

A structured approach to teaching Maths

Using the principles of mastery



Create a class full of
mathematical thinkers



OXFORD
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What is Numicon?

The Numicon approach encompasses three key elements:



Every student in your class will succeed in maths and have fun!

Numicon is a maths lab where children are talking, exploring, making connections, reasoning and solving problems together.

The whole class is learning the same concept together with all children being included, the access being differentiated to meet all needs.

Maths concepts are abstract, making them difficult to explain and understand. The Numicon shapes, Cuisenaire rods, Place Value blocks and other apparatus enable children to explore, understand and communicate their thinking.

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Mastery

- Consistency and rich development across the school.
- Cyclic teaching sequence aiding memory, developing deeper understanding in the Scope and Sequence.
- Explicit teaching – small accessible and incremental steps building knowledge with links to everyday life.
- Deep conceptual understanding, confident procedural thinking and strong language development.
- Concrete-pictorial-abstract and language approach to the teaching encourages conversation and connections within maths that would otherwise be very abstract.

Numicon teaching progression: Number, Pattern and Calculating 5 and Geometry, Measurement and Statistics 5

The Numicon teaching progression chart gives an overview of the expected coverage over the school year and the interrelationships between the different areas of learning. Children work through the progression and Measurement and Statistics 5 for reference to assessment relevant outcomes. It is a tool for monitoring children's progress.

Strand and Activity Group Number	Activity Group Title
Number 1	Working with numbers up to 10
Number 2	Working with numbers up to 10
Number 3	Working with numbers up to 10
Number 4	Working with numbers up to 10
Number 5	Working with numbers up to 10
Number 6	Working with numbers up to 10
Number 7	Working with numbers up to 10
Number 8	Working with numbers up to 10
Number 9	Working with numbers up to 10
Number 10	Working with numbers up to 10
Number 11	Working with numbers up to 10
Number 12	Working with numbers up to 10
Number 13	Working with numbers up to 10
Number 14	Working with numbers up to 10
Number 15	Working with numbers up to 10
Number 16	Working with numbers up to 10
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Number 91	Working with numbers up to 10
Number 92	Working with numbers up to 10
Number 93	Working with numbers up to 10
Number 94	Working with numbers up to 10
Number 95	Working with numbers up to 10
Number 96	Working with numbers up to 10
Number 97	Working with numbers up to 10
Number 98	Working with numbers up to 10
Number 99	Working with numbers up to 10
Number 100	Working with numbers up to 10

Numicon takes all the stress away!



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Explicit Teaching

Guidance for teachers provides support and opportunities for creative adaptations to develop deep understanding and effective communication. This builds confidence for everyone. Notice, Recognise and Respond are all there!

Activity 2: Cover the Baseboard with Numicon Shapes

Step 1

Explain that 'Cover the Baseboard' is a puzzle where children have to fill the Baseboard with Shapes. As children work, listen for what they call the Shapes. Some may work systematically, others may work haphazardly. Some will readily rotate and flip Shapes to fit spaces, others may have more difficulty. Some will pick a Shape to fit a space exactly without hesitating, and some will engage in more complex problem solving as they anticipate future moves. Listen for children describing position and movement.

Step 2

Set children a further 'detective' challenge to find out if it is possible to cover the Baseboard with just one sort of Shape and, if so, which Shapes can be used. Listen for children



Activity 6: Counting in powers of 10

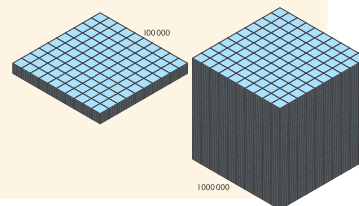
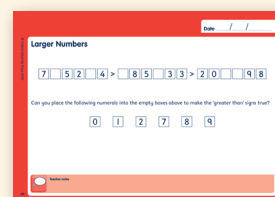
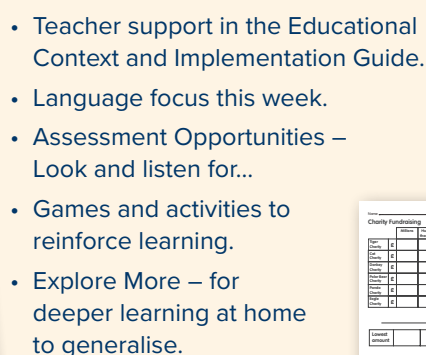
Step 1

Make a 5- or 6-digit number, e.g. 44 503, with interlocking cubes, arranging them in columns using the points system in the image. Ask children what would happen if one more cube was added to any column. Look and listen for children who can explain how the column and quantity value would change.

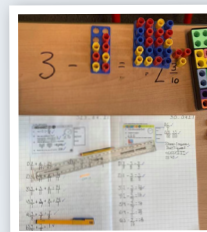
Step 2

Ask children how we could use cubes to help us count on from the number in steps of 1000. Agree to add blue cubes one at a time. Work with children to do this, counting 44 503, 45 503, ..., 49 503; stop before counting over the column boundary. Look and listen for children who can explain that only the thousands digit is changing.

Teaching Guidance



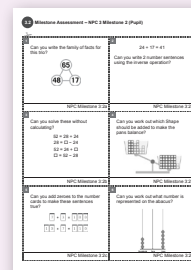
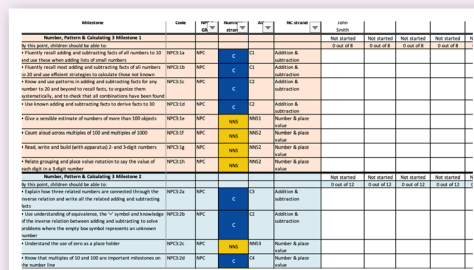
Investigations and Problem solving



Pupil Books to extend and deepen learning.

Independent activities, recording learning and playing games with each other, designed to develop fluency and confidence.

Assessment



Explorer Progress – evidence of learning this week & the concept applied to other problems.

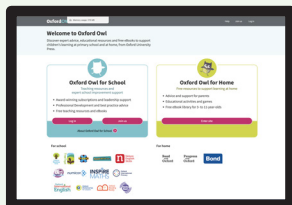
Class tracking of the learning progressions over time.

Questions to respond to demonstrating understanding and reasoning.

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Teaching Resources

The core programme in print and online



Online resources include planning, assessment, PLD information and videos, lesson guidance videos, software that students and teachers can access.



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Maths Curriculum links with Numicon

Year	0/1	2	3	4	5	6	7	8	9/10
Phases	1			2			3		4
Numicon Levels	FF	1	2	3	4	5	5/6	6	
Intervention Tier 3	Breaking Barriers								
Intervention Tier 2		Intervention Programme							
Senior Catch-up						Big Ideas			



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Results

Wigram School

Everything we set out to achieve has been met! We are extremely happy and proud to be using Numicon. One of our first priorities was to close 'the gap' and lift the 'tail end' of achievement. Every year group has done exactly that.

St Patrick's School

We have successfully met our original aim of raising engagement and enjoyment in mathematics. We are proud of our school for persevering through this journey. We are reaping the rewards in every way.



Full PLD is provided by arrangement along with purchase options for Numicon and other educational products.

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More information on
www.numicon.co.nz