order a set of 5 Cuisenaire rods.		
Use size of objects as a criterion for making comparisons when ordering 4 different sized teddies.		
Writing numerals they know on the back of this page.		
Show understanding of the words and terms in following spoken instructions.		
Show understanding of the words and terms for communicating in what they say and do.		
Indicate where the child lost focus with the above activities with an *.		
Further comments:		

## Name: \_\_\_\_\_

	date	date	date	date	Notes:
<b>GOALS:</b>					
Recite the conventional count sequence forwards, starting from any number					
Recite the conventional count sequence back, starting from any number					
For a given number, can say the next number					
For a given number, can say the previous number					
Count when they need to find out how many					
Count a collection of objects accurately, saying one number name for each object					
Use a counting strategy (moving or rearranging objects)					
Know that the last number counted tells you how many in a set					
Have a sense of where to find a given number on a number line					
Count a collection of objects and know they will have the same number if they count them in a different order					
Make reasonable estimates of collections of objects					
Recite the count sequence of twos, fives and tens					
Attempts to write the numbers to 10 then 20					
reads the numbers to 10 then 20					

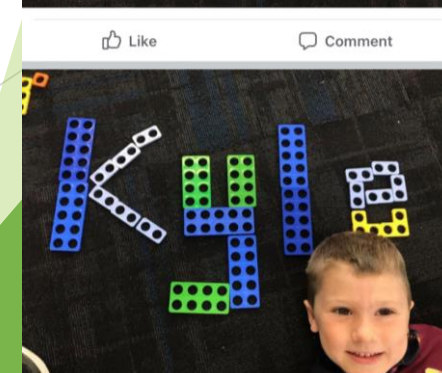
Numicon tracking (L/O from Medium term planning in FF):

[illegible]



# Resources and ideas:

- ▶ Numicon website
- ▶ Numicon Facebook page
- ▶ Instagram
- ▶ Firm Foundations including masters at the back
- ▶ Twinkl
- ▶ Mrs Priestly ICT
- ▶ Leslee Allen (number agents blog)





# Physical resources I use in my classroom

- ▶ Box of Numicon equipment
- ▶ Blankets to define areas
- ▶ Individual kits
- ▶ Scrap Books
- ▶ Number mat
- ▶ Loose parts for counting, sorting, patterning, making shapes, measuring
- ▶ Sorting boxes
- ▶ Usual maths equipment- shapes, scales, teddies etc
- ▶ Bottles, cups etc for measuring and sorting
- ▶ Coloured rice
- ▶ Playdough
- ▶ Games- bingo, snap
- ▶ Water beads
- ▶ Sand pit
- ▶ visuals





# Class displays





# Let's keep in touch

I am always keen to help in any way. You are welcome to visit me and my classroom if you are local. Or, you can reach me via email.

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