# THE NEW ZEALAND CURRICULUM MATHEMATICS STANDARDS FOR YEARS 1–8

## Level One — Mathematics and Statistics
*During these school years, Number should be the focus of 60–80 percent of mathematics teaching time.*

## Level Two — Mathematics and Statistics
*During these school years, Number should be the focus of 60–80 percent of mathematics teaching time.*

## Level Three — Mathematics and Statistics
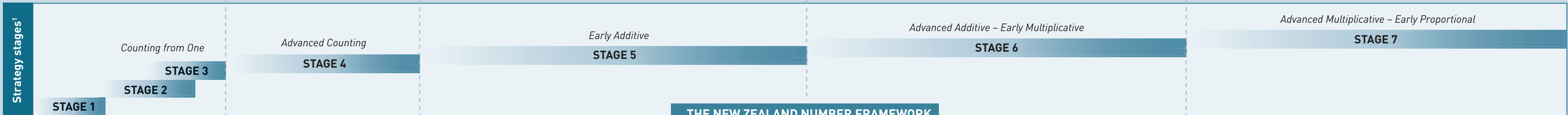*During these school years, Number should be the focus of 50–70 percent of mathematics teaching time.*

## Level Four — Mathematics and Statistics
*During these school years, Number should be the focus of 40–60 percent of mathematics teaching time.*

| | AFTER ONE YEAR AT SCHOOL | AFTER TWO YEARS AT SCHOOL | AFTER THREE YEARS AT SCHOOL | BY THE END OF YEAR 4 | BY THE END OF YEAR 5 | BY THE END OF YEAR 6 | BY THE END OF YEAR 7 | BY THE END OF YEAR 8 |
|---|---|---|---|---|---|---|---|---|
| | *After one year at school, students will be achieving at early level 1 of the New Zealand Curriculum.* | *After two years at school, students will be achieving at level 1 of the New Zealand Curriculum.* | *After three years at school, students will be achieving at early level 2 of the New Zealand Curriculum.* | *By the end of year 4, students will be achieving at level 2 of the New Zealand Curriculum.* | *By the end of year 5, students will be achieving at early level 3 of the New Zealand Curriculum.* | *By the end of year 6, students will be achieving at level 3 of the New Zealand Curriculum.* | *By the end of year 7, students will be achieving at early level 4 of the New Zealand Curriculum.* | *By the end of year 8, students will be achieving at level 4 of the New Zealand Curriculum.* |
| | *In contexts that require them to solve problems or model situations, students will be able to:* | *In contexts that require them to solve problems or model situations, students will be able to:* | *In contexts that require them to solve problems or model situations, students will be able to:* | *In contexts that require them to solve problems or model situations, students will be able to:* | *In contexts that require them to solve problems or model situations, students will be able to:* | *In contexts that require them to solve problems or model situations, students will be able to:* | *In contexts that require them to solve problems or model situations, students will be able to:* | *In contexts that require them to solve problems or model situations, students will be able to:* |
| **Number and Algebra** | • apply counting-all strategies; | • apply counting-on, counting-back, skip-counting, and simple grouping strategies to combine or partition whole numbers;<br>• use equal sharing and symmetry to find fractions of sets, shapes, and quantities; | • apply basic addition facts and knowledge of place value and symmetry to:<br>– combine or partition whole numbers<br>– find fractions of sets, shapes, and quantities; | • apply basic addition and subtraction facts, simple multiplication facts, and knowledge of place value and symmetry to:<br>– combine or partition whole numbers<br>– find fractions of sets, shapes, and quantities; | • apply additive and simple multiplicative strategies and knowledge of symmetry to:<br>– combine or partition whole numbers<br>– find fractions of sets, shapes, and quantities; | • additive and simple multiplicative strategies flexibly to:<br>– combine or partition whole numbers, including performing mixed operations and using addition and subtraction as inverse operations<br>– find fractions of sets, shapes, and quantities; | • apply additive and multiplicative strategies flexibly to whole numbers, ratios, and equivalent fractions (including percentages);<br>• apply additive strategies to decimals;<br>• balance positive and negative amounts; | • apply multiplicative strategies flexibly to whole numbers, ratios, and equivalent fractions (including decimals and percentages);<br>• use multiplication and division as inverse operations on whole numbers;<br>• apply additive strategies flexibly to decimals and integers; |
| | • continue sequential patterns and number patterns based on ones. | • create and continue sequential patterns by identifying the unit of repeat;<br>• continue number patterns based on ones, twos, fives, and tens. | • create and continue sequential patterns with one or two variables by identifying the unit of repeat;<br>• continue spatial patterns and number patterns based on simple addition or subtraction. | • create, continue, and give the rule for sequential patterns with two variables;<br>• create and continue spatial patterns and number patterns based on repeated addition or subtraction. | • create, continue, and predict further members of sequential patterns with two variables;<br>• describe spatial and number patterns, using rules that involve spatial features, repeated addition or subtraction, and simple multiplication. | • determine members of sequential patterns, given their ordinal positions;<br>• describe spatial and number patterns, using:<br>– tables and graphs<br>– rules that involve spatial features, repeated addition or subtraction, and simple multiplication. | • find and represent relationships in spatial and number patterns, using:<br>– tables and graphs<br>– general rules for linear relationships. | • find and represent relationships in spatial and number patterns, using:<br>– tables and graphs<br>– equations for linear relationships<br>– recursive rules for non-linear relationships;<br>• apply inverse operations to simple linear relationships. |
| **Geometry and Measurement** | • compare the lengths, areas, volumes or capacities, and weights of objects directly; | • compare the lengths, areas, volumes or capacities, and weights of objects and the durations of events, using self-chosen units of measurement; | • 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; | • 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; | • measure time and the attributes of objects, choosing appropriate standard units and working with them to the nearest tenth; | • measure time and the attributes of objects, choosing appropriate standard units;<br>• use arrays to find the areas of rectangles and the volumes of cuboids, given whole-number dimensions; | • measure time and the attributes of objects, using metric and other standard measures;<br>• make simple conversions between units, using whole numbers;<br>• use side or edge lengths to find the perimeters and areas of rectangles and parallelograms and the volumes of cuboids, given whole-number dimensions; | • use metric and other standard measures;<br>• make simple conversions between units, using decimals;<br>• use side or edge lengths to find the perimeters and areas of rectangles, parallelograms, and triangles and the volumes of cuboids; |
| | • sort objects and shapes by a single feature and describe the feature, using everyday language; | • sort objects and shapes by different features and describe the features, using mathematical language; | • sort objects and two- and three-dimensional shapes by their features, identifying categories within categories; | • sort objects and two- and three-dimensional shapes by two features simultaneously; | • sort two- and three-dimensional shapes, considering the presence and/or absence of features simultaneously and justifying the decisions made; | • sort two- and three-dimensional shapes (including prisms), considering given properties simultaneously and justifying the decisions made; | • sort two- and three-dimensional shapes into classes, defining properties and justifying the decisions made; | • sort two- and three-dimensional shapes into classes, considering the relationships between the classes and justifying the decisions made; |
| | • represent reflections and translations by creating patterns; | • represent reflections and translations by creating and describing patterns; | • represent reflections, translations, and rotations by creating and describing patterns; | • represent and describe the symmetries of a shape;<br>• create nets for cubes; | • represent and describe the results of reflection, rotation, and translation on shapes or patterns;<br>• create nets for rectangular prisms;<br>• draw plan, front, and side views of objects; | • represent and describe the results of reflection, rotation, and translation on shapes or patterns;<br>• identify nets for rectangular prisms;<br>• draw or make objects, given their plan, front, and side views; | • identify and describe the transformations that have produced given shapes or patterns;<br>• create or identify nets for rectangular prisms and other simple solids;<br>• draw plan, front, side, and perspective views of objects; | • identify and describe the features of shapes or patterns that change or do not change under transformation;<br>• create or identify nets for rectangular prisms and other simple solids, given particular requirements;<br>• draw or make objects, given their plan, front, and side views or their perspective views; |
| | • describe personal locations and give directions, using everyday language. | • describe personal locations and give directions, using steps and half- or quarter-turns. | • describe personal locations and give directions, using whole-number measures and half- or quarter-turns. | • describe personal locations and give directions, using simple maps. | • describe locations and give directions, using grid references and points of the compass. | • describe locations and give directions, using grid references, turns, and points of the compass. | • describe locations and give directions, using grid references, simple scales, turns, and points of the compass. | • describe locations and give directions, using scales, bearings, and co-ordinates. |
| **Statistics** | • investigate questions by using the statistical enquiry cycle (with support), gathering, displaying, and/or counting category data. | • investigate questions by using the statistical enquiry cycle (with support), gathering, displaying, and/or identifying similarities and differences in category data; | • investigate questions by using the statistical enquiry cycle (with support):<br>– gather and display category and simple whole-number data<br>– interpret displays in context; | • investigate questions by using the statistical enquiry cycle independently:<br>– gather and display category and simple whole-number data<br>– interpret displays in context; | • investigate summary and comparison questions by using the statistical enquiry cycle:<br>– gather, display, and identify patterns in category and whole-number data<br>– interpret results in context; | • investigate summary and comparison questions by using the statistical enquiry cycle:<br>– gather or access multivariate category and whole-number data<br>– sort data into categories or intervals, display it in different ways, and identify patterns<br>– interpret results in context, accepting that samples vary; | • investigate summary, comparison, and relationship questions by using the statistical enquiry cycle:<br>– gather or access multivariate category and measurement data<br>– sort data and display it in multiple ways, identifying patterns and variations<br>– interpret results in context, accepting that samples vary and have no effect on one another; | • investigate summary, comparison, and relationship questions by using the statistical enquiry cycle:<br>– gather or access multivariate category, measurement, and time-series data<br>– sort data and display it in multiple ways, identifying patterns, variations, relationships, and trends and using ideas about middle and spread where appropriate<br>– interpret results in context, identifying factors that produce uncertainty; |
| | | • describe the likelihoods of outcomes for a simple situation involving chance, using everyday language. | • compare and explain the likelihoods of outcomes for a simple situation involving chance. | • compare and explain the likelihoods of outcomes for a simple situation involving chance, acknowledging uncertainty. | • order the likelihoods of outcomes for simple situations involving chance, experimenting or listing all possible outcomes. | • order the likelihoods of outcomes for situations involving chance, considering experimental results and models of all possible outcomes. | • order the likelihoods of outcomes for situations involving chance, checking for consistency between experimental results and models of all possible outcomes. | • express as fractions the likelihoods of outcomes for situations involving chance, checking for consistency between experimental results and models of all possible outcomes. |

## THE NEW ZEALAND NUMBER FRAMEWORK

**Strategy stages[1]**

- STAGE 1
- STAGE 2
- STAGE 3 — *Counting from One*
- STAGE 4 — *Advanced Counting*
- STAGE 5 — *Early Additive*
- STAGE 6 — *Advanced Additive – Early Multiplicative*
- STAGE 7 — *Advanced Multiplicative – Early Proportional*

[1] The Numeracy Development Project strategy stages