

‘Numicon aims to support learners understanding and enjoyment of Maths’.



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Why do learners find Maths so difficult?

‘Maths is not isolated, but integrated into everyday life, preparing learners for the real world’.

Why do learners find Maths so difficult?

- Number is an abstract idea with no pictures.
- Its comparable to teaching reading without any pictures in books.

Numicon provides learners with pictures of numbers.

Numicon enables learners to 'see' how numbers work.



Can 'see' and 'feel' the concept.

Kennel Lane School Aspiration:

- Confident, Competent Mathematicians in all our learners.

To achieve this, our young people need to:

- Do Maths
- Talk about Maths



What is Numicon?

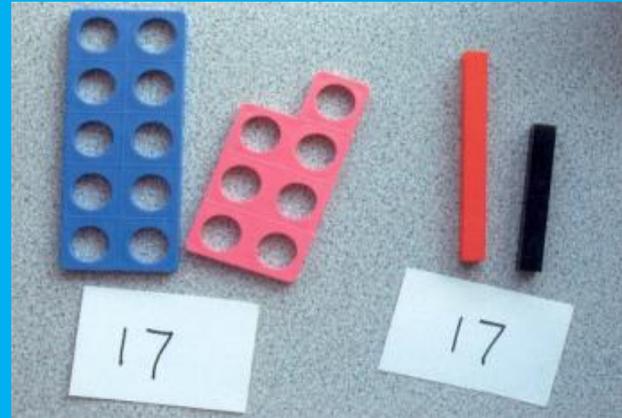
It is a multi sensory approach to mathematical learning, which uses structured apparatus to illustrate key ideas and encourages conversation.

‘Numicon believe that the combination of **action, imagery** and **conversation** helps learners to structure their experiences, which is such a vital skill for both their mathematical and their overall development’.



Learners can ‘see’ relationships.

Numicon is fun and effective across all ages to illustrate mathematical concepts.



Meaningful contexts

Activities helping learners make connections with their real world.

Obvious in their correctness and compels learners to self correct.

Playful with challenge

Sequential, explicit lesson structure with step-by-step illustrations

Interaction with others which helps learners to relate their experiences and reinforce what is being learned.



Learners thinking and progress are clear.



Easy to follow steps.

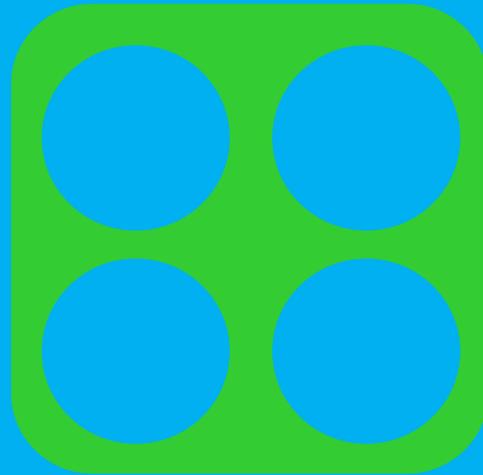
Rationale for using Numicon

- Proven to raise achievement across all ability levels.
- Extensively trialled with teachers and learners.
- Careful progression built into all activities to help young people develop fluent mathematical skills.
- With problem-solving, reasoning and conversation at its heart, *Numicon* perfectly embodies the aims of the National Curriculum 2014 for mathematics:



Sense of achievement and confidence for learners by **actively** doing maths.

Enhance teachers' subject knowledge and therefore their confidence.



Progression, support and challenge for learners of all abilities.

Skills learners in mathematics for school and beyond.

Kinaesthetic Maths

- Scientific studies have indicated that physical activities create strong neural pathways in the brain.
- Both brain hemispheres simultaneously engage when pupils participate in a tactile or kinaesthetic activity.
- As a result, retention in the long term memory is likely to be increased.



History of Numicon

- Numicon grew out of a classroom based research project funded by the Teacher Training Agency carried out between 1996 and 1998 by Numicon authors Ruth Atkinson, Romey Tacon and Dr Tony Wing.
- They wanted to discover why it was that so many children failed in maths.
- They wanted to find out whether using visual structured imagery would support children's maths understanding.

How is the Numicon first introduced?



Moving on to finding out what the shapes are worth and what they mean...



Moving on to finding out what the shapes are worth and what they mean...



Understanding concepts of number:

It can be quite difficult to explain to a child the mathematical concept of 'five'.

But the Numicon shape for 'five' looks like 'one less' than six and 'one more' than four.



Calculating

- Always using concrete objects initially – Numicon shapes, objects, counters etc. Children need to be able to talk about what they are doing first.
- Moving on to pictorial – drawing pictures to show what they have done, developing their reasoning and explaining.
- Further up the school – looking at more abstract methods e.g. column methods.

Beginning to calculate:

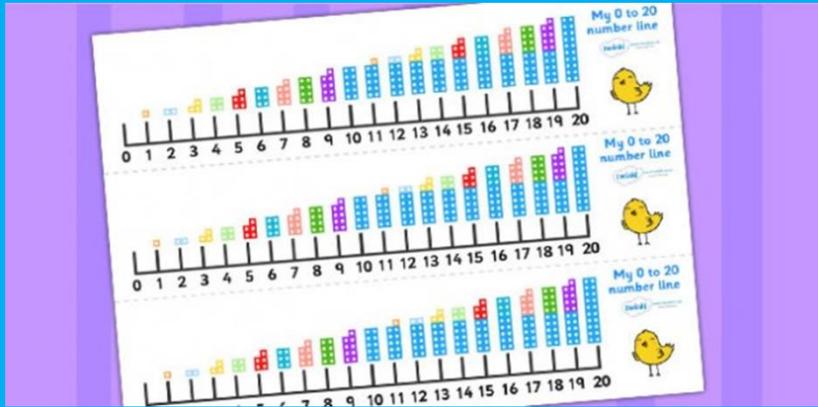


Using the rods:

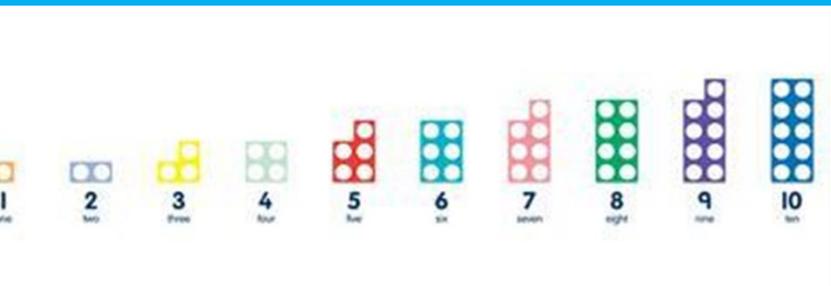
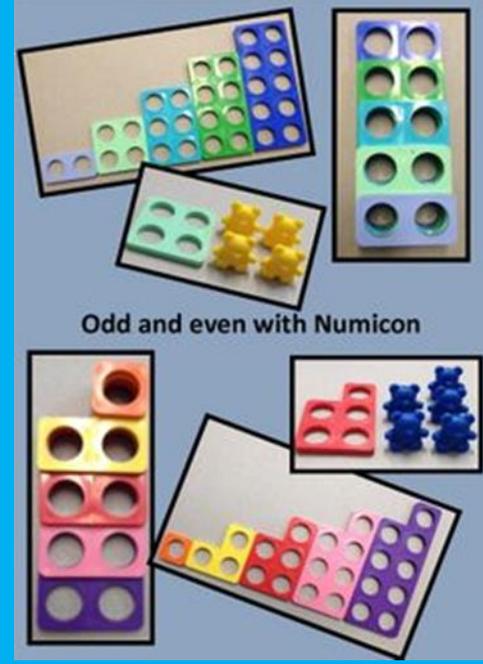


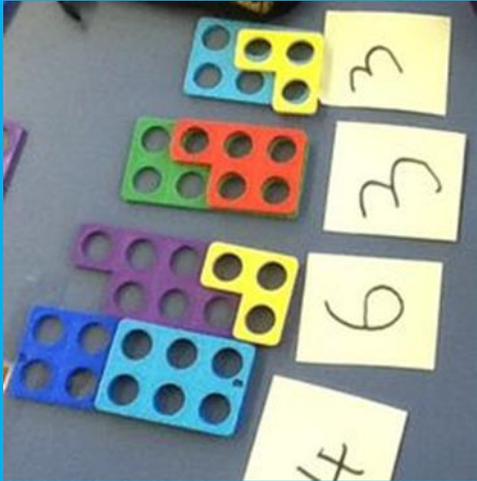
Moving on

- Numicon is continued to be used as an initial teaching and learning tool whenever a new concept is introduced and to revise where they have come from.
- Manipulatives are used alongside written strategies and then removed when the children are confident – this includes Numicon, rods, place value counters, bead strings amongst others.

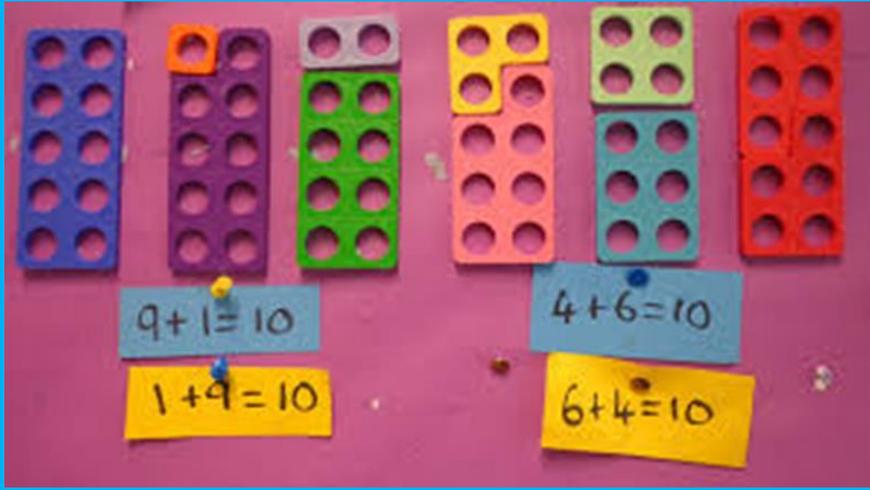
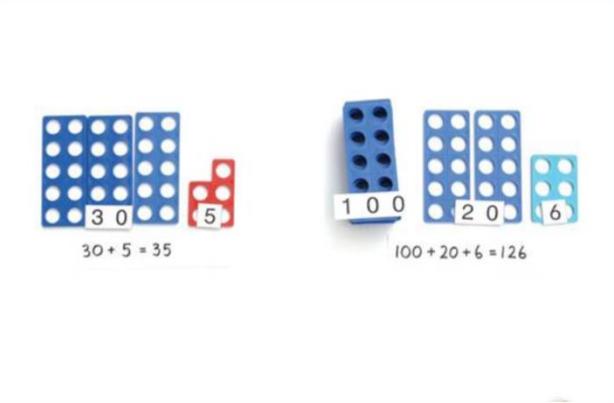


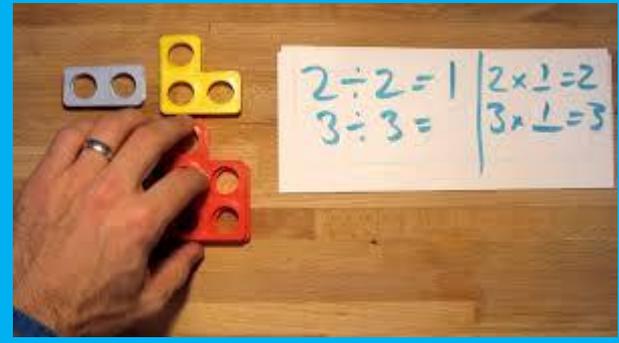
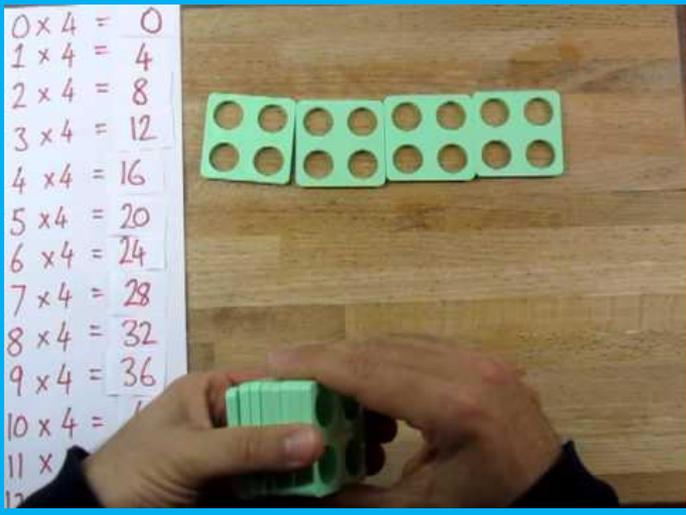
Number and Pattern



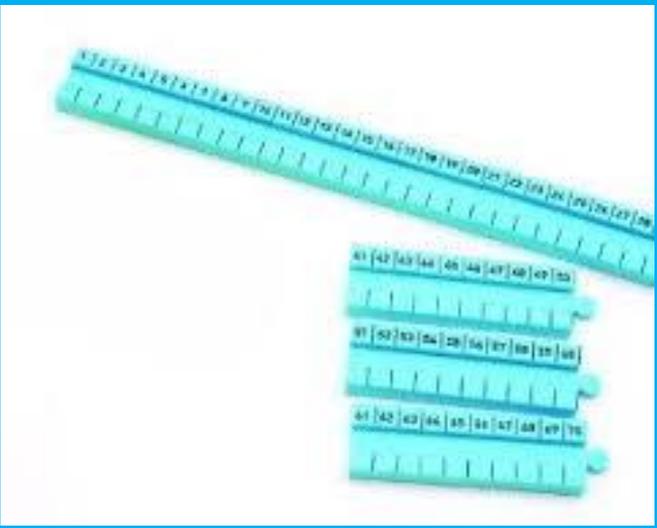


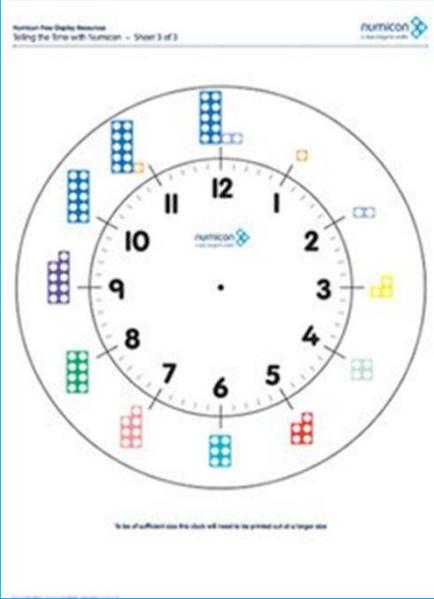
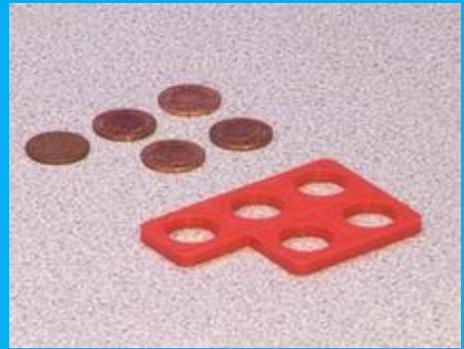
Addition and Subtraction





Multiplying and Dividing





Other Ideas



Video Links

<https://www.youtube.com/watch?v=yYgwM5Z1tMo>

<https://www.youtube.com/watch?v=EIGN3ekzpjc>