Numicon teaching progression: Number, Pattern and Calculating 3 and Geometry, Measurement and Statistics 3

The Numicon 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 3 and Geometry, Measurement and Statistics 3 for references to assessment milestone statements; a fantastic tool for measuring children's progress.

Term 1:

Strand and Activity Group Number		Activity Group Title
Getting Started		Getting started with Number, Pattern and Calculating 3
Calculating	1	Developing fluency with adding and subtracting facts to 10
Numbers and the Number System	1	Finding how many by grouping in 10s and 100s
Calculating	2	Developing fluency with adding and subtracting facts to 20
Numbers and the Number System	2	Exploring hundreds, tens and units with base-ten apparatus
		NPC Milestone 1
Pattern and Algebra	1	Exploring the inverse relationship between adding and subtracting
Numbers and the Number System	3	Keeping count and writing numbers down
Calculating	3	Mental methods for adding single-digit numbers
Calculating	4	Mental methods for subtracting single-digit numbers
Geometry	1	Investigating the parts and properties of polygons and polyhedra
Pattern and Algebra	2	Exploring steps of constant size through sequences of multiples
Calculating	5	Revising multiplying as repeated adding
		NPC Milestone 2
Calculating	6	Exploring multiplying through arrays
Calculating	7	Introducing dividing as 'How many … in …?'
Geometry	2	Identifying and comparing angles by size
Numbers and the Number System	4	Partitioning 2- and 3-digit numbers with and without money
Geometry	3	Sorting and classifying 2D and 3D shapes
		GMS Milestone 1

Term 2:

Numbers and the Number System	5	Ordering and structuring numbers to 1000
Calculating	8	Adding and subtracting multiples of 10 and 100
		NPC Milestone 3
Calculating	9	Patterns of similar adding and subtracting calculations
Pattern and Algebra	3	Reading and creating scales with different intervals
Numbers and the Number System	6	Finding half way, rounding to the nearest 10 or 100
Calculating	10	Learning multiplying facts and looking for patterns
Calculating	11	Introducing the sharing structure of dividing
		NPC Milestone 4
Pattern and Algebra	4	Extending sequences and finding differences
Calculating	12	Partitioning strategies for adding and subtracting
Measurement	1	Telling the time to the minute on the 12-hour clock
Measurement	2	Exploring units of time
		GMS Milestone 2

Term 3:

Calculating	13	Using apparatus and imagery to introduce the written column method for adding
Calculating	14	Using apparatus and imagery to support subtracting and introducing the written column method
Calculating	15	Exploring ratio and scaling problems and introducing the short written methods of multiplying and dividing
		NPC Milestone 5
Measurement	3	Measuring accurately and calculating with metres, centimetres and millimetres
Measurement	4	Calculating with pounds and pence, and handling money
		GMS Milestone 3
Calculating	16	Making connections between dividing into equal parts and calculating with fractions

Term 3 continued:

Measurement	5	Measuring and calculating with grams and kilograms
Measurement	6	Measuring and calculating with litres and millilitres
Numbers and the Number System	7	Understanding fractions of a whole and fractions as numbers
Numbers and the Number System	8	Using fraction notation to describe parts of a discrete set
Pattern and Algebra	5	Finding all possibilities and investigating a general statement
		NPC Milestone 6
Geometry	4	Using grids and grid references
		GMS Milestone 4

It is essential that children know by heart the multiplication facts for the x2, x3, x4,x5, x8 and x 10 tables. They should be able to say the answer to questions in less than 6 seconds.

Numicon 4 teaching progression with milestones

The Numicon 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 4 (NPC4) and Geometry, Measurement and Statistics 4 (GMS4) 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.

Term 1:

Strand and Activity Group Number		Activity Group Title
Getting Started		Getting started with Number, Pattern and Calculating 4
Calculating	1	Using adding and subtracting facts and understanding inverse relationships
Numbers and the Number System	1	Understanding place value in 4-digit numbers
Pattern and Algebra	1	Exploring sequences and number patterns
Numbers and the Number System	2	Ordering and comparing numbers to 1000 and beyond
Calculating	2	Strategies for bridging when adding and subtracting
		NPC Milestone 1
Numbers and the Number System	3	Estimating and rounding
Geometry	1	Classifying triangles and quadrilaterals
Calculating	3	Developing fluency with mental adding strategies
Calculating	4	Developing fluency with mental subtracting strategies
Calculating	5	Developing fluency with multiplying facts to 12 × 12
Calculating	5	Developing fluency with dividing facts to 12 × 12
		NPC Milestone 2
Pattern and Algebra	2	Exploring inverse relationships
Calculating	7	Mental strategies for multiplying and dividing by 10 and 100
Geometry	2	Understanding reflective symmetry
Numbers and the Number System	4	Introducing negative numbers
Numbers and the Number System	5	Fractions and recognizing part-whole relationships
Calculating	8	Developing fluency with the column method of adding
Calculating	9	Developing fluency with the column method of subtracting
		NPC Milestone 3

Term 2:

Geometry	3	Investigating angles in shapes
		GMS Milestone 1
Numbers and the Number System	6	Introducing decimal fractions
Pattern and Algebra	3	Exploring 'equals' in balancing number sentences
Calculating	10	Exploring the distributive property and developing written methods of multiplying
		NPC Milestone 4
Calculating	11	Using multiplying facts to solve dividing problems
Pattern and Algebra	4	Exploring multiples and factors
Calculating	12	Developing fluency with the short written method of multiplying
Calculating	13	Developing fluency with the short written method of dividing
Calculating	14	Solving problems involving more than one step
		NPC Milestone 5
Measurement	1	Finding times and durations, and using 24-hour clock
		GMS Milestone 2

Term 3:

Pattern and Algebra	5	Looking for growing patterns in problem solving
Numbers and the Number System	7	Exploring equivalence in fractions and introducing proportion
Numbers and the Number System	8	Introducing decimal fractions with two places
Measurement	2	Calculating with money amounts
Measurement	3	Understanding and using units of length and distance
		GMS Milestone 3

Term 3 continued:

Measurement	4	Understanding and using units of mass
Measurement	5	Understanding and using units of capacity and volume
Pattern and Algebra	6	Solving problems and puzzles systematically
Measurement	6	Understanding perimeter and area

GMS Milestone 4

Pattern and Algebra	7	Exploring general rules, reasoning and logic

NPC Milestone 6

It is essential that children know by heart the multiplication facts for all of the multiplication tables from x2 to x12. They should be able to say the answer to questions in less than 6 seconds.

Numicon 5 teaching progression with milestones

The Numicon 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 5 (NPC 5) and Geometry, Measurement and Statistics 5 (GMS 5) 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.

Term 1:

Getting Started		Getting started with apparatus and imagery
Numbers and the Number System	1	Working with numbers up to a million
Numbers and the Number System	2	Exploring equivalence with fractions
Numbers and the Number System	3	Understanding decimals
Geometry	1	Measuring angles
Calculating	1	Developing fluency with adding and subtracting calculations and understanding inverse relationships
Calculating	2	Strategies for bridging when adding and subtracting mentally
		NPC Milestone 1
Numbers and the Number System	4	Estimating and rounding
Calculating	3	Further strategies for adding and subtracting
Pattern and Algebra	1	Exploring sequences and number patterns
Geometry	2	Transformations
Numbers and the Number System	5	Working with negative numbers
Calculating	4	Developing fluency with multiplying and dividing
		NPC Milestone 2
Numbers and the Number System	6	Comparing and ordering fractions
Pattern and Algebra	2	Using inverse relationships to solve problems
Calculating	5	Written methods of adding
Calculating	6	Written methods of subtracting
Calculating	7	Multiplying and dividing by 10, 100 and 1000
		NPC Milestone 3

Term 2:

Measurement	1	Metric and imperial units
		GMS Milestone 1
Pattern and Algebra	3	Properties of number
Calculating	8	Using mental methods for multiplying and dividing
Calculating	9	Division with remainders
Geometry	1	Exploring angles
Calculating	10	Proportion and ratio
Calculating	11	Percentages
		NPC Milestone 4
Measurement	2	Interpreting charts and graphs
Numbers and the Number System	7	Solving problems with fractions, decimals and percentages
Pattern and Algebra	4	Looking for patterns and generalizing
Measurement	3	Calculating area and perimeter
		GMS Milestone 2

Term 3:

Calculating	12	Written methods of multiplying
Measurement	4	Estimating volume and capacity
Calculating	13	Written methods of dividing
Calculating	14	Calculating fractions of amounts
		NPC Milestone 5
Measurement	5	Working with area and perimeter
		GMS Milestone 3

Term 3 continued:

Measurement	6	Scale drawing
Calculating	15	Calculating with fractions
Calculating	16	Solving problems involving several steps
Measurement	7	Solving problems involving time, money and measures
		GMS Milestone 4
Pattern and Algebra	5	Using equivalence to solve problems
Pattern and Algebra	6	Logic and reasoning
		NPC Milestone 6

It is essential that children know by heart the multiplication facts for all of the multiplication tables from x2 to x12. They should be able to say the answer to questions in less than 6 seconds.

Numicon 6 teaching progression with milestones

The Numicon 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 6 (NPC 6) and Geometry, Measurement and Statistics 6 (GMS 6) 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.

Term 1:

Strand and Activity Group Number		Activity Group Title
Preparing for Formal Testing	1	Self-assessment and choosing imagery
Preparing for Formal Testing	2	Problem solving strategies
Numbers and the Number System	1	Working with numbers beyond a million and decimals
Calculating	1	Adding and subtracting negative numbers in context, and large numbers
Calculating	2	Multiplying and dividing
		NPC Milestone 1
Measurement	1	Statistics, charts and graphs
Pattern and Algebra	1	Multiples, factors and primes
Numbers and the Number System	2	Fractions
Calculating	3	Estimating, rounding and equivalence
Calculating	4	Column methods for adding and subtracting
Calculating	5	Percentages
		NPC Milestone 2
Geometry	1	2D shapes and angles
		GMS Milestone 1
Calculating	6	Exploring calculations: multi-step non-routine problems and order of operations
Calculating	7	Ratio and proportion
Measurement	2	Areas of 2D shapes
Calculating	8	Converting fractions and decimals
Pattern and Algebra	9	Exploring number sequences and relationships
		NPC Milestone 3

Term 2:

Measurement	3	3D shapes – nets and surface area
		GMS Milestone 2
Calculating	9	Written column methods of multiplying
Calculating	10	Introducing long written methods of dividing
Measurement	4	Volume and scaling
Calculating	11	Adding and subtracting with fractions
Calculating	12	Multiplying and dividing fractions
Pattern and Algebra	3	Using algebra to solve problems
		NPC Milestone 4
Geometry	2	Circles
Calculating	13	Solving non-routine problems using all four operations
Geometry	3	Transformations in the four quadrants
		GMS Milestone 3
Pattern and Algebra	4	Using symbols and letters for variables and unknowns
		NPC Milestone 5

Term 3:

Preparing for Formal Testing	3	Fluency in calculating with whole numbers and decimals
Preparing for Formal Testing	4	Fluency in calculating with fractions and decimals
Preparing for Formal Testing	5	Preparing to do maths in test conditions

Term 3 continued:

NPC and GMS Investigating activity groups

The investigating activities are independent and can be followed in any order. You may choose to use some or all of the topics with your class, according to their interests and the time available.

NPC Investigating	1	Making squares
NPC Investigating	2	What did I do?
NPC Investigating	3	How many ways?
NPC Investigating	4	Decimal patterns
NPC Investigating	5	Which is the best value?
NPC Investigating	6	An enterprise project
GMS Investigating	1	Shape shifting
GMS Investigating	2	Macro maths
GMS Investigating	3	Interesting information

It is essential that children know by heart the multiplication facts for all of the multiplication tables from x2 to x12. They should be able to say the answer to questions in less than 6 seconds.