

Nelson Maths Year 5

Victorian Essential Learning Standards LEVEL 4

Domain: Mathematics

The following document lists the Mathematical Standards mapped against each of the units in *Nelson Maths for Victoria*. The relevant and relating part of the Standard/s that will be covered specifically in a unit has been highlighted in bold, and consolidating (previous level) as well as extending (next level) have also been highlighted in bold.

Please note: some of the *Nelson Maths* units cover parts of more than one Standard.

- units are linked to the progression points for each Dimension, for a full listing see:
http://www.softweb.vic.edu.au/blueprint/fs1/guidelines/progression_points/about_PPasp

At the end of this document, the National Numeracy Benchmarks have been included for your information. **Please note:** as the Benchmarks indicate the **minimum** standards required, this is often met at a lower level in the Victorian curriculum. For example, at Level 2 (*Nelson Maths* Year 1 and Year 2) the Year 3 National Benchmark is listed (this is also stated on the VCAA website: <http://cms.curriculum.edu.au/numbench/bench.HTM>). As there is a *Nelson Maths* Teachers' Resource and Student Book for each year level, rather than curriculum level, the relevant National Benchmark has been included at the end of this document.

Please note: 'Working mathematically' appears as part of each of the following Units 1–40, and therefore is not individually listed.

Year	VELS Level	Relevant National Numeracy Benchmark
Prep	1	–
1	2	Year 3
2	2	Year 3
3	3	Year 5
4	3	Year 5
5	4	Year 7
6	4	Year 7

Working mathematically

At Level 4, use students recognise and investigate the use of mathematics in real (for example, determination of test results as a percentage) and historical situations (for example, the emergence of negative numbers).

Students develop and test conjectures. They understand that a few successful examples are not sufficient proof and recognise that a single counter-example is sufficient to invalidate a conjecture. For example, in:

- number (all numbers can be shown as a rectangular array)
- computations (multiplication leads to a larger number)
- number patterns (the next number in the sequence 2,4,6 ... must be 8)
- shape properties (all parallelograms are rectangles)
- chance (a six is harder to roll on die than a one).

Students use the mathematical structure of problems to choose strategies for solutions. They explain their reasoning and procedures and interpret solutions. They create new problems based on familiar problem structures.

Students engage in investigations involving mathematical modelling. They use calculators and computers to investigate and implement algorithms (for example, for finding the lowest common multiple of two numbers), explore number facts and puzzles, generate simulations (for example, the gender of children in a family of four children), and transform shapes and solids.

Nelson Maths for Vic. Year 5	Dimension	Standard
Unit 1: Place value	Number	<p>Consolidating Level 3:</p> <p>At Level 3, students use place value (as the idea that 'ten of these is one of those') to determine the size and order of whole numbers to tens of thousands, and decimals to hundredths. They round numbers up and down to the nearest unit, ten, hundred, or thousand. They develop fraction notation and compare simple common fractions such as $\frac{3}{4} > \frac{2}{3}$ using physical models. They skip count forwards and backwards, from various starting points using multiples of 2, 3, 4, 5, 10 and 100.</p> <p>They estimate the results of computations and recognise whether these are likely to be overestimates or underestimates. They compute with numbers up to 30 using all four operations. They provide automatic recall of multiplication facts up to 10×10.</p> <p>They devise and use written methods for:</p> <ul style="list-style-type: none"> whole number problems of addition and subtraction involving numbers up to 999 multiplication by single digits (using recall of multiplication tables) and multiples and powers of ten (for example, 5×100, 5×70) division by a single-digit divisor (based on inverse relations in multiplication tables) <p>They devise and use algorithms for the addition and subtraction of numbers to two decimal places, including situations involving money. They add and subtract simple common fractions with the assistance of physical models.</p> <p>Links to Progression Points: 3.0, 3.25</p>
	Number	<p>Level 4:</p> <p>At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12, 2×6, and 3×4).</p> <p>Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$).</p> <p>Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $\frac{3}{4} = \frac{9}{12} = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not.</p> <p>Links to Progression Points: 4.0</p>

Nelson Maths for Vic. Year 5	Dimension	Standard
Unit 2: Fantastic number facts	Number	<p>Consolidating Level 3:</p> <p>At Level 3, students use place value (as the idea that 'ten of these is one of those') to determine the size and order of whole numbers to tens of thousands, and decimals to hundredths. They round numbers up and down to the nearest unit, ten, hundred, or thousand. They develop fraction notation and compare simple common fractions such as $\frac{3}{4} > \frac{2}{3}$ using physical models. They skip count forwards and backwards, from various starting points using multiples of 2, 3, 4, 5, 10 and 100.</p> <p>They estimate the results of computations and recognise whether these are likely to be overestimates or underestimates. They compute with numbers up to 30 using all four operations. They provide automatic recall of multiplication facts up to 10×10.</p> <p>They devise and use written methods for:</p> <ul style="list-style-type: none"> • whole number problems of addition and subtraction involving numbers up to 999 • multiplication by single digits (using recall of multiplication tables) and multiples and powers of ten (for example, 5×100, 5×70) • division by a single-digit divisor (based on inverse relations in multiplication tables) <p>They devise and use algorithms for the addition and subtraction of numbers to two decimal places, including situations involving money. They add and subtract simple common fractions with the assistance of physical models.</p> <p>Links to Progression Points: 3.0, 3.25</p>
	Structure	<p>Links to Progression Points: 3.25, 3.5, 3.75</p>
	Number	<p>Level 4:</p> <p>At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12, 2×6, and 3×4).</p> <p>Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$).</p> <p>Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $\frac{3}{4} = \frac{9}{12} = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not.</p> <p>Links to Progression Points: 4.0</p>
Unit 3: Number patterns	Number	<p>Consolidating Level 3:</p> <p>Links to Progression Points: 3.25</p>
	Structure	<p>At Level 3, students recognise that the sharing of a collection into equal-sized parts (division) frequently leaves a remainder. They investigate sequences of decimal numbers generated using multiplication or division by 10. They understand the meaning of the '=' in mathematical statements and technology displays (for example, to indicate either the result of a computation or equivalence). They use number properties in combination to facilitate computations (for example, $7 + 10 + 13 = 10 + 7 + 13 = 10 + 20$). They multiply using the distributive property of multiplication over addition (for example, $13 \times 5 = (10 + 3) \times 5 = 10 \times 5 + 3 \times 5$). They list all possible outcomes of a simple chance event. They use lists, Venn diagrams and grids to show the possible combinations of two attributes. They recognise samples as subsets of the population under consideration (for example, pets owned by class members as a subset of pets owned by all children). They construct number sentences with missing numbers and solve them.</p> <p>Links to Progression Points: 3.0, 3.5, 3.75</p>
	Number	<p>Level 4:</p> <p>At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12, 2×6, and 3×4).</p> <p>Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$).</p> <p>Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $\frac{3}{4} = \frac{9}{12} = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not.</p> <p>Links to Progression Points: 4.0</p>

Nelson Maths for Vic. Year 5	Dimension	Standard
<p>Unit 8: Subtraction</p>	Number	<p>Consolidating Level 3: At Level 3, students use place value (as the idea that 'ten of these is one of those') to determine the size and order of whole numbers to tens of thousands, and decimals to hundredths. They round numbers up and down to the nearest unit, ten, hundred, or thousand. They develop fraction notation and compare simple common fractions such as $\frac{3}{4} > \frac{2}{3}$ using physical models. They skip count forwards and backwards, from various starting points using multiples of 2, 3, 4, 5, 10 and 100. They estimate the results of computations and recognise whether these are likely to be overestimates or underestimates. They compute with numbers up to 30 using all four operations. They provide automatic recall of multiplication facts up to 10×10. They devise and use written methods for:</p> <ul style="list-style-type: none"> • whole number problems of addition and subtraction involving numbers up to 999 • multiplication by single digits (using recall of multiplication tables) and multiples and powers of ten (for example, 5×100, 5×70) • division by a single-digit divisor (based on inverse relations in multiplication tables) <p>They devise and use algorithms for the addition and subtraction of numbers to two decimal places, including situations involving money. They add and subtract simple common fractions with the assistance of physical models. Links to Progression Points: 3.0, 3.25</p>
	Structure	<p>At Level 3, students recognise that the sharing of a collection into equal-sized parts (division) frequently leaves a remainder. They investigate sequences of decimal numbers generated using multiplication or division by 10. They understand the meaning of the '=' in mathematical statements and technology displays (for example, to indicate either the result of a computation or equivalence). They use number properties in combination to facilitate computations (for example, $7 + 10 + 13 = 10 + 7 + 13 = 10 + 20$). They multiply using the distributive property of multiplication over addition (for example, $13 \times 5 = (10 + 3) \times 5 = 10 \times 5 + 3 \times 5$). They list all possible outcomes of a simple chance event. They use lists, Venn diagrams and grids to show the possible combinations of two attributes. They recognise samples as subsets of the population under consideration (for example, pets owned by class members as a subset of pets owned by all children). They construct number sentences with missing numbers and solve them. Links to Progression Points: 3.0</p>
	Number	<p>Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12, 2×6, and 3×4). Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$). Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $\frac{3}{4} = \frac{9}{12} = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not. Links to Progression Points: 4.0</p>
Structure	<p>At Level 4, students form and specify sets of numbers, shapes and objects according to given criteria and conditions (for example, 6, 12, 18, 24 are the even numbers less than 30 that are also multiples of three). They use Venn diagrams and Karnaugh maps to test the validity of statements using the words none, some or all (for example, test the statement 'all the multiples of 3, less than 30, are even numbers'). Students construct and use rules for sequences based on the previous term, recursion (for example, the next term is three times the last term plus two), and by formula (for example, a term is three times its position in the sequence plus two). Students establish equivalence relationships between mathematical expressions using properties such as the distributive property for multiplication over addition (for example, $3 \times 26 = 3 \times (20 + 6)$). Students identify relationships between variables and describe them with language and words (for example, how hunger depends varies with time of the day). Students recognise that addition and subtraction, and multiplication and division are inverse operations. They use words and symbols to form simple equations. They solve equations by trial and error. Links to Progression Points: 4.0</p>	
<p>Unit 9: Using data to answer questions</p>	Measurement, chance and data	<p>Consolidating Level 3: At Level 3, students estimate and measure length, area, volume, capacity, mass and time using appropriate instruments. They recognise and use different units of measurement including informal (for example, paces), formal (for example, centimetres) and standard metric measures (for example, metre) in appropriate contexts. They read linear scales (for example, tape measures) and circular scales (for example, bathroom scales) in measurement contexts. They read digital time displays and analogue clock times at five-minute intervals. They interpret timetables and calendars in relation to familiar events. They compare the likelihood of everyday events (for example, the chances of rain and snow). They describe the fairness of events in qualitative terms. They plan and conduct chance experiments (for example, using colours on a spinner) and display the results of these experiments. They recognise different types of data: non-numerical (categories), separate numbers (discrete), or points on an unbroken number line (continuous). They use a column or bar graph to display the results of an experiment (for example, the frequencies of possible categories). Links to Progression Points: 3.0, 3.25, 3.5, 3.75</p>
	Measurement, chance and data	<p>Level 4: At Level 4, students use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature. They measure angles in degrees. They measure as accurately as needed for the purpose of the activity. They convert between metric units of length, capacity and time (for example, $L \rightarrow mL$, $sec \rightarrow min$). Students describe and calculate probabilities using words, and fractions and decimals between 0 and 1. They calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes. They simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run. Students recognise and give consideration to different data types in forming questionnaires and sampling. They distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement). They present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range). Links to Progression Points: 4.0, 4.25</p>

Nelson Maths for Vic. Year 5	Dimension	Standard
Unit 10: Running on time	Measurement, chance and data	Consolidating Level 3: At Level 3, students estimate and measure length, area, volume, capacity, mass and time using appropriate instruments. They recognise and use different units of measurement including informal (for example, paces), formal (for example, centimetres) and standard metric measures (for example, metre) in appropriate contexts. They read linear scales (for example, tape measures) and circular scales (for example, bathroom scales) in measurement contexts. They read digital time displays and analogue clock times at five-minute intervals. They interpret timetables and calendars in relation to familiar events. They compare the likelihood of everyday events (for example, the chances of rain and snow). They describe the fairness of events in qualitative terms. They plan and conduct chance experiments (for example, using colours on a spinner) and display the results of these experiments. They recognise different types of data: non-numerical (categories), separate numbers (discrete), or points on an unbroken number line (continuous). They use a column or bar graph to display the results of an experiment (for example, the frequencies of possible categories). Links to Progression Points: 3.0, 3.25, 3.5
	Measurement, chance and data	Level 4: At Level 4, students use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature. They measure angles in degrees. They measure as accurately as needed for the purpose of the activity. They convert between metric units of length, capacity and time (for example, L→mL, sec→min). Students describe and calculate probabilities using words, and fractions and decimals between 0 and 1. They calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes. They simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run. Students recognise and give consideration to different data types in forming questionnaires and sampling. They distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement). They present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range). Links to Progression Points: 4.0, 4.5
Unit 11: Time	Measurement, chance and data	Consolidating Level 3: At Level 3, students estimate and measure length, area, volume, capacity, mass and time using appropriate instruments. They recognise and use different units of measurement including informal (for example, paces), formal (for example, centimetres) and standard metric measures (for example, metre) in appropriate contexts. They read linear scales (for example, tape measures) and circular scales (for example, bathroom scales) in measurement contexts. They read digital time displays and analogue clock times at five-minute intervals. They interpret timetables and calendars in relation to familiar events. They compare the likelihood of everyday events (for example, the chances of rain and snow). They describe the fairness of events in qualitative terms. They plan and conduct chance experiments (for example, using colours on a spinner) and display the results of these experiments. They recognise different types of data: non-numerical (categories), separate numbers (discrete), or points on an unbroken number line (continuous). They use a column or bar graph to display the results of an experiment (for example, the frequencies of possible categories). Links to Progression Points: 3.0, 3.25, 3.5
	Measurement, chance and data	Level 4: At Level 4, students use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature. They measure angles in degrees. They measure as accurately as needed for the purpose of the activity. They convert between metric units of length, capacity and time (for example, L→mL, sec→min). Students describe and calculate probabilities using words, and fractions and decimals between 0 and 1. They calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes. They simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run. Students recognise and give consideration to different data types in forming questionnaires and sampling. They distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement). They present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range). Links to Progression Points: 4.0, 4.5
Unit 12: Numbers, numbers, numbers!	Number	Consolidating Level 3: Links to Progression Points: 3.5, 3.75
	Number	Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1 × 12, 2 × 6, and 3 × 4). Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$). Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $3/4 = 9/12 = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not. Links to Progression Points: 4.0
	Structure	At Level 4, students form and specify sets of numbers, shapes and objects according to given criteria and conditions (for example, 6, 12, 18, 24 are the even numbers less than 30 that are also multiples of three). They use Venn diagrams and Karnaugh maps to test the validity of statements using the words none, some or all (for example, test the statement ‘all the multiples of 3, less than 30, are even numbers’). Students construct and use rules for sequences based on the previous term, recursion (for example, the next term is three times the last term plus two), and by formula (for example, a term is three times its position in the sequence plus two). Students establish equivalence relationships between mathematical expressions using properties such as the distributive property for multiplication over addition (for example, $3 \times 26 = 3 \times (20 + 6)$). Students identify relationships between variables and describe them with language and words (for example, how hunger depends varies with time of the day). Students recognise that addition and subtraction, and multiplication and division are inverse operations. They use words and symbols to form simple equations. They solve equations by trial and error. Links to Progression Points: 4.0

Nelson Maths for Victoria Correlation to VELS Mathematical Standards

Nelson Maths for Vic. Year 5	Dimension	Standard
Unit 13: Area and perimeter	Measurement, chance and data	Consolidating Level 3: Links to Progression Points: 3.25, 3.5, 3.75
	Measurement, chance and data Structure	Level 4: At Level 4, students use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature. They measure angles in degrees. They measure as accurately as needed for the purpose of the activity. They convert between metric units of length, capacity and time (for example, L→mL, sec→min). Students describe and calculate probabilities using words, and fractions and decimals between 0 and 1. They calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes. They simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run. Students recognise and give consideration to different data types in forming questionnaires and sampling. They distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement). They present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range). Links to Progression Points: 4.0, 4.25
Unit 14: Decimals	Number	Consolidating Level 3: Links to Progression Points: 3.25, 3.5, 3.75
	Measurement, chance and data Number Measurement, chance and data	Links to Progression Points: 3.5, 3.75 Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12 , 2×6 , and 3×4). Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$). Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $3/4 = 9/12 = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not. Links to Progression Points: 4.0 Level 4: At Level 4, students use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature. They measure angles in degrees. They measure as accurately as needed for the purpose of the activity. They convert between metric units of length, capacity and time (for example, L→mL, sec→min). Students describe and calculate probabilities using words, and fractions and decimals between 0 and 1. They calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes. They simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run. Students recognise and give consideration to different data types in forming questionnaires and sampling. They distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement). They present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range). Links to Progression Points: 4.0
Unit 15: Fractions	Number	Consolidating Level 3: Links to Progression Points: 3.25, 3.5
	Number	Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12 , 2×6 , and 3×4). Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$). Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $3/4 = 9/12 = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not. Links to Progression Points: 4.0

Nelson Maths for Vic. Year 5	Dimension	Standard
<p>Unit 16: Counting and number order</p>	Number	<p>Consolidating Level 3: At Level 3, students use place value (as the idea that 'ten of these is one of those') to determine the size and order of whole numbers to tens of thousands, and decimals to hundredths. They round numbers up and down to the nearest unit, ten, hundred, or thousand. They develop fraction notation and compare simple common fractions such as $\frac{3}{4} > \frac{2}{3}$ using physical models. They skip count forwards and backwards, from various starting points using multiples of 2, 3, 4, 5, 10 and 100. They estimate the results of computations and recognise whether these are likely to be overestimates or underestimates. They compute with numbers up to 30 using all four operations. They provide automatic recall of multiplication facts up to 10×10. They devise and use written methods for:</p> <ul style="list-style-type: none"> • whole number problems of addition and subtraction involving numbers up to 999 • multiplication by single digits (using recall of multiplication tables) and multiples and powers of ten (for example, 5×100, 5×70) • division by a single-digit divisor (based on inverse relations in multiplication tables) <p>They devise and use algorithms for the addition and subtraction of numbers to two decimal places, including situations involving money. They add and subtract simple common fractions with the assistance of physical models. Links to Progression Points: 3.0, 3.25, 3.5, 3.75</p>
	Structure	<p>At Level 3, students recognise that the sharing of a collection into equal-sized parts (division) frequently leaves a remainder. They investigate sequences of decimal numbers generated using multiplication or division by 10. They understand the meaning of the '=' in mathematical statements and technology displays (for example, to indicate either the result of a computation or equivalence). They use number properties in combination to facilitate computations (for example, $7 + 10 + 13 = 10 + 7 + 13 = 10 + 20$). They multiply using the distributive property of multiplication over addition (for example, $13 \times 5 = (10 + 3) \times 5 = 10 \times 5 + 3 \times 5$). They list all possible outcomes of a simple chance event. They use lists, Venn diagrams and grids to show the possible combinations of two attributes. They recognise samples as subsets of the population under consideration (for example, pets owned by class members as a subset of pets owned by all children). They construct number sentences with missing numbers and solve them. Links to Progression Points: 3.0</p>
	Measurement, chance and data	<p>Links to Progression Points: 3.25, 3.5</p>
	Number	<p>Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12, 2×6, and 3×4). Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$). Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $\frac{3}{4} = \frac{9}{12} = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not. Links to Progression Points: 4.0, 4.25</p>
	Structure	<p>At Level 4, students form and specify sets of numbers, shapes and objects according to given criteria and conditions (for example, 6, 12, 18, 24 are the even numbers less than 30 that are also multiples of three). They use Venn diagrams and Karnaugh maps to test the validity of statements using the words none, some or all (for example, test the statement 'all the multiples of 3, less than 30, are even numbers'). Students construct and use rules for sequences based on the previous term, recursion (for example, the next term is three times the last term plus two), and by formula (for example, a term is three times its position in the sequence plus two). Students establish equivalence relationships between mathematical expressions using properties such as the distributive property for multiplication over addition (for example, $3 \times 26 = 3 \times (20 + 6)$). Students identify relationships between variables and describe them with language and words (for example, how hunger depends varies with time of the day). Students recognise that addition and subtraction, and multiplication and division are inverse operations. They use words and symbols to form simple equations. They solve equations by trial and error. Links to Progression Points: 4.0</p>
	Measurement, chance and data	<p>At Level 4, students use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature. They measure angles in degrees. They measure as accurately as needed for the purpose of the activity. They convert between metric units of length, capacity and time (for example, $L \rightarrow mL$, $sec \rightarrow min$). Students describe and calculate probabilities using words, and fractions and decimals between 0 and 1. They calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes. They simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run. Students recognise and give consideration to different data types in forming questionnaires and sampling. They distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement). They present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range). Links to Progression Points: 4.0</p>
<p>Unit 17: Making 3D shapes</p>	Space	<p>Consolidating Level 3: At Level 3, students recognise and describe the directions of lines as vertical, horizontal or diagonal. They recognise angles are the result of rotation of lines with a common end-point. They recognise and describe polygons. They recognise and name common three dimensional shapes such as spheres, prisms and pyramids. They identify edges, vertices and faces. They use two-dimensional nets, cross-sections and simple projections to represent simple three-dimensional shapes. They follow instructions to produce simple tessellations (for example, with triangles, rectangles, hexagons) and puzzles such as tangrams. They locate and identify places on maps and diagrams. They give travel directions and describe positions using simple compass directions (for example, N for North) and grid references on a street directory. Links to Progression Points: 3.0, 3.25, 3.5, 3.75</p>

Nelson Maths for Victoria Correlation to VELS Mathematical Standards

Nelson Maths for Vic. Year 5	Dimension	Standard
Unit 17: Making 3D shapes (cont.)	Space	<p>Level 4: At Level 4, students classify and sort shapes and solids (for example, prisms, pyramids, cylinders and cones) using the properties of lines (orientation and size), angles (less than, equal to, or greater than 90°), and surfaces. They create two-dimensional representations of three dimensional shapes and objects found in the surrounding environment. They develop and follow instructions to draw shapes and nets of solids using simple scale. They describe the features of shapes and solids that remain the same (for example, angles) or change (for example, surface area) when a shape is enlarged or reduced. They apply a range of transformations to shapes and create tessellations using tools (for example, computer software).</p> <p>Students use the ideas of size, scale, and direction to describe relative location and objects in maps. They use compass directions, coordinates, scale and distance, and conventional symbols to describe routes between places shown on maps. Students use network diagrams to show relationships and connectedness such as a family tree and the shortest path between towns on a map.</p> <p>Links to Progression Points: 4.0</p>
Unit 18: Drawing 3D objects	Space	<p>Consolidating Level 3: Links to Progression Points: 3.25, 3.5, 3.75</p>
	Space	<p>Level 4: At Level 4, students classify and sort shapes and solids (for example, prisms, pyramids, cylinders and cones) using the properties of lines (orientation and size), angles (less than, equal to, or greater than 90°), and surfaces. They create two-dimensional representations of three dimensional shapes and objects found in the surrounding environment. They develop and follow instructions to draw shapes and nets of solids using simple scale. They describe the features of shapes and solids that remain the same (for example, angles) or change (for example, surface area) when a shape is enlarged or reduced. They apply a range of transformations to shapes and create tessellations using tools (for example, computer software).</p> <p>Students use the ideas of size, scale, and direction to describe relative location and objects in maps. They use compass directions, coordinates, scale and distance, and conventional symbols to describe routes between places shown on maps. Students use network diagrams to show relationships and connectedness such as a family tree and the shortest path between towns on a map.</p> <p>Links to Progression Points: 4.0, 4.75</p>
	Space	<p>Extending into Level 5: At Level 5, students construct two-dimensional and simple three-dimensional shapes according to specifications of length, angle and adjacency. They use the properties of parallel lines and transversals of these lines to calculate angles that are supplementary, corresponding, allied (co-interior) and alternate. They describe and apply the angle properties of regular and irregular polygons, in particular, triangles and quadrilaterals. They use two-dimensional nets to construct a simple three-dimensional object such as a prism or a platonic solid. They recognise congruence of shapes and solids. They relate similarity to enlargement from a common fixed point. They use single-point perspective to make a two-dimensional representation of a simple three-dimensional object. They make tessellations from simple shapes.</p> <p>Students use coordinates to identify position in the plane. They use lines, grids, contours, isobars, scales and bearings to specify location and direction on plans and maps. They use network diagrams to specify relationships. They consider the connectedness of a network, such as the ability to travel through a set of roads between towns.</p> <p>Links to Progression Points: 5.0</p>
Unit 19: Multiplication	Number	<p>Consolidating Level 3: At Level 3, students use place value (as the idea that 'ten of these is one of those') to determine the size and order of whole numbers to tens of thousands, and decimals to hundredths. They round numbers up and down to the nearest unit, ten, hundred, or thousand. They develop fraction notation and compare simple common fractions such as $\frac{3}{4} > \frac{2}{3}$ using physical models. They skip count forwards and backwards, from various starting points using multiples of 2, 3, 4, 5, 10 and 100.</p> <p>They estimate the results of computations and recognise whether these are likely to be overestimates or underestimates. They compute with numbers up to 30 using all four operations. They provide automatic recall of multiplication facts up to 10×10.</p> <p>They devise and use written methods for:</p> <ul style="list-style-type: none"> • whole number problems of addition and subtraction involving numbers up to 999 • multiplication by single digits (using recall of multiplication tables) and multiples and powers of ten (for example, 5×100, 5×70) • division by a single-digit divisor (based on inverse relations in multiplication tables) <p>They devise and use algorithms for the addition and subtraction of numbers to two decimal places, including situations involving money. They add and subtract simple common fractions with the assistance of physical models.</p> <p>Links to Progression Points: 3.0, 3.25, 3.5, 3.75</p>
	Structure	<p>At Level 3, students recognise that the sharing of a collection into equal-sized parts (division) frequently leaves a remainder. They investigate sequences of decimal numbers generated using multiplication or division by 10. They understand the meaning of the '=' in mathematical statements and technology displays (for example, to indicate either the result of a computation or equivalence). They use number properties in combination to facilitate computations (for example, $7 + 10 + 13 = 10 + 7 + 13 = 10 + 20$). They multiply using the distributive property of multiplication over addition (for example, $13 \times 5 = (10 + 3) \times 5 = 10 \times 5 + 3 \times 5$). They list all possible outcomes of a simple chance event. They use lists, Venn diagrams and grids to show the possible combinations of two attributes. They recognise samples as subsets of the population under consideration (for example, pets owned by class members as a subset of pets owned by all children). They construct number sentences with missing numbers and solve them.</p> <p>Links to Progression Points: 3.0, 3.25, 3.75</p>
	Number	<p>Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12, 2×6, and 3×4).</p> <p>Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$).</p> <p>Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $\frac{3}{4} = \frac{9}{12} = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not.</p> <p>Links to Progression Points: 4.0, 4.25, 4.5, 4.75</p>

Nelson Maths for Vic. Year 5	Dimension	Standard
Unit 20: Division	Number	Consolidating Level 3: Links to Progression Points: 3.25, 3.5
	Structure	At Level 3, students recognise that the sharing of a collection into equal-sized parts (division) frequently leaves a remainder. They investigate sequences of decimal numbers generated using multiplication or division by 10. They understand the meaning of the '=' in mathematical statements and technology displays (for example, to indicate either the result of a computation or equivalence). They use number properties in combination to facilitate computations (for example, $7 + 10 + 13 = 10 + 7 + 13 = 10 + 20$). They multiply using the distributive property of multiplication over addition (for example, $13 \times 5 = (10 + 3) \times 5 = 10 \times 5 + 3 \times 5$). They list all possible outcomes of a simple chance event. They use lists, Venn diagrams and grids to show the possible combinations of two attributes. They recognise samples as subsets of the population under consideration (for example, pets owned by class members as a subset of pets owned by all children). They construct number sentences with missing numbers and solve them. Links to Progression Points: 3.0, 3.5, 3.75
Unit 21: Volume and capacity	Measurement, chance and data	Consolidating Level 3: At Level 3, students estimate and measure length, area, volume, capacity, mass and time using appropriate instruments. They recognise and use different units of measurement including informal (for example, paces), formal (for example, centimetres) and standard metric measures (for example, metre) in appropriate contexts. They read linear scales (for example, tape measures) and circular scales (for example, bathroom scales) in measurement contexts. They read digital time displays and analogue clock times at five-minute intervals. They interpret timetables and calendars in relation to familiar events. They compare the likelihood of everyday events (for example, the chances of rain and snow). They describe the fairness of events in qualitative terms. They plan and conduct chance experiments (for example, using colours on a spinner) and display the results of these experiments. They recognise different types of data: non-numerical (categories), separate numbers (discrete), or points on an unbroken number line (continuous). They use a column or bar graph to display the results of an experiment (for example, the frequencies of possible categories). Links to Progression Points: 3.0, 3.5, 3.75
	Structure	Level 4: At Level 4, students use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature. They measure angles in degrees. They measure as accurately as needed for the purpose of the activity. They convert between metric units of length, capacity and time (for example, L → mL, sec → min). Students describe and calculate probabilities using words, and fractions and decimals between 0 and 1. They calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes. They simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run. Students recognise and give consideration to different data types in forming questionnaires and sampling. They distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement). They present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range). Links to Progression Points: 4.0, 4.5, 4.75

Nelson Maths for Vic. Year 5	Dimension	Standard
Unit 22: Exploring patterns	Number	Consolidating Level 3: Links to Progression Points: 3.5, 3.75
	Structure	Links to Progression Points: 3.75
	Number	Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1 × 12, 2 × 6, and 3 × 4). Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, 2⁴ = 16). Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, 3/4 = 9/12 = 0.75 = 75% = 3:4 = 6:8). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not. Links to Progression Points: 4.0
Structure	At Level 4, students form and specify sets of numbers, shapes and objects according to given criteria and conditions (for example, 6, 12, 18, 24 are the even numbers less than 30 that are also multiples of three). They use Venn diagrams and Karnaugh maps to test the validity of statements using the words none, some or all (for example, test the statement 'all the multiples of 3, less than 30, are even numbers'). Students construct and use rules for sequences based on the previous term, recursion (for example, the next term is three times the last term plus two), and by formula (for example, a term is three times its position in the sequence plus two). Students establish equivalence relationships between mathematical expressions using properties such as the distributive property for multiplication over addition (for example, 3 × 26 = 3 × (20 + 6)). Students identify relationships between variables and describe them with language and words (for example, how hunger depends varies with time of the day). Students recognise that addition and subtraction, and multiplication and division are inverse operations. They use words and symbols to form simple equations. They solve equations by trial and error. Links to Progression Points: 4.0	
Unit 23: Number puzzles	Number	Consolidating Level 3: At Level 3, students use place value (as the idea that 'ten of these is one of those') to determine the size and order of whole numbers to tens of thousands, and decimals to hundredths. They round numbers up and down to the nearest unit, ten, hundred, or thousand. They develop fraction notation and compare simple common fractions such as 3/4 > 2/3 using physical models. They skip count forwards and backwards, from various starting points using multiples of 2, 3, 4, 5, 10 and 100. They estimate the results of computations and recognise whether these are likely to be overestimates or underestimates. They compute with numbers up to 30 using all four operations. They provide automatic recall of multiplication facts up to 10 × 10. They devise and use written methods for: <ul style="list-style-type: none"> • whole number problems of addition and subtraction involving numbers up to 999 • multiplication by single digits (using recall of multiplication tables) and multiples and powers of ten (for example, 5 × 100, 5 × 70) • division by a single-digit divisor (based on inverse relations in multiplication tables) They devise and use algorithms for the addition and subtraction of numbers to two decimal places, including situations involving money. They add and subtract simple common fractions with the assistance of physical models. Links to Progression Points: 3.0, 3.25, 3.5
	Structure	Links to Progression Points: 3.25, 3.5, 3.75
	Number	Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1 × 12, 2 × 6, and 3 × 4). Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, 2 ⁴ = 16). Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, 3/4 = 9/12 = 0.75 = 75% = 3:4 = 6:8). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not. Links to Progression Points: 4.0
Structure	At Level 4, students form and specify sets of numbers, shapes and objects according to given criteria and conditions (for example, 6, 12, 18, 24 are the even numbers less than 30 that are also multiples of three). They use Venn diagrams and Karnaugh maps to test the validity of statements using the words none, some or all (for example, test the statement 'all the multiples of 3, less than 30, are even numbers'). Students construct and use rules for sequences based on the previous term, recursion (for example, the next term is three times the last term plus two), and by formula (for example, a term is three times its position in the sequence plus two). Students establish equivalence relationships between mathematical expressions using properties such as the distributive property for multiplication over addition (for example, 3 × 26 = 3 × (20 + 6)). Students identify relationships between variables and describe them with language and words (for example, how hunger depends varies with time of the day). Students recognise that addition and subtraction, and multiplication and division are inverse operations. They use words and symbols to form simple equations. They solve equations by trial and error. Links to Progression Points: 4.0	

Nelson Maths for Victoria Correlation to VELS Mathematical Standards

Nelson Maths for Vic. Year 5	Dimension	Standard
Unit 26: Adding decimals (cont.)	Measurement, chance and data	<p>At Level 4, students use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature. They measure angles in degrees. They measure as accurately as needed for the purpose of the activity. They convert between metric units of length, capacity and time (for example, L→mL, sec→min).</p> <p>Students describe and calculate probabilities using words, and fractions and decimals between 0 and 1. They calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes. They simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run.</p> <p>Students recognise and give consideration to different data types in forming questionnaires and sampling. They distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement). They present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range).</p> <p>Links to Progression Points: 4.0, 4.25, 4.5</p>
Unit 27: Subtracting decimals	Number Measurement, chance and data Number Measurement, chance and data	<p>Consolidating Level 3: Links to Progression Points: 3.75</p> <p>Links to Progression Points: 3.25, 3.5</p> <p>Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12, 2×6, and 3×4).</p> <p>Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$).</p> <p>Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $\frac{3}{4} = \frac{9}{12} = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not.</p> <p>Links to Progression Points: 4.0</p> <p>At Level 4, students use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature. They measure angles in degrees. They measure as accurately as needed for the purpose of the activity. They convert between metric units of length, capacity and time (for example, L→mL, sec→min).</p> <p>Students describe and calculate probabilities using words, and fractions and decimals between 0 and 1. They calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes. They simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run.</p> <p>Students recognise and give consideration to different data types in forming questionnaires and sampling. They distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement). They present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range).</p> <p>Links to Progression Points: 4.0</p>
Unit 28: Exploring measurement	Space Measurement, chance and data Space Measurement, chance and data	<p>Consolidating Level 3: Links to Progression Points: 3.25, 3.5</p> <p>Links to Progression Points: 3.25, 3.5, 3.75</p> <p>Level 4: At Level 4, students classify and sort shapes and solids (for example, prisms, pyramids, cylinders and cones) using the properties of lines (orientation and size), angles (less than, equal to, or greater than 90°), and surfaces. They create two-dimensional representations of three dimensional shapes and objects found in the surrounding environment. They develop and follow instructions to draw shapes and nets of solids using simple scale. They describe the features of shapes and solids that remain the same (for example, angles) or change (for example, surface area) when a shape is enlarged or reduced. They apply a range of transformations to shapes and create tessellations using tools (for example, computer software).</p> <p>Students use the ideas of size, scale, and direction to describe relative location and objects in maps. They use compass directions, coordinates, scale and distance, and conventional symbols to describe routes between places shown on maps. Students use network diagrams to show relationships and connectedness such as a family tree and the shortest path between towns on a map.</p> <p>Links to Progression Points: 4.0, 4.75</p> <p>At Level 4, students use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature. They measure angles in degrees. They measure as accurately as needed for the purpose of the activity. They convert between metric units of length, capacity and time (for example, L→mL, sec→min).</p> <p>Students describe and calculate probabilities using words, and fractions and decimals between 0 and 1. They calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes. They simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run.</p> <p>Students recognise and give consideration to different data types in forming questionnaires and sampling. They distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement). They present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range).</p> <p>Links to Progression Points: 4.0, 4.25, 4.5, 4.75</p>

Nelson Maths for Victoria Correlation to VELS Mathematical Standards

Nelson Maths for Vic. Year 5	Dimension	Standard
	Structure	<p>At Level 4, students form and specify sets of numbers, shapes and objects according to given criteria and conditions (for example, 6, 12, 18, 24 are the even numbers less than 30 that are also multiples of three). They use Venn diagrams and Karnaugh maps to test the validity of statements using the words none, some or all (for example, test the statement ‘all the multiples of 3, less than 30, are even numbers’). Students construct and use rules for sequences based on the previous term, recursion (for example, the next term is three times the last term plus two), and by formula (for example, a term is three times its position in the sequence plus two).</p> <p>Students establish equivalence relationships between mathematical expressions using properties such as the distributive property for multiplication over addition (for example, $3 \times 26 = 3 \times (20 + 6)$).</p> <p>Students identify relationships between variables and describe them with language and words (for example, how hunger depends varies with time of the day).</p> <p>Students recognise that addition and subtraction, and multiplication and division are inverse operations. They use words and symbols to form simple equations. They solve equations by trial and error.</p> <p>Links to Progression Points: 4.0</p>
Unit 29: Reading maps	Space	<p>Consolidating Level 3: Links to Progression Points: 3.25, 3.4, 3.75</p>
	Space	<p>Level 4: At Level 4, students classify and sort shapes and solids (for example, prisms, pyramids, cylinders and cones) using the properties of lines (orientation and size), angles (less than, equal to, or greater than 90°), and surfaces. They create two-dimensional representations of three dimensional shapes and objects found in the surrounding environment. They develop and follow instructions to draw shapes and nets of solids using simple scale. They describe the features of shapes and solids that remain the same (for example, angles) or change (for example, surface area) when a shape is enlarged or reduced. They apply a range of transformations to shapes and create tessellations using tools (for example, computer software).</p> <p>Students use the ideas of size, scale, and direction to describe relative location and objects in maps. They use compass directions, coordinates, scale and distance, and conventional symbols to describe routes between places shown on maps. Students use network diagrams to show relationships and connectedness such as a family tree and the shortest path between towns on a map.</p> <p>Links to Progression Points: 4.0, 4.25, 4.5, 4.75</p>
	Space	<p>Extending into Level 5: At Level 5, students construct two-dimensional and simple three-dimensional shapes according to specifications of length, angle and adjacency. They use the properties of parallel lines and transversals of these lines to calculate angles that are supplementary, corresponding, allied (co-interior) and alternate. They describe and apply the angle properties of regular and irregular polygons, in particular, triangles and quadrilaterals. They use two-dimensional nets to construct a simple three-dimensional object such as a prism or a platonic solid. They recognise congruence of shapes and solids. They relate similarity to enlargement from a common fixed point. They use single-point perspective to make a two-dimensional representation of a simple three-dimensional object. They make tessellations from simple shapes.</p> <p>Students use coordinates to identify position in the plane. They use lines, grids, contours, isobars, scales and bearings to specify location and direction on plans and maps. They use network diagrams to specify relationships. They consider the connectedness of a network, such as the ability to travel through a set of roads between towns.</p> <p>Links to Progression Points: 5.0, 5.25</p>
Unit 30: Making maps	Space	<p>Consolidating Level 3: Links to Progression Points: 3.25, 3.5</p>
	Space	<p>Level 4: At Level 4, students classify and sort shapes and solids (for example, prisms, pyramids, cylinders and cones) using the properties of lines (orientation and size), angles (less than, equal to, or greater than 90°), and surfaces. They create two-dimensional representations of three dimensional shapes and objects found in the surrounding environment. They develop and follow instructions to draw shapes and nets of solids using simple scale. They describe the features of shapes and solids that remain the same (for example, angles) or change (for example, surface area) when a shape is enlarged or reduced. They apply a range of transformations to shapes and create tessellations using tools (for example, computer software).</p> <p>Students use the ideas of size, scale, and direction to describe relative location and objects in maps. They use compass directions, coordinates, scale and distance, and conventional symbols to describe routes between places shown on maps. Students use network diagrams to show relationships and connectedness such as a family tree and the shortest path between towns on a map.</p> <p>Links to Progression Points: 4.0</p>
Unit 31: Exploring chance	Measurement, chance and data	<p>Consolidating Level 3: Links to Progression Points: 3.25, 3.5, 3.75</p>
	Measurement, chance and data	<p>Level 4: At Level 4, students use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature. They measure angles in degrees. They measure as accurately as needed for the purpose of the activity. They convert between metric units of length, capacity and time (for example, $L \rightarrow mL$, $sec \rightarrow min$).</p> <p>Students describe and calculate probabilities using words, and fractions and decimals between 0 and 1. They calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes. They simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run.</p> <p>Students recognise and give consideration to different data types in forming questionnaires and sampling. They distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement). They present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range).</p> <p>Links to Progression Points: 4.0, 4.25, 4.75</p>

Nelson Maths for Vic. Year 5	Dimension	Standard
<p>Unit 31: Exploring chance (cont.)</p>	<p>Measurement, chance and data</p>	<p>Extending into Level 5: At Level 5, students measure length, perimeter, area, surface area, mass, volume, capacity, angle, time and temperature using suitable units for these measurements in context. They interpret and use measurement formulas for the area and perimeter of circles, triangles and parallelograms and simple composite shapes. They calculate the surface area and volume of prisms and cylinders. Students estimate the accuracy of measurements and give suitable lower and upper bounds for measurement values. They calculate absolute percentage error of estimated values. Students use appropriate technology to generate random numbers in the conduct of simple simulations. Students identify empirical probability as long-run relative frequency. They calculate theoretical probabilities by dividing the number of possible successful outcomes by the total number of possible outcomes. They use tree diagrams to investigate the probability of outcomes in simple multiple event trials. Students organise, tabulate and display discrete and continuous data (grouped and ungrouped) using technology for larger data sets. They represent uni-variate data in appropriate graphical forms including dot plots, stem and leaf plots, column graphs, bar charts and histograms. They calculate summary statistics for measures of centre (mean, median, mode) and spread (range, and mean absolute difference), and make simple inferences based on this data. Links to Progression Points: 5.0</p>
<p>Unit 32: Mental computation</p>	<p>Number</p> <p>Structure</p> <p>Number</p> <p>Structure</p>	<p>Consolidating Level 3: At Level 3, students use place value (as the idea that 'ten of these is one of those') to determine the size and order of whole numbers to tens of thousands, and decimals to hundredths. They round numbers up and down to the nearest unit, ten, hundred, or thousand. They develop fraction notation and compare simple common fractions such as $\frac{3}{4} > \frac{2}{3}$ using physical models. They skip count forwards and backwards, from various starting points using multiples of 2, 3, 4, 5, 10 and 100. They estimate the results of computations and recognise whether these are likely to be overestimates or underestimates. They compute with numbers up to 30 using all four operations. They provide automatic recall of multiplication facts up to 10×10. They devise and use written methods for:</p> <ul style="list-style-type: none"> • whole number problems of addition and subtraction involving numbers up to 999 • multiplication by single digits (using recall of multiplication tables) and multiples and powers of ten (for example, 5×100, 5×70) • division by a single-digit divisor (based on inverse relations in multiplication tables) <p>They devise and use algorithms for the addition and subtraction of numbers to two decimal places, including situations involving money. They add and subtract simple common fractions with the assistance of physical models. Links to Progression Points: 3.0, 3.25, 3.5</p> <p>Links to Progression Points: 3.25, 3.5, 3.75</p> <p>Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12, 2×6, and 3×4). Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$). Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $\frac{3}{4} = \frac{9}{12} = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not. Links to Progression Points: 4.0, 4.25</p> <p>At Level 4, students form and specify sets of numbers, shapes and objects according to given criteria and conditions (for example, 6, 12, 18, 24 are the even numbers less than 30 that are also multiples of three). They use Venn diagrams and Karnaugh maps to test the validity of statements using the words none, some or all (for example, test the statement 'all the multiples of 3, less than 30, are even numbers'). Students construct and use rules for sequences based on the previous term, recursion (for example, the next term is three times the last term plus two), and by formula (for example, a term is three times its position in the sequence plus two). Students establish equivalence relationships between mathematical expressions using properties such as the distributive property for multiplication over addition (for example, $3 \times 26 = 3 \times (20 + 6)$). Students identify relationships between variables and describe them with language and words (for example, how hunger depends varies with time of the day). Students recognise that addition and subtraction, and multiplication and division are inverse operations. They use words and symbols to form simple equations. They solve equations by trial and error. Links to Progression Points: 4.0</p>
<p>Unit 33: Multiplication and division</p>	<p>Number</p> <p>Structure</p>	<p>Consolidating Level 3: At Level 3, students use place value (as the idea that 'ten of these is one of those') to determine the size and order of whole numbers to tens of thousands, and decimals to hundredths. They round numbers up and down to the nearest unit, ten, hundred, or thousand. They develop fraction notation and compare simple common fractions such as $\frac{3}{4} > \frac{2}{3}$ using physical models. They skip count forwards and backwards, from various starting points using multiples of 2, 3, 4, 5, 10 and 100. They estimate the results of computations and recognise whether these are likely to be overestimates or underestimates. They compute with numbers up to 30 using all four operations. They provide automatic recall of multiplication facts up to 10×10. They devise and use written methods for:</p> <ul style="list-style-type: none"> • whole number problems of addition and subtraction involving numbers up to 999 • multiplication by single digits (using recall of multiplication tables) and multiples and powers of ten (for example, 5×100, 5×70) • division by a single-digit divisor (based on inverse relations in multiplication tables) <p>They devise and use algorithms for the addition and subtraction of numbers to two decimal places, including situations involving money. They add and subtract simple common fractions with the assistance of physical models. Links to Progression Points: 3.0, 3.25, 3.5, 3.75</p> <p>Links to Progression Points: 3.25, 3.75</p>

Nelson Maths for Victoria Correlation to VELS Mathematical Standards

Nelson Maths for Vic. Year 5	Dimension	Standard
Unit 36: Percentages	Number	Consolidating Level 3: Links to Progression Points: 3.5, 3.75
	Number	Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12 , 2×6 , and 3×4). Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$). Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $3/4 = 9/12 = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not. Links to Progression Points: 4.0, 4.25
Unit 37: Adding and subtracting fractions	Number	Consolidating Level 3: At Level 3, students use place value (as the idea that 'ten of these is one of those') to determine the size and order of whole numbers to tens of thousands, and decimals to hundredths. They round numbers up and down to the nearest unit, ten, hundred, or thousand. They develop fraction notation and compare simple common fractions such as $3/4 > 2/3$ using physical models. They skip count forwards and backwards, from various starting points using multiples of 2, 3, 4, 5, 10 and 100. They estimate the results of computations and recognise whether these are likely to be overestimates or underestimates. They compute with numbers up to 30 using all four operations. They provide automatic recall of multiplication facts up to 10×10 . They devise and use written methods for: <ul style="list-style-type: none"> • whole number problems of addition and subtraction involving numbers up to 999 • multiplication by single digits (using recall of multiplication tables) and multiples and powers of ten (for example, 5×100, 5×70) • division by a single-digit divisor (based on inverse relations in multiplication tables) They devise and use algorithms for the addition and subtraction of numbers to two decimal places, including situations involving money. They add and subtract simple common fractions with the assistance of physical models. Links to Progression Points: 3.0, 3.25, 3.5
	Number	Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12 , 2×6 , and 3×4). Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$). Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $3/4 = 9/12 = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not. Links to Progression Points: 4.0, 4.25
	Structure	At Level 4, students form and specify sets of numbers, shapes and objects according to given criteria and conditions (for example, 6, 12, 18, 24 are the even numbers less than 30 that are also multiples of three). They use Venn diagrams and Karnaugh maps to test the validity of statements using the words <i>none</i> , <i>some</i> or <i>all</i> (for example, test the statement 'all the multiples of 3, less than 30, are even numbers'). Students construct and use rules for sequences based on the previous term, recursion (for example, the next term is three times the last term plus two), and by formula (for example, a term is three times its position in the sequence plus two). Students establish equivalence relationships between mathematical expressions using properties such as the distributive property for multiplication over addition (for example, $3 \times 26 = 3 \times (20 + 6)$). Students identify relationships between variables and describe them with language and words (for example, how hunger depends varies with time of the day). Students recognise that addition and subtraction, and multiplication and division are inverse operations. They use words and symbols to form simple equations. They solve equations by trial and error. Links to Progression Points: 4.0

Nelson Maths for Vic. Year 5	Dimension	Standard
Unit 38: Revision	Number	Consolidating Level 3: Links to Progression Points: 3.25, 3.75
	Measurement, chance and data	Links to Progression Points: 3.25, 3.5, 3.75
	Space	Links to Progression Points: 3.25, 3.5
	Number	Level 4: At Level 4, students comprehend the size and order of small numbers (to thousandths) and large numbers (to millions). They model integers (positive and negative whole numbers and zero), common fractions and decimals. They place integers, decimals and common fractions on a number line. They create sets of number multiples to find the lowest common multiple of the numbers. They interpret numbers and their factors in terms of the area and dimensions of rectangular arrays (for example, the factors of 12 can be found by making rectangles of dimensions 1×12 , 2×6 , and 3×4). Students identify square, prime and composite numbers. They create factor sets (for example, using factor trees) and identify the highest common factor of two or more numbers. They recognise and calculate simple powers of whole numbers (for example, $2^4 = 16$). Students use decimals, ratios and percentages to find equivalent representations of common fractions (for example, $\frac{3}{4} = \frac{9}{12} = 0.75 = 75\% = 3:4 = 6:8$). They explain and use mental and written algorithms for the addition, subtraction, multiplication and division of natural numbers (positive whole numbers). They add, subtract, and multiply fractions and decimals (to two decimal places) and apply these operations in practical contexts, including the use of money. They use estimates for computations and apply criteria to determine if estimates are reasonable or not. Links to Progression Points: 4.0
	Measurement, chance and data	At Level 4, students use metric units to estimate and measure length, perimeter, area, surface area, mass, volume, capacity time and temperature. They measure angles in degrees. They measure as accurately as needed for the purpose of the activity. They convert between metric units of length, capacity and time (for example, L \rightarrow mL, sec \rightarrow min). Students describe and calculate probabilities using words, and fractions and decimals between 0 and 1. They calculate probabilities for chance outcomes (for example, using spinners) and use the symmetry properties of equally likely outcomes. They simulate chance events (for example, the chance that a family has three girls in a row) and understand that experimental estimates of probabilities converge to the theoretical probability in the long run. Students recognise and give consideration to different data types in forming questionnaires and sampling. They distinguish between categorical and numerical data and classify numerical data as discrete (from counting) or continuous (from measurement). They present data in appropriate displays (for example, a pie chart for eye colour data and a histogram for grouped data of student heights). They calculate and interpret measures of centrality (mean, median, and mode) and data spread (range). Links to Progression Points: 4.0, 4.25, 4.5
	Space	At Level 4, students classify and sort shapes and solids (for example, prisms, pyramids, cylinders and cones) using the properties of lines (orientation and size), angles (less than, equal to, or greater than 90°), and surfaces. They create two-dimensional representations of three dimensional shapes and objects found in the surrounding environment. They develop and follow instructions to draw shapes and nets of solids using simple scale. They describe the features of shapes and solids that remain the same (for example, angles) or change (for example, surface area) when a shape is enlarged or reduced. They apply a range of transformations to shapes and create tessellations using tools (for example, computer software). Students use the ideas of size, scale, and direction to describe relative location and objects in maps. They use compass directions, coordinates, scale and distance, and conventional symbols to describe routes between places shown on maps. Students use network diagrams to show relationships and connectedness such as a family tree and the shortest path between towns on a map. Links to Progression Points: 4.0
Structure	At Level 4, students form and specify sets of numbers, shapes and objects according to given criteria and conditions (for example, 6, 12, 18, 24 are the even numbers less than 30 that are also multiples of three). They use Venn diagrams and Karnaugh maps to test the validity of statements using the words <i>none</i> , <i>some</i> or <i>all</i> (for example, test the statement 'all the multiples of 3, less than 30, are even numbers'). Students construct and use rules for sequences based on the previous term, recursion (for example, the next term is three times the last term plus two), and by formula (for example, a term is three times its position in the sequence plus two). Students establish equivalence relationships between mathematical expressions using properties such as the distributive property for multiplication over addition (for example, $3 \times 26 = 3 \times (20 + 6)$). Students identify relationships between variables and describe them with language and words (for example, how hunger depends varies with time of the day). Students recognise that addition and subtraction, and multiplication and division are inverse operations. They use words and symbols to form simple equations. They solve equations by trial and error. Links to Progression Points: 4.0	
Unit 39: Investigating problems	Number	Consolidating Level 3: Links to Progression Points: 3.25, 3.5
	Structure	At Level 3, students recognise that the sharing of a collection into equal-sized parts (division) frequently leaves a remainder. They investigate sequences of decimal numbers generated using multiplication or division by 10. They understand the meaning of the '=' in mathematical statements and technology displays (for example, to indicate either the result of a computation or equivalence). They use number properties in combination to facilitate computations (for example, $7 + 10 + 13 = 10 + 7 + 13 = 10 + 20$). They multiply using the distributive property of multiplication over addition (for example, $13 \times 5 = (10 + 3) \times 5 = 10 \times 5 + 3 \times 5$). They list all possible outcomes of a simple chance event. They use lists, Venn diagrams and grids to show the possible combinations of two attributes. They recognise samples as subsets of the population under consideration (for example, pets owned by class members as a subset of pets owned by all children). They construct number sentences with missing numbers and solve them. Links to Progression Points: 3.0, 3.25, 3.5, 3.75

Year 7 National Numeracy Benchmarks

The Benchmarks describe minimum standards. For this reason, the Year 7 Benchmarks relate to Level 4 Mathematics standards. See: <http://cms.curriculum.edu.au/numbench/bench.HTM>

Number Sense

Students use whole numbers to seven digits and numbers with decimal fractions to two decimal places in familiar situations (eg money and measurements). They record these in different formats, using place value knowledge. They recognise and use common fractions and equivalences between fractions, decimals and key percentages (ie 10%, 20%, 25%, 50%, 100%). They use numbers to create and continue patterns. Students add, subtract, multiply and divide using a variety of strategies, and apply these skills to solve problems in contexts familiar to them.

As part of the minimum set of achievements in Number sense, year 7 students are expected to have achieved the year 5 benchmark standard and, in addition, are expected to:

- read, write, compare and order whole numbers to seven digits and numbers with decimal fractions to two decimal places
- use place value knowledge to model different representations of whole numbers to seven digits and decimal fractions to two decimal places (eg recognise that the price of a computer may be expressed as either one thousand eight hundred dollars or eighteen hundred dollars; recognise that a height of 154 cm can be recorded as 1.54 m)
- read, name, write and compare simple common fractions (limited to halves, thirds, quarters, fifths, eighths and tenths) and recognise simple equivalent fractions, decimals and percentages written in different forms (eg recognise that 25% off means one-quarter off the price; place $\frac{1}{3}$ $\frac{1}{8}$ $\frac{1}{5}$ $\frac{1}{10}$ on a number line)
- continue, create and describe number patterns involving whole numbers, fractions and decimals (eg count by thirds: $\frac{1}{3}$, $\frac{2}{3}$, 1, $1\frac{1}{3}$, ... ; continue the number pattern 123, 132, 141, 150, ... ; use rules such as 'double and add 3' to create a set of numbers)
- estimate and calculate with addition, subtraction, multiplication and division, using a variety of strategies including:
 - mental methods where the numbers are appropriate and manageable (eg $47 + 29$; \$2.65c; 3 muesli bars at 80c each)
 - written methods: addition and subtraction – whole numbers and money and measurements to two decimal places; multiplication – three-digit by one-digit whole numbers; division – three-digit by one-digit whole numbers
 - calculator methods where the numbers are outside the mental and written limits specified above
- recognise and use inverse relationships between addition and subtraction and between multiplication and division, different division formats, simple ratios and computational skills to solve practical problems set in familiar contexts (eg 'I've got 32 391 points and the record is 35 374, so I need about 3000 points more to beat the record on this computer game'; 'a recipe for 8 people takes 3 cups of flour, so for 4 people it takes $1\frac{1}{2}$ s cups').

Measurement and Data Sense

Students use common measuring instruments to measure and compare length, capacity, mass (weight) and temperature, and estimate using a range of standard units. They measure area and volume by counting units. They recognise small and large standard units (eg kilometres, tonnes, millilitres, millimetres), and choose appropriate units for a task. They tell the time accurately using digital and analogue clocks, and read timetables and calendars. Students recognise the chance of an event occurring on the basis of simple quantitative data, and collect and organise information in a variety of ways to answer questions posed by themselves and others.

As part of the minimum set of achievements in Measurement and data sense, year 7 students are expected to have achieved the year 5 benchmark standard and, in addition, are expected to:

- make reasonable estimates of different measurements – length, capacity, mass (weight), temperature and time – and of area by comparison with a square metre
- use standard measuring instruments and read scales to the nearest graduation (eg tape measure, measuring jug, thermometer)
- use standard units to measure length (ie millimetres, centimetres, metres and kilometres), capacity (ie millilitres and litres), mass (ie grams and kilograms) and time (ie seconds, minutes and hours)
- measure area by counting squares and part squares, and volume by counting cubes
- recognise the relative likelihood of events occurring on the basis of simple quantitative data (eg choose red as the coloured marble most likely to be drawn from a collection of 27 red, 10 blue and 13 yellow marbles)
- collect information, display it in an organised form and interpret the findings (eg 'This graph shows that all children in the class are between 130 cm and 165 cm and most are in the group 141–150 cm')
- read and interpret data presented in a variety of ways (eg tables, charts, pictographs, bar, column, line, circle graphs).

Spatial Sense

Students use geometrical language to describe features of 2D shapes and 3D shapes and objects when they compare and classify these. They recognise different 2D representations of 3D shapes and objects, lines of symmetry in common 2D shapes, and basic angles (ie 90° , 360°). Students use shapes to make tiling or repeating patterns, and identify shapes that match exactly in different arrangements. They use simple coordinate systems, scales and basic compass directions to interpret maps and describe locations.

As part of the minimum set of achievements in Spatial sense, year 7 students are expected to have achieved the year 5 benchmark standard and, in addition, are expected to:

- recognise, describe and name common 2D shapes (ie right-angled and equilateral triangles, quadrilateral, parallelogram and octagon: eg identify a triangle as equilateral because it has three equal sides), and 3D shapes and objects (ie rectangular, triangular and hexagonal prisms, tetrahedron and square-based pyramid: eg identify a chocolate bar as a triangular prism because it has two triangular faces and three rectangular faces), and representations of these
- use geometrical language (ie 2D (two-dimensional), 3D (three-dimensional), diagonal, right angle, parallel, perimeter, circumference and degrees) to describe, classify and compare shapes and objects (eg describe the crowd as lining the perimeter of the playing field)
- recognise basic angles (ie 90° , 360°) and describe them as corners of shapes or rotations
- identify symmetrical 2D shapes and recognise line symmetry in 2D shapes (eg pick out triangles that have line symmetry from those that do not)
- describe single movements of 2D shapes (ie flip (reflection), slide (translation) and turn (rotation)), and use combinations of these to create patterns (eg to change ↗ to give ↘ it is turned (rotated) through a right angle)
- identify and describe locations and routes using simple coordinate maps (eg street maps) and major compass points (N, S, E, W), and draw simple scale plans of familiar locations (eg draw a sketch plan of the route from school to home showing major landmarks; find the lake that lies east of the highway).