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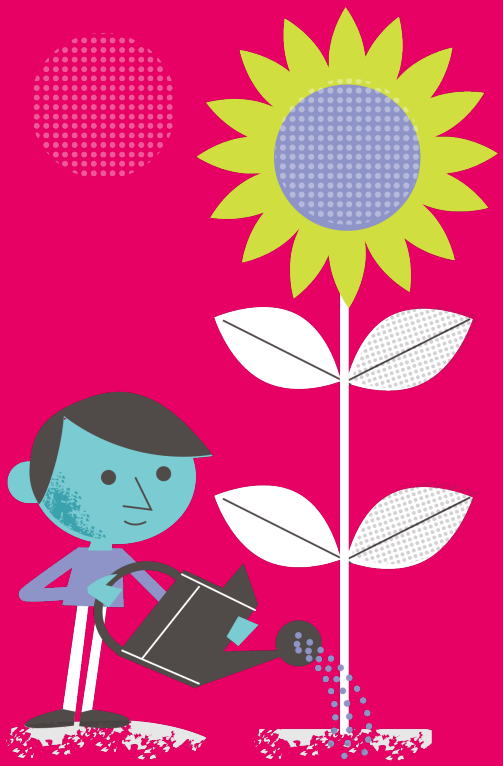
Maths in your hands!

Growing learners to love Maths



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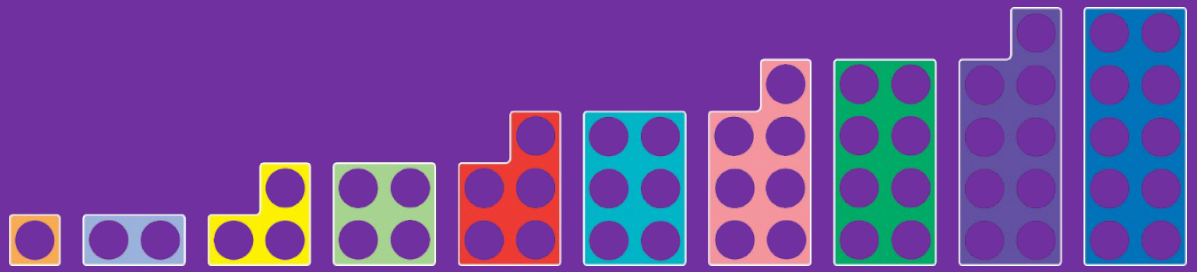

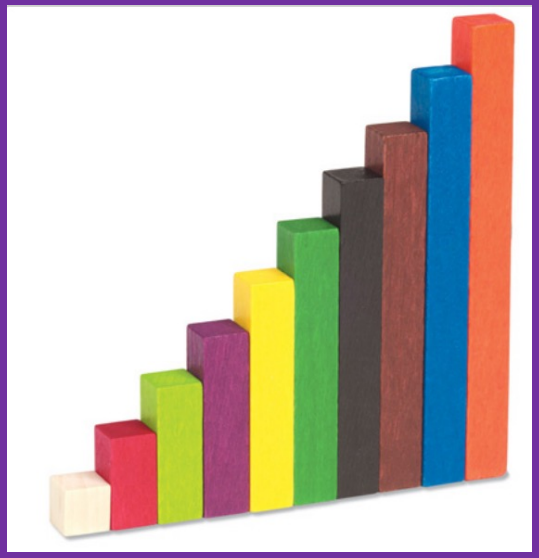

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What are schools looking for?

- To improve the experience of learning for the students – becoming engaged and LOVING Maths
- To improve the experience of teaching
- Lift students' results
- Enrich the interconnectedness of Maths

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Why Numicon?

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- Builds **understanding** and develops fluency by using a visual, practical base to develop conceptual understanding and fluent recall
- Develops **confidence**. Children solve problems in everyday life contexts through using structured concrete materials
- **Enjoyment**! All children are engaged and love maths!

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Why Numicon?

- Provides a balanced coverage of all Strands in the New Zealand Curriculum in a structured, interconnected and progressive approach for the whole school.
- Assessment based on a formative approach with ‘student voice’
- Exciting progress of all our students in every school. No gaps in the learning with Numicon!
- IT MAKES SENSE!

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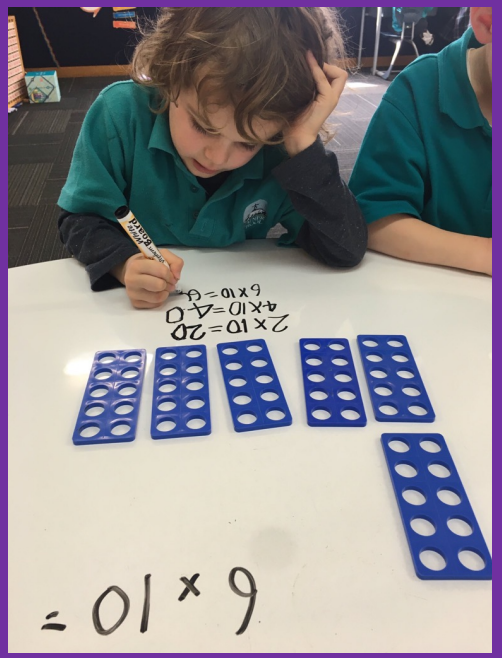

Flexible learning activities giving teachers and students confidence together

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Why Numicon?

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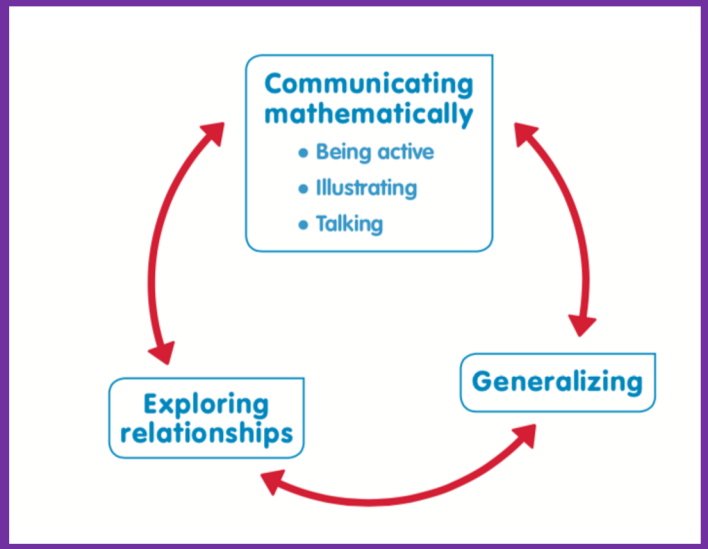

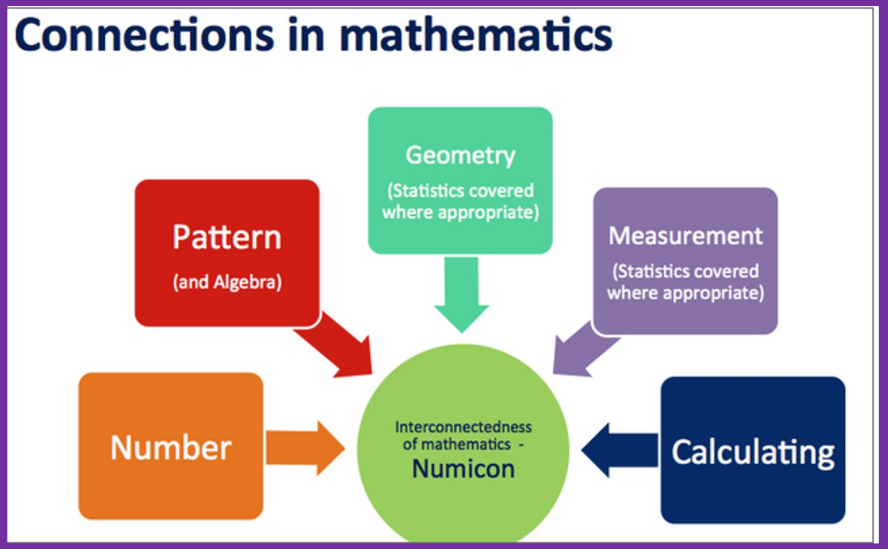

- Learning through exploration/play
- Inquiry learning
- Problem-solving
- Structured, explicit teaching

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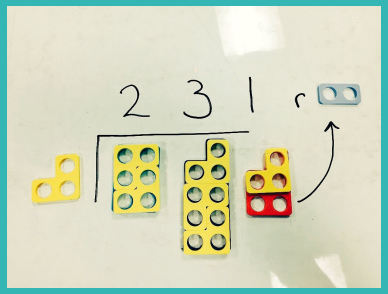
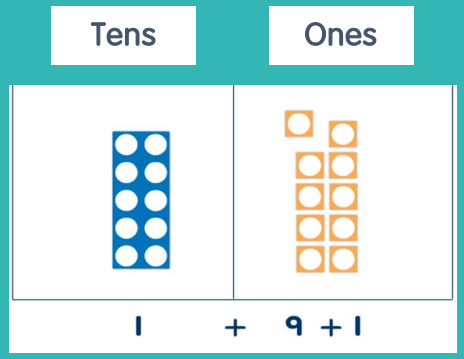
Number sense

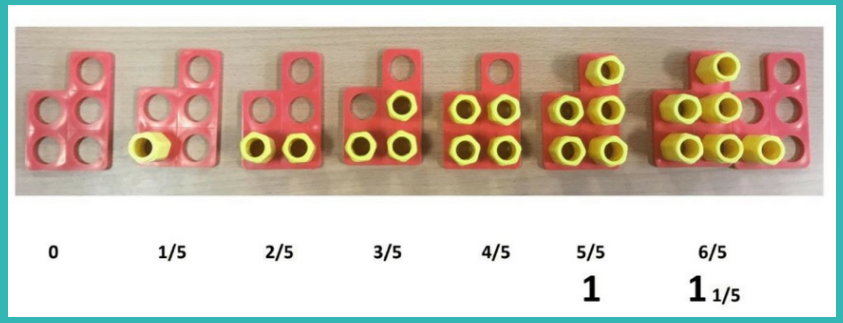
Operations



Place Value



Fractions



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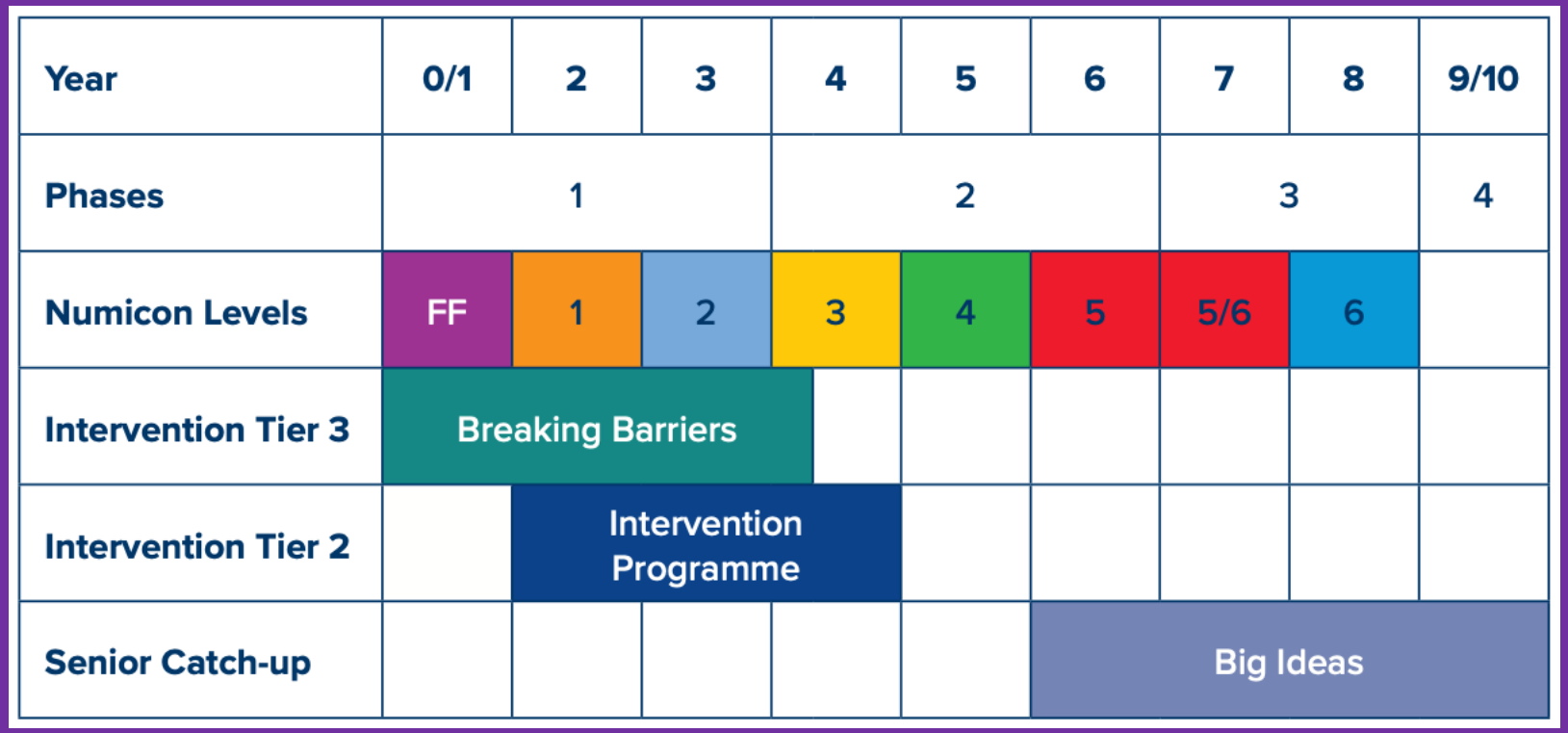
A whole school approach



Creating consistency and inclusion for the students in their learning

We provide

- Professional Learning Support from one year to one hour…
- Free support through numicon.co.nz

Contact us at admin@Edushop.nz

Teaching and Assessment – everything is provided for you!

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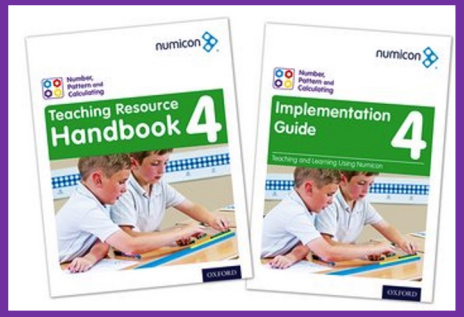
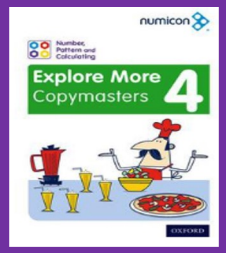
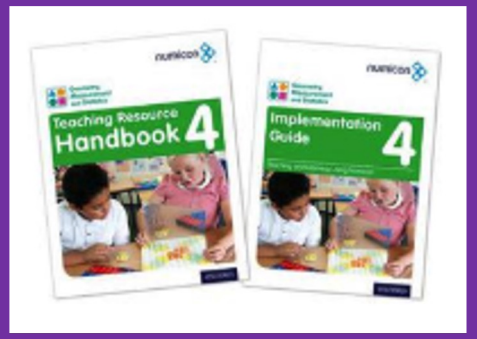
Number, Pattern, Calculating

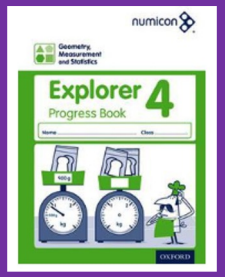




Student problem-solving activities, going deeper

Geometry, Measurement, Statistics





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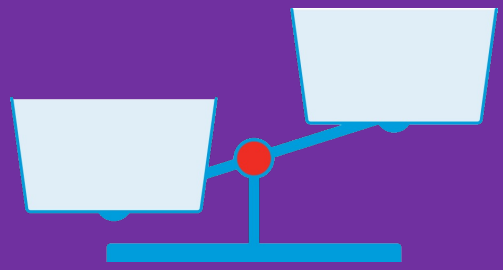
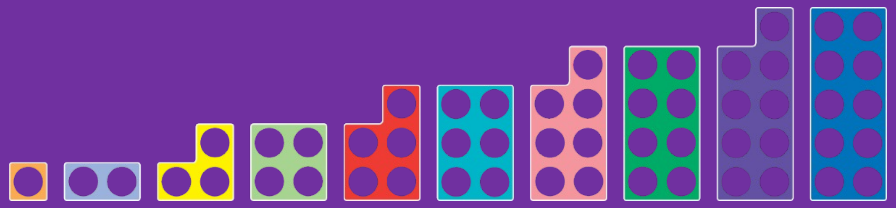
Numicon Online and Firm Foundations Online

- Editable long, medium and short term planning documents
- Informative and directive Implementation videos
- Online Teaching Handbooks
- Teacher support videos
- Classroom display supports
- Planning and Assessment
- IWB/computer software
- Activity supports





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Numicon Apparatus

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And using what you already have!

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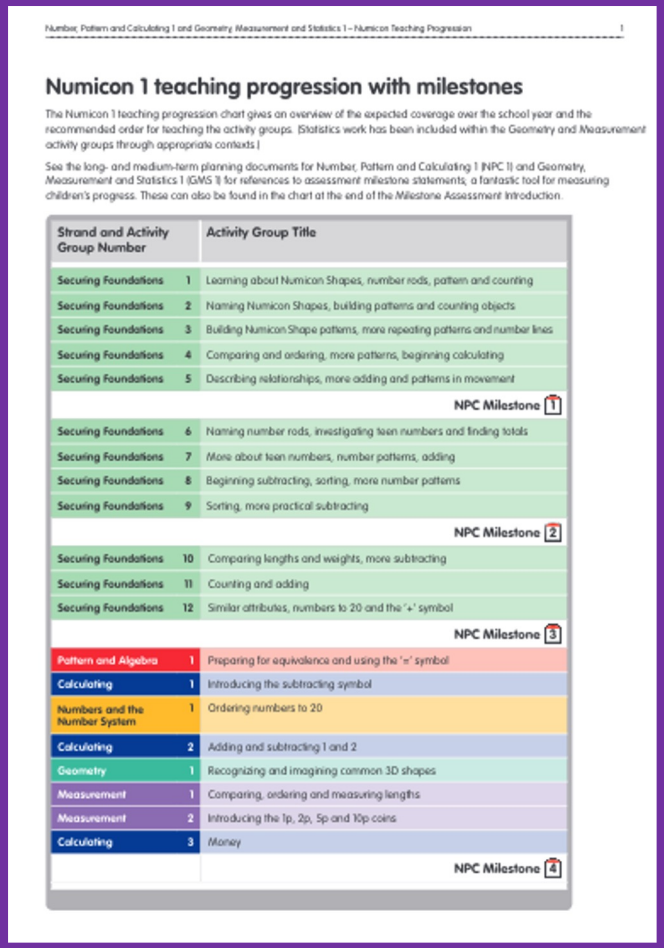
A year's sequence building confidence



Numicon 1 teaching progression with milestones

The Numicon 1 teaching progression chart gives an overview of the expected coverage over the school year and the recommended order for teaching the activity groups. Statistics work has been included within the Geometry and Measurement activity groups through appropriate contexts.

See the long- and medium-term planning documents for Number, Pattern and Calculating 1 (NPC 1) and Geometry, Measurement and Statistics 1 (GMS 1) for references to assessment milestone statements, a fantastic tool for measuring children's progress. These can also be found in the chart at the end of the Milestone Assessment Introduction.

Strand and Activity Group Number		Activity Group Title
Securing Foundations	1	Learning about Numicon Shapes, number rods, pattern and counting
Securing Foundations	2	Naming Numicon Shapes, building patterns and counting objects
Securing Foundations	3	Building Numicon Shape patterns, more repeating patterns and number lines
Securing Foundations	4	Comparing and ordering, more patterns, beginning calculating
Securing Foundations	5	Describing relationships, more adding and patterns in movement
		NPC Milestone 1
Securing Foundations	6	Naming number rods, investigating teen numbers and finding totals
Securing Foundations	7	More about teen numbers, number patterns, adding
Securing Foundations	8	Beginning subtracting, sorting, more number patterns
Securing Foundations	9	Sorting, more practical subtracting
		NPC Milestone 2
Securing Foundations	10	Comparing lengths and weights, more subtracting
Securing Foundations	11	Counting and adding
Securing Foundations	12	Similar attributes, numbers to 20 and the '+' symbol
		NPC Milestone 3
Pattern and Algebra	1	Preparing for equivalence and using the '=' symbol
Calculating	1	Introducing the subtracting symbol
Numbers and the Number System	1	Ordering numbers to 20
Calculating	2	Adding and subtracting 1 and 2
Geometry	1	Recognizing and imagining common 3D shapes
Measurement	1	Comparing, ordering and measuring lengths
Measurement	2	Introducing the 1p, 2p, 5p and 10p coins
Calculating	3	Money
		NPC Milestone 4

Strand and Activity Group Number		Activity Group Title
Numbers and the Number System	2	Finding how many by grouping
Measurement	3	Units of time
		GMS Milestone 1
Geometry	2	Making pictures, shapes and patterns
Calculating	4	Exploring adding and subtracting facts to 10
Measurement	4	Comparing, ordering and measuring heaviness
Calculating	5	Halves and quarters of wholes
		NPC Milestone 5
Measurement	5	Comparing, ordering and measuring capacity
Pattern and Algebra	2	Reasoning with Numicon Shapes and number ideas
Pattern and Algebra	3	Odd and even
Calculating	6	Understanding subtracting as 'difference' and as 'how many more?'
Geometry	3	Recognizing and imagining common 3D shapes
		GMS Milestone 2
Numbers and the Number System	3	Exploring number lines and counting in steps
Calculating	7	Developing recall of adding and subtracting facts within 10
		NPC Milestone 6
Numbers and the Number System	4	Structure of 2-digit numbers and more ordering
Pattern and Algebra	4	Logic
		NPC Milestone 7
Geometry	4	Comparing and naming common solid 3D shapes
Calculating	8	Adding more than two numbers
Calculating	9	Partitioning into tens and ones
Measurement	6	Telling the time
Pattern and Algebra	5	Finding possibilities
		NPC Milestone 8
Geometry	5	Position, direction and movement
		GMS Milestone 3

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Weekly planning provided - EASY! numicon

Calculating 4: Exploring adding and subtracting facts to 10

Key mathematical ideas Adding, Subtracting, Pattern, Inverse, Mathematical thinking and reasoning

Educational context

As they work on this activity group, children make some important steps towards developing fluency. The activities begin by looking at zero when adding and subtracting so children experience that, if zero is added or subtracted, it just leaves everything as it was. The activities move on to exploring the adding and subtracting facts for all numbers to 10 (in random order, since numbers do not come up in order in everyday life). At this stage, the emphasis is very much on exploring and making discoveries, rather than finding all combinations for any number independently. However, through exploring and organizing adding facts and relating adding to subtracting, children will start to build a repertoire of known facts. In all the activities, children are encouraged to notice the triadic (three-way) associations between numbers (e.g. 4 + 2 = 6, 6 – 2 = 4, 6 – 4 = 2) and to explain these relationships in their own way. This provides opportunities for them to begin to notice the inverse relationship between adding and subtracting, although at this stage it is not taught explicitly. The activities continue with revising doubling numbers 1–5 and how knowing 'double facts can help with related calculations. Near doubles are also explored. Children should always be encouraged to make up their own number stories relating to the problems. The activities will provide assessment opportunities related to perseverance, understanding and systematic ways of working, as well as the extent to which children are able to recall known facts.

As these facts are such an important foundation for children's ongoing calculating, the whole-class focus on each number may last several days; and numbers may be revisited for those children who are insecure. There are limited independent practice suggestions as we recommend giving children practice for each number using the ideas from another number, especially those using the Pan Balance, the Post Box and the Parts and Wholes photocopy master. Exploring all the numbers with both number rods and Numicon Shapes gives further important practice.

Learning opportunities

- To understand what happens when zero is added or subtracted.
- To become fluent with adding and subtracting facts for numbers to 10 and to recognize that these can be useful in many different situations.
- To recall doubles of numbers 1–5 and recognize that these can be useful when faced with related calculations.
- To experience situations when it is useful to use adding and subtracting facts for numbers to 10.
- To know when to look for patterns and that it is easier to spot them when work is organized systematically.
- To begin to see when to use the inverse relationship between adding and subtracting to solve problems.

Words and terms for use in conversation

combine, add, plus, total, compare, subtract, take away, minus, difference, equals, facts, pattern, similar, different, combination, organize, systematic, how many ways?

Assessment opportunities

Look and listen for children who:

- Use the above words and terms effectively in discussion.
- Understand what happens when zero is added or subtracted.
- Recognize when it is important to be well-organized and to work systematically, e.g. those who show adding facts in order, with or without structured apparatus.
- Are beginning to have fluent recall of adding and subtracting facts to 10 and who know when to use these to help when adding and subtracting.
- Have fluent recall of doubles totalling no more than 10 and use them to help when adding and subtracting adjacent numbers.
- Are beginning to recognize that there is a relationship between adding and subtracting facts that can be helpful when solving mathematical problems.
- .

Explorer Progress Book 1b, pp. 16–17

Explore More Copymaster 25: Winning Row

Focus activities

1. Adding with zero
2. Subtracting with zero
3. Exploring 4 – finding adding facts using two numbers
4. Exploring 4 – finding adding facts using the Numicon Pan Balance
5. Exploring 4 – finding subtracting facts
6. Exploring 4 – parts and wholes
7. Exploring 6 – finding adding facts
8. Exploring 6 – finding subtracting facts
9. Exploring 5 – finding subtracting facts
10. Exploring 5 – finding adding facts
11. Exploring 8 – finding adding facts
12. Exploring 8 – finding subtracting facts

13 Exploring 9 - finding adding facts

14. Exploring 9 – finding subtracting facts
15. Exploring 7 – finding adding facts
16. Exploring 7 – finding subtracting facts
17. Exploring 3 – finding adding facts
18. Exploring 3 – finding subtracting facts
19. Exploring 10 – finding adding facts
20. Exploring 10 – finding subtracting facts
21. Double the amount
22. Relationships between adjacent numbers

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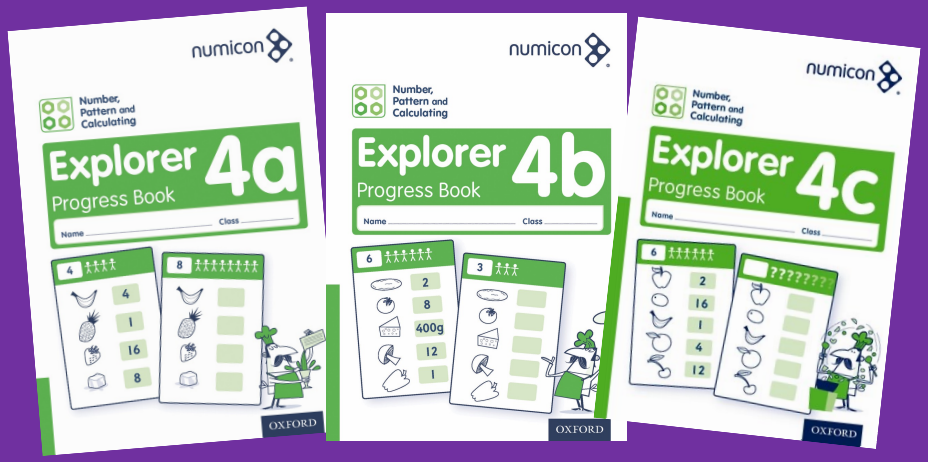
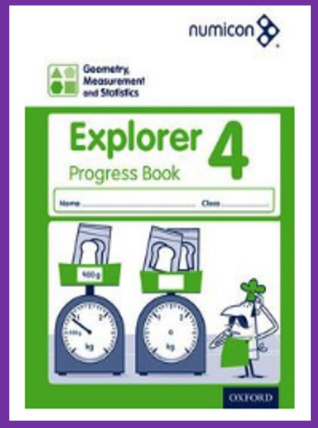
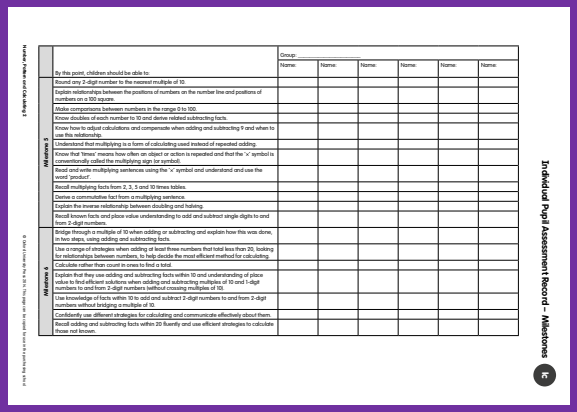
Assessment built in - EASY!







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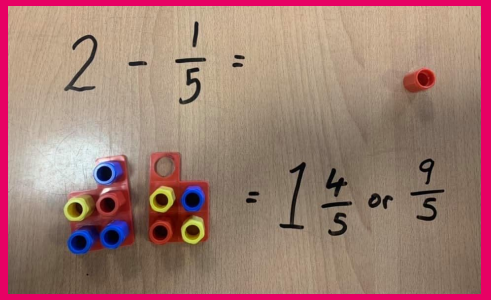

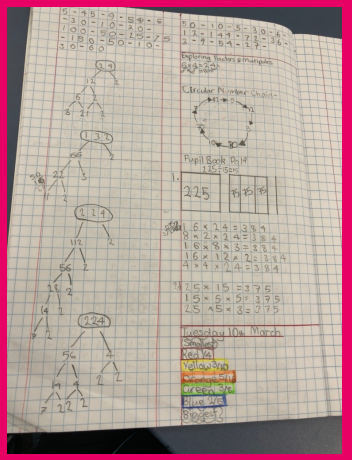

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