Numicon

NZ Curriculum and Numicon Milestones

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NZC Level 1a	**Number and Algebra** In contexts that require them to solve problems or model situations, students will be able to: Apply counting –all strategies, continue sequential patterns and number patterns based on ones.	**Numicon 1** *Numbers 0-10* Milestone 1 *Numbers 0-20* Milestone 2
	Geometry and Measurement In contexts that require them to solve problems or model situations students will be able to: Compare the lengths, areas, volumes or capacities, and weights of objects directly, sort objects and shapes by a single feature and describe the feature, using everyday language, represent reflections and translations by creating patterns, describe personal locations and give directions, using everyday language.	**Numicon 1** Geometry and Measurement Milestones 1 - 3
	Statistics In contexts that require them to solve problems or model situations students will be able to: Investigate questions by using the statistical enquiry cycle (with Support), gathering, displaying, and or counting category data	**Numicon 1** Throughout NPC and GMS
NZC Level 1b	**Number and Algebra** In contexts that require them to solve problems or model situations students will be able to: Apply counting –on, counting-back, skip counting and simple grouping strategies to combine or partition whole numbers Use equal sharing and symmetry to find fractions of sets, shapes and quantities Create and continue sequential patterns by identifying the unit of repeat Continue number patterns based on ones, twos, fives and tens	**Numicon 1** Milestones 3 - 8
	Geometry and Measurement In contexts that require them to solve problems or model situations students will be able to: Compare the lengths, areas, volumes or capacities, and weights of objects and the durations of events, using self-chosen units of measurement Sort objects and shapes by different features and describe the features, using mathematical language Represent reflections and translations by creating and describing patterns Describe personal locations and give directions, using steps and half- or quarter-turns.	**Numicon 1** Geometry and Measurement Milestones 1 - 3
	Statistics In contexts that require them to solve problems or model situations students will be able to: Investigate questions by using the statistical enquiry cycle (with support), gathering, displaying, and/or identifying similarities and differences in category data Describe the likelihoods of outcomes for a simple situation involving chance, using everyday language.	**Numicon 1** Throughout NPC and GMS
NZC Level 2a	**Number and Algebra** In contexts that require them to solve problems or model situations, students will be able to:	**Numicon 2** Milestones – 1 - 4

	Apply basic addition facts and knowledge of place value and symmetry to: - combine or partition whole numbers - find fractions of sets, shapes, and quantities Create and continue sequential patterns with one or two variables by identifying the unit of repeat Continue spatial patterns and number patterns based on simple addition or subtraction.	
	Geometry and Measurement In contexts that require them to solve problems or model situations students will be able to: Measure the lengths, areas, volumes or capacities, and weights of objects and the duration of events, using linear whole-number scales and applying basic addition facts to standard units Sort objects and two- and three-dimensional shapes by their features, identifying categories within categories Represent reflections, translations, and rotations by creating and describing patterns Describe personal locations and give directions, using whole-number measures and half- or quarter-turns.	**Numicon 2** Geometry and Measurement Milestones - All
	Statistics In contexts that require them to solve problems or model situations students will be able to: Investigate questions by using the statistical enquiry cycle (with support): - gather and display category and simple whole-number data - interpret displays in context Compare and explain the likelihoods of outcomes for a simple situation involving chance.	**Numicon 2** Throughout NPC and GMS
NZC Level 2b	**Number and Algebra** In contexts that require them to solve problems or model situations students will be able to: Apply basic addition and subtraction facts, simple multiplication facts, and knowledge of place value and symmetry to: - combine or partition whole numbers - find fractions of sets, shapes, and quantities Create, continue, and give the rule for sequential patterns with two variables Create and continue spatial patterns and number patterns based on repeated addition or subtraction.	**Numicon 2** Milestone 5 **Numicon 3** Milestones 1 - 4
	Geometry and Measurement In contexts that require them to solve problems or model situations students will be able to: Measure the lengths, areas, volumes or capacities, weights, and temperatures of objects and the duration of events, reading scales to the nearest whole number and applying addition, subtraction, and simple multiplication to standard units Sort objects and two- and three-dimensional shapes by two features simultaneously Represent and describe the symmetries of a shape Create nets for cubes Describe personal locations and give directions, using simple maps.	**Numicon 3** Geometry and Measurement Milestones 1 - 3
	Statistics In contexts that require them to solve problems or model situations students will be able to: investigate questions by using the statistical enquiry cycle independently: - gather and display category and simple whole-number data - interpret displays in context Compare and explain the likelihoods of outcomes for a simple situation involving chance, acknowledging uncertainty.	**Numicon 3** Throughout NPC and GMS

NZC Level 3a	**Number and Algebra** In contexts that require them to solve problems or model situations students will be able to: apply additive and simple multiplicative strategies and knowledge of symmetry to: - combine or partition whole numbers - find fractions of sets, shapes, and quantities Create, continue, and predict further members of sequential patterns with two variables Describe spatial and number patterns, using rules that involve spatial features, repeated addition or subtraction, and simple multiplication.	**Numicon 3** Milestones 5 & 6 **Numicon 4** Milestones 1 - 4
	Geometry and Measurement In contexts that require them to solve problems or model situations students will be able to: Measure time and the attributes of objects, choosing appropriate standard units and working with them to the nearest tenth Sort two- and three-dimensional shapes, considering the presence and/or absence of features simultaneously and justifying the decisions made represent and describe the results of reflection, rotation, and translation on shapes Create nets for rectangular prisms Draw plan, front, and side views of objects Describe locations and give directions, using grid references and points of the compass.	**Numicon 4** Geometry and Measurement Milestones - All
	Statistics In contexts that require them to solve problems or model situations students will be able to: Investigate summary and comparison questions by using the statistical enquiry cycle: - gather, display, and identify patterns in category and whole-number data - interpret results in context Order the likelihoods of outcomes for simple situations involving chance, experimenting or listing all possible outcomes.	**Numicon 4** Throughout NPC and GMS
NZC Level 3b	**Number and Algebra** In contexts that require them to solve problems or model situations students will be able to: Apply additive and simple multiplicative strategies flexibly to: - combine or partition whole numbers, including performing mixed operations and using addition and subtraction as inverse operations - find fractions of sets, shapes, and quantities Determine members of sequential patterns, given their ordinal positions Describe spatial and number patterns, using: - tables and graphs - rules that involve spatial features, repeated addition or subtraction, and simple multiplication.	**Numicon 4** Milestones 5 - 6 **Numicon 5** Milestones 1-6
	Geometry and Measurement In contexts that require them to solve problems or model situations students will be able to: Measure time and the attributes of objects, choosing appropriate standard units Use arrays to find the areas of rectangles and the volumes of cuboids, given whole-number dimensions Sort two- and three-dimensional shapes (including prisms), considering given properties simultaneously and justifying the decisions made represent and describe the results of reflection, rotation, and translation on shapes or patterns Identify nets for rectangular prisms	**Numicon 5** Geometry and Measurement Milestones - All

	Draw or make objects, given their plan, front, and side views Describe locations and give directions, using grid references, turns, and points of the compass.	
	Statistics In contexts that require them to solve problems or model situations students will be able to: Investigate summary and comparison questions by using the statistical enquiry cycle: - gather or access multivariate category and whole-number data - sort data into categories or intervals, display it in different ways, and identify patterns - interpret results in context, accepting that samples vary Order the likelihoods of outcomes for situations involving chance, considering experimental results and models of all possible outcomes.	**Numicon 4** Throughout NPC and GMS
NZC Level 4a	**Number and Algebra** In contexts that require them to solve problems or model situations students will be able to: Apply additive and multiplicative strategies flexibly to whole numbers, ratios, and equivalent fractions (including percentages) Apply additive strategies to decimals Balance positive and negative amounts Find and represent relationships in spatial and number patterns, using: - tables and graphs - general rules for linear relationships.	**Numicon 5** Milestones 1 - 6
	Geometry and Measurement In contexts that require them to solve problems or model situations students will be able to: Measure time and the attributes of objects, using metric and other standard measures Make simple conversions between units, using whole numbers use side or edge lengths to find the perimeters and areas of rectangles and parallelograms and the volumes of cuboids, given whole-number dimensions sort two- and three-dimensional shapes into classes, defining properties and justifying the decisions made Identify and describe the transformations that have produced given shapes or patterns Create or identify nets for rectangular prisms and other simple solids draw plan, front, side, and perspective views of objects Describe locations and give directions, using grid references, simple scales, turns, and points of the compass.	**Numicon 5** Geometry and Measurement Milestones 1 - 3
	Statistics In contexts that require them to solve problems or model situations students will be able to: investigate summary, comparison, and relationship questions by using the statistical enquiry cycle: - gather or access multivariate category and measurement data - sort data and display it in multiple ways, identifying patterns and variations - interpret results in context, accepting that samples vary and have no effect on one another Order the likelihoods of outcomes for situations involving chance, checking for consistency between experimental results and models of all possible outcomes.	**Numicon 5** Throughout NPC and GMS
NZC Level 4 and some of Level 5 with Numicon 6	**Number and Algebra** In contexts that require them to solve problems or model situations students will be able to: Apply multiplicative strategies flexibly to whole numbers, ratios, and equivalent fractions (including decimals and percentages)	**Numicon 6** Milestones 1 - 5

	Use multiplication and division as inverse operations on whole numbers Apply additive strategies flexibly to decimals and integers Find and represent relationships in spatial and number patterns, using: - tables and graphs - equations for linear relationships - recursive rules for non-linear relationships Apply inverse operations to simple linear relationships.	
	Geometry and Measurement In contexts that require them to solve problems or model situations students will be able to: Use metric and other standard measures Make simple conversions between units, using decimals Use side or edge lengths to find the perimeters and areas of rectangles, parallelograms, and triangles and the volumes of cuboids Sort two and three-dimensional shapes into classes, considering the relationships between the classes and justifying the decisions made Identify and describe the features of shapes or patterns that change or do not change under transformation Create or identify nets for rectangular prisms and other simple solids, given particular requirements Draw or make objects, given their plan, front, and side views or their perspective views Describe locations and give directions, using scales, bearings, and co-ordinates.	**Numicon 6** Geometry and Measurement Milestones 1 - 3
	Statistics In contexts that require them to solve problems or model situations students will be able to: Investigate summary, comparison, and relationship questions by using the statistical enquiry cycle: - gather or access multivariate category, measurement, and time-series data - sort data and display it in multiple ways, identifying patterns, variations, relationships, and trends and using ideas about middle and spread where appropriate - interpret results in context, identifying factors that produce uncertainty Express as fractions the likelihoods of outcomes for situations involving chance, checking for consistency between experimental results and models of all possible outcomes.	**Numicon 6** Throughout NPC and GMS

Assessment guidelines:

You can assess with Numicon by:

- Referring to the formative **assessment opportunities** provided in each Activity Group
- Tracking a child's progress over time using regular **Milestones** available on *Numicon Online*, via Oxford Owl
- Using the **Explorer Progress Books** to capture each pupil's ability to apply their knowledge and understanding
- Using **Test Practice Books** to prepare for Year 2 and Year 6 tests, identifying any areas for further practice

Observing a process that a student uses

Numicon:
- Daily and weekly activities
- Explorer Progress Activities

Gathering results from formal and informal assessments, including standardised tools

Numicon:
- Daily and weekly activities
- Explorer Progress Activities
- TOBANS
- PAT
- Class set assessments
- National Standards

Conversing with the students to find out what they know, understand and can do

Numicon:
- Daily and weekly activities
- Explorer Progress Activities