Correlation to Ontario Curriculum and Grade 6 Classroom Resources

Note: *Leaps and Bounds 5/6 is a math intervention resource and therefore does not include new content and concepts being introduced to students for the first time in Grade 6. Leaps and Bounds includes content from Grades 3 to 5 that will prepare students who are struggling for work at the Grade 5 or 6 level.*

GRADE 6 Core Resources - Correlation with Grade 6 Ontario core resources			**INTERVENTION Resources and Expectations** Correlation between *Leaps and Bounds 5/6* and prerequisite expectations from Ontario Grades 3 to 5.			
Number Sense and Numeration: Quantity Relationships						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– represent, compare, and order whole numbers and decimal numbers from 0.001 to 1 000 000, using a variety of tools – demonstrate an understanding of place value in whole numbers and decimal numbers from 0.001 to 1 000 000, using a variety of tools and strategies	2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, Ch. 2 Task, also: 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, Ch. 4 Task 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, Ch. 6 Task, 9.1, 9.2, 9.3, 9.4, 9.5, 9.7, Ch. 9 Task 10.1, 10.3, 10.4, 10.5, Ch. 10 Task, 12.6, 12.7, Ch. 12 Task	2.1, 2.2, 2.3, 4.1, 4.2, 4.3	**Representing Whole Numbers** *Pathway 1:* Representing Numbers to 100 000 *Pathway 2:* Representing Numbers to 10 000 *Pathway 3:* Representing Numbers to 1000 *Pathway 4:* Multiplying and Dividing by 10s **Comparing Whole Numbers** *Pathway 1:* Comparing Numbers to 100 000 *Pathway 2:* Comparing Numbers to 10 000 *Pathway 3:* Comparing Numbers to 1000 **Representing Decimals** *Pathway 2:* Representing Hundredths *Pathway 3:* Representing Tenths **Comparing Decimals** *Pathway 3:* Comparing Tenths and Hundredths	– represent, compare, and order whole numbers and decimal numbers from 0.01 to 100 000, using a variety of tools – demonstrate and explain equivalent representations of a decimal number, using concrete materials and drawings – read and write money amounts to $1000 – demonstrate an understanding of place value in whole numbers and decimal numbers from 0.01 to 100 000, using a variety of tools and strategies – count forward by hundredths from any decimal number expressed to two decimal places, using concrete materials and number lines	– represent, compare, and order whole numbers to 10 000, using a variety of tools – represent, compare, and order decimal numbers to tenths, using a variety of tools and using standard decimal notation – read and represent money amounts to $100 – demonstrate an understanding of place value in whole numbers and decimal numbers from 0.1 to 10 000, using a variety of tools and strategies – count forward by tenths from any decimal number expressed to one decimal place, using concrete materials and number lines	– represent, compare, and order whole numbers to 1000, using a variety of tools – compose and decompose three-digit numbers into hundreds, tens, and ones in a variety of ways, using concrete materials – represent and describe the relationships between coins and bills up to $10 – estimate, count, and represent (using the $ symbol) the value of a collection of coins and bills with a maximum value of $10 – identify and represent the value of a digit in a number according to its position in the number – represent and explain, using concrete materials, the relationship among the numbers 1, 10, 100, and 1000

Number Sense and Numeration: Quantity Relationships ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
			Patterns *Pathway 1:* Using Pattern Rules *Pathway 2:* Growing and Shrinking Patterns			– count forward by 1's, 2's, 5's, 10's, and 100's to 1000 from various starting points, and by 25's to 1000 starting from multiples of 25, using a variety of tools and strategies (e.g., skip count with and without the aid of a calculator; skip count by 10's using dimes) – count backwards by 2's, 5's, and 10's from 100 using multiples of 2, 5, and 10 as starting points, and count backwards by 100's from 1000 and any number less than 1000, using a variety of tools (e.g., number lines, calculators, coins) and strategies
– read and print in words whole numbers to one hundred thousand, using meaningful contexts (e.g., the Internet, reference books)	2.2, Ch. 2 Task	2.2	**Representing Whole Numbers** *Pathway 1:* Representing Numbers to 100 000 *Pathway 2:* Representing Numbers to 10 000 *Pathway 3:* Representing Numbers to 1000 *Pathway 4:* Multiplying and Dividing by 10s	– read and print in words whole numbers to ten thousand, using meaningful contexts (e.g., newspapers, magazines)	– read and print in words whole numbers to one thousand, using meaningful contexts (e.g., books, highway distance signs)	– read and print in words whole numbers to one hundred, using meaningful contexts (e.g., books, speed limit signs)

Number Sense and Numeration: Quantity Relationships ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– represent, compare, and order fractional amounts with unlike denominators, including proper and improper fractions and mixed numbers, using a variety of tools (e.g., fraction circles, Cuisenaire rods, drawings, number lines, calculators) and using standard fractional notation	12.1, 12.2, Ch. 12 Task	8.1, 8.2, 8.3	**Representing Fractions** *Pathway 1:* Improper Fractions: Parts of Sets *Pathway 2:* Improper Fractions: Parts of Wholes *Pathway 3:* Proper Fractions: Parts of Sets *Pathway 4:* Proper Fractions: Parts of Wholes **Comparing Fractions** *Pathway 1:* Fractions More and Less Than 1 *Pathway 2:* Equivalent Fractions *Pathway 3:* Comparing: Same Numerators *Pathway 4:* Comparing: Same Denominators *Pathway 5:* Comparing Fractions to ½ and 1	– represent, compare, and order fractional amounts with like denominators, including proper and improper fractions and mixed numbers, using a variety of tools (e.g., fraction circles, Cuisenaire rods, number lines) and using standard fractional notation – demonstrate and explain the concept of equivalent fractions, using concrete materials (e.g., use fraction strips to show that 3/4 is equal to 9/12)	– represent fractions using concrete materials, words, and standard fractional notation, and explain the meaning of the denominator as the number of the fractional parts of a whole or a set, and the numerator as the number of fractional parts being considered – compare and order fractions (i.e., halves, thirds, fourths, fifths, tenths) by considering the size and the number of fractional parts (e.g., 4/5 is greater than 3/5 because there are more parts in 4/5; 1/4 is greater than 1/5 because the size of the part is larger in 1/4) – compare fractions to the benchmarks of 0, 1/2, and 1 (e.g., 1/8 is closer to 0 than to 1/2; 3/5 is more than 1/2) – count forward by ~~halves, thirds, fourths, and~~ tenths to beyond one whole, using concrete materials and number lines (e.g., use fraction circles to count fourths: “One fourth, two fourths, three fourths, four fourths, five fourths, six fourths, …”) – demonstrate and explain the relationship between equivalent fractions, using concrete materials (e.g., fraction circles, fraction strips, pattern blocks) and drawings (e.g., “I can say that 3/6 of my cubes are white, or half of the cubes are white. This means that 3/6 and 1/2 are equal.”)	– divide whole objects and sets of objects into equal parts, and identify the parts using fractional names (e.g., one half; three thirds; two fourths or two quarters), without using numbers in standard fractional notation

Number Sense and Numeration: Quantity Relationships ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– estimate quantities using benchmarks of 10%, 25%, 50%, 75%, and 100% (e.g., the container is about 75% full; approximately 50% of our students walk to school)	12.8, 12.10, Ch. 12 Task 13.2	8.8, 8.9				
– solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 1 000 000	2.1, 2.2, 2.3, 2.4, 2.5, Ch. 2 Task also: 4.2, 5.4, Ch. 6 Task, Ch. 8 Task	2.1	**Representing Whole Numbers** *Pathway 1:* Representing Numbers to 100 000 *Pathway 2:* Representing Numbers to 10 000 *Pathway 3:* Representing Numbers to 1000 *Pathway 4:* Multiplying and Dividing by 10s **Comparing Whole Numbers** *Pathway 1:* Comparing Numbers to 100 000 *Pathway 2:* Comparing Numbers to 10 000 *Pathway 3:* Comparing Numbers to 1000	– solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 100 000	– solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 10 000	– solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 1000
– identify composite numbers and prime numbers, and explain the relationship between them (i.e., any composite number can be factored into prime factors) (e.g., 42 = 2 x 3 x 7).	6.1, 6.2	2.5				

Number Sense and Numeration: Operational Sense						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– use a variety of mental strategies to solve addition, subtraction, multiplication, and division problems involving whole numbers (e.g., use the commutative property: 4 x 16 x 5 = 4 x 5 x 16, which gives 20 x 16 = 320; use the distributive property: (500 + 15) ÷ 5 = 500 ÷ 5 + 15 ÷ 5, which gives 100 + 3 = 103) – solve problems involving the multiplication and division of whole numbers (four-digit by two-digit), using a variety of tools (e.g., concrete materials, drawings, calculators) and strategies (e.g., estimation, algorithms)	4.1, 4.2, 4.3, 4.4, Ch. 4 Task, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, Ch. 6 Task, 8.1, 8.2, 8.4, 8.5, 8.6, Ch. 8 Task, also: 2.5, 11.2, 11.3, 11.4, Ch. 11 Task	2.7, 2.10, 2.11, 2.12	**Adding and Subtracting** *Pathway 1:* Different Numbers of Digits *Pathway 2:* Same Number of Digits *Pathway 3:* Using Mental Math to Subtract *Pathway 4:* Using Mental Math to Add **Multiplying Whole Numbers** *Pathway 1:* Multiplying Two-Digit Numbers *Pathway 2:* Multiplying by One-Digit Numbers *Pathway 3:* Multiplication Fact Strategies **Dividing Whole Numbers** *Pathway 1:* Dividing Three-Digit Numbers *Pathway 2:* Dividing Two-Digit Numbers *Pathway 3:* Division Fact Strategies **Relating Situations to Operations** *Pathway 1:* Division Situations *Pathway 2:* Multiplication Situations *Pathway 3:* Subtraction Situations	– solve problems involving the addition, subtraction, and multiplication of whole numbers, using a variety of mental strategies (e.g., use the commutative property: 5 x 18 x 2 = 5 x 2 x 18,which gives 10 x 18 = 180) – multiply two-digit whole numbers by two-digit whole numbers, using estimation, student-generated algorithms, and standard algorithms – divide three-digit whole numbers by one-digit whole numbers, using concrete materials, estimation, student-generated algorithms, and standard algorithms	– add and subtract two-digit numbers, using a variety of mental strategies – solve problems involving the addition and subtraction of four-digit numbers, using student-generated algorithms and standard algorithms – add and subtract money amounts by making simulated purchases and providing change for amounts up to $100, using a variety of tools – multiply to 9 x 9 and divide to 81 ÷ 9, using a variety of mental strategies – solve problems involving the multiplication of one-digit whole numbers, using a variety of mental strategies – multiply two-digit whole numbers by one-digit whole numbers, using a variety of tools, student-generated algorithms, and standard algorithms – divide two-digit whole numbers by one-digit whole numbers, using a variety of tools and student-generated algorithms	– solve problems involving the addition and subtraction of two-digit numbers, using a variety of mental strategies – add and subtract three-digit numbers, using concrete materials, student generated algorithms, and standard algorithms – add and subtract money amounts, using a variety of tools (e.g., currency manipulatives, drawings), to make simulated purchases and change for amounts up to $10 – relate multiplication of one-digit numbers and division by one-digit divisors to real life situations, using a variety of tools and strategies – multiply to 7 x 7 and divide to 49 ÷ 7, using a variety of mental strategies

Number Sense and Numeration: Operational Sense ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– add and subtract decimal numbers to thousandths, using concrete materials, estimation, algorithms, and calculators	4.5, 4.6, 4.7, 4.8, Ch. 4 Task also: 5.3, 10.2, 10.3	4.5, 4.6	**Decimal Computation** *Pathway 4:* Add and Subtract to Hundredths *Pathway 5:* Add and Subtract Tenths or Hundredths	– add and subtract decimal numbers to hundredths, including money amounts, using concrete materials, estimation, and algorithms (e.g., use 10 x 10 grids to add 2.45 and 3.25)	– add and subtract decimal numbers to tenths, using concrete materials (e.g., paper strips divided into tenths, base ten materials) and student-generated algorithms (e.g., "When I added 6.5 and 5.6, I took five tenths in fraction circles and added six tenths in fraction circles to give me one whole and one tenth. Then I added 6 + 5 + 1.1, which equals 12.1.")	
– multiply and divide decimal numbers to tenths by whole numbers, using concrete materials, estimation, algorithms, and calculators (e.g., calculate 4 x 1.4 using base ten materials; calculate 5.6 ÷ 4 using base ten materials)	9.1, 9.2, 9.3, 9.5, 9.6, 9.7, Ch. 9 Task, 10.1, 10.3, 10.4, 10.5	4.10, 4.11, 4.12				
– multiply whole numbers by 0.1, 0.01, and 0.001 using mental strategies (e.g., use a calculator to look for patterns and gen-eralize to develop a rule)	9.4, 9.5, 9.6, 9.7, Ch. 9 Task also: 12.6, 12.7, 12.8, Ch. 12 Task	4.9				
– multiply and divide decimal numbers by 10, 100, 1000, and 10 000 using mental strategies (e.g., "To convert 0.6 m^2 to square centimetres, I calculated in my head 0.6 x 10 000 and got 6000 cm^2.")	9.2, 9.7, Ch. 9 Task 10.4, 10.5	4.7, 4.8	**Decimal Computation** *Pathway 1:* Multiply and Divide by 10 or 100	– multiply decimal numbers by 10, 100, 1000, and 10 000, and divide decimal numbers by 10 and 100, using mental strategies (e.g., use a calculator to look for patterns and generalize to develop a rule)	– multiply whole numbers by 10, 100, and 1000, and divide whole numbers by 10 and 100, using mental strategies (e.g., use a calculator to look for patterns and generalize to develop a rule)	

Number Sense and Numeration: Operational Sense ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– use estimation when solving problems involving the addition and subtraction of whole numbers and decimals, to help judge the reasonableness of a solution	4.3, 4.4, 4.6, 4.7, Ch. 4 Task	2.9, 4.5	**Adding and Subtracting** *Pathway 1:* Different Numbers of Digits *Pathway 2:* Same Number of Digits *Pathway 3:* Using Mental Math to Subtract *Pathway 4:* Using Mental Math to Add **Multiplying Whole Numbers** *Pathway 1:* Multiplying Two-Digit Numbers *Pathway 2:* Multiplying by One-Digit Numbers *Pathway 3:* Multiplication Fact Strategies **Dividing Whole Numbers** *Pathway 1:* Dividing Three-Digit Numbers *Pathway 2:* Dividing Two-Digit Numbers *Pathway 3:* Division Fact Strategies **Relating Situations to Operations** *Pathway 1:* Division Situations *Pathway 2:* Multiplication Situations *Pathway 3:* Subtraction Situations	– use estimation when solving problems involving the addition, subtraction, multiplication, and division of whole numbers, to help judge the reasonableness of a solution	– use estimation when solving problems involving the addition, subtraction, and multiplication of whole numbers, to help judge the reasonableness of a solution	– use estimation when solving problems involving addition and subtraction, to help judge the reasonableness of a solution
– explain the need for a standard order for performing operations, by investigating the impact that changing the order has when performing a series of operations	6.12	2.8				

Number Sense and Numeration: Proportional Relationships						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– represent ratios found in real-life contexts, using concrete materials, drawings, and standard fractional notation	12.4, 12.5, 12.6, 12.7, 12.9, 12.10, Ch. 12 Task, 13.2, 13.3, 13.4, 13.5, 13.6, Ch. 13 Task	8.9, 8.10				
– determine and explain, through investigation using concrete materials, drawings, and calculators, the relationships among fractions (i.e., with denominators of 2, 4, 5, 10, 20, 25, 50, and 100), decimal numbers, and percents (e.g., use a 10 x 10 grid to show that 1/4 = 0.25 or 25%)	12.1, 12.2, 12.3, 12.6, 12.7, 12.8, Ch. 12 Task	8.7	**Representing Fractions** *Pathway 1:* Improper Fractions: Parts of Sets *Pathway 2:* Improper Fractions: Parts of Wholes *Pathway 3:* Proper Fractions: Parts of Sets *Pathway 4:* Proper Fractions: Parts of Wholes **Comparing Fractions** *Pathway 1:* Fractions More and Less Than 1 *Pathway 2:* Equivalent Fractions *Pathway 3:* Comparing: Same Numerators *Pathway 4:* Comparing: Same Denominators *Pathway 5:* Comparing Fractions to 1/2 and 1 **Representing Decimals** *Pathway 1:* Representing Thousandths *Pathway 2:* Representing Hundredths *Pathway 3:* Representing Tenths **Comparing Decimals** *Pathway 1:* Comparing Mixed Decimals *Pathway 2:* Comparing Thousandths *Pathway 3:* Comparing Tenths and Hundredths	– describe multiplicative relationships between quantities by using simple fractions and decimals (e.g., "If you have 4 plums and I have 6 plums, I can say that I have 1 1/2 or 1.5 times as many plums as you have.") – determine and explain, through investigation using concrete materials, drawings, and calculators, the relationship between fractions (i.e., with denominators of 2, 4, 5, 10, 20, 25, 50, and 100) and their equivalent decimal forms (e.g., use a 10 x 10 grid to show that 2/5 = 40/100, which can also be represented as 0.4)	– describe relationships that involve simple whole-number multiplication (e.g., "If you have 2 marbles and I have 6 marbles, I can say that I have three times the number of marbles you have.") – determine and explain, through investigation, the relationship between fractions (i.e., halves, fifths, tenths) and decimals to tenths, using a variety of tools (e.g., concrete materials, drawings, calculators) and strategies	

Number Sense and Numeration: Proportional Relationships						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– represent relationships using unit rates	12.9, Ch. 12 Task	4.8, 4.10, 4.11, 8.11, 10.4		– demonstrate an understanding of simple multiplicative relationships involving whole-number rates, through investigation using concrete materials and drawings	– demonstrate an understanding of simple multiplicative relationships involving unit rates, through investigation using concrete materials and drawings	
Measurement: Attributes, Units, and Measurement Sense						
– demonstrate an understanding of the relationship between estimated and precise measurements, and determine and justify when each kind is appropriate	5.1, 5.2, Ch. 5 Task	4.4				

Measurement: Attributes, Units, and Measurement Sense ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– estimate, measure, and record length, area, mass, capacity, and volume, using the metric measurement system	5.1, 5.2, 5.3, 5.4, 5.5, Ch. 5 Task, 8.1, 8.2, 8.4, 8.5, 8.6, Ch. 8 Task, 11.2, 11.3, 11.4, Ch. 11 Task	4.5, 6.7, 6.8 with supporting TG note	**Length** *Pathway 1:* Perimeter of a Rectangle *Pathway 2:* Perimeter: Using Standard Units *Pathway 3:* Length: Using Standard Units **Area** *Pathway 1:* Area of a Rectangle *Pathway 2:* Using Standard Units of Area **Mass** *Pathway 1:* : Mass: Kilograms and Grams *Pathway 2:* Mass: Using One Standard Unit **Volume and Capacity** *Pathway 1:* Volume Related to Area of Base *Pathway 2:* Relating Volume and Capacity *Pathway 3:* Volume: Cubic Centimetres *Pathway 4:* Capacity: Litres or Millilitres	– estimate and measure the perimeter and area of regular and irregular polygons, using a variety of tools (e.g., grid paper, geoboard, dynamic geometry software) and strategies – select and justify the most appropriate standard unit to measure mass (i.e., milligram, gram, kilogram, tonne) – determine, through investigation, the relationship between capacity (i.e., the amount a container can hold) and volume (i.e., the amount of space taken up by an object), by comparing the volume of an object with the amount of liquid it can contain or displace (e.g., a bottle has a volume, the space it takes up, and a capacity, the amount of liquid it can hold)	– estimate, measure, and record length, height, and distance, using standard units – draw items using a ruler, given specific lengths in millimetres or centimetres – estimate, measure using a variety of tools (e.g., centimetre grid paper, geoboard) and strategies, and record the perimeter and area of polygons – estimate, measure, and record the mass of objects (e.g., apple, baseball, book), using the standard units of the kilogram and the gram – estimate, measure, and record the capacity of containers, using the standard units of the litre and the millilitre – estimate, measure using concrete materials, and record volume, and relate volume to the space taken up by an object – compare and order a collection of objects, using standard units of mass and/or capacity – determine, through investigation, the relationship between grams and kilograms – determine, through investigation, the relationship between millilitres and litres – select and justify the most appropriate standard unit to measure mass and the most appropriate standard unit to measure the capacity of a container	– estimate, measure, and record length, height, and distance, using standard units – draw items using a ruler, given specific lengths in centimetres – estimate, measure, and record the perimeter of two-dimensional shapes, through investigation using standard units – estimate, measure and record area – choose benchmarks for a kilogram and a litre to help them perform measurement tasks – estimate, measure, and record the capacity of containers using the standard unit of the litre or parts of a litre – estimate, measure, and record the mass of objects using the standard unit of the kilogram or parts of a kilogram – compare and order a collection of objects, using standard units of mass and/or capacity

Measurement: Measurement Relationships						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– select and justify the appropriate metric unit (i.e., millimetre, centimetre, decimetre, metre, decametre, kilometre) to measure length or distance in a given real-life situation	5.1, 5.2	9.1 with supporting TG note	**Length** *Pathway 1:* Perimeter of a Rectangle *Pathway 2:* Perimeter: Using Standard Units *Pathway 3:* Length: Using Standard Units **Area** *Pathway 1:* Area of a Rectangle *Pathway 2:* Using Standard Units of Area	– select and justify the most appropriate standard unit (i.e., millimetre, centimetre, decimetre, metre, kilometre) to measure length, height, width, and distance, and to measure the perimeter of various polygons	– describe, through investigation, the relationship between various units of length (i.e., millimetre, centimetre, decimetre, metre, kilometre) – select and justify the most appropriate standard unit (i.e., millimetre, centimetre, decimetre, metre, kilometre) to measure the side lengths and perimeters of various polygons	– compare standard units of length (i.e., centimetre, metre, kilometre) (e.g., centimeters are smaller than metres), and select and justify the most appropriate standard unit to measure length – compare and order objects on the basis of linear measurements in centimetres and/or metres (e.g., compare a 3 cm object with a 5 cm object; compare a 50 cm object with a 1 m object) in problem-solving contexts – compare and order various shapes by area, using congruent shapes (e.g., from a set of pattern blocks or Power Polygons) and grid paper for measuring – describe, through investigation using grid paper, the relationship between the size of a unit of area and the number of units needed to cover a surface
– solve problems requiring conversion from larger to smaller metric units (e.g., metres to centimetres, kilograms to grams, litres to millilitres)	5.2, Ch. 5 Task	4.7, 4.9, 4.12, 6.7, 6.8	**Length** *Pathway 3:* Length: Using Standard Units	– solve problems requiring conversion from metres to centimetres and from kilometres to metres		

Measurement: Measurement Relationships ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– construct a rectangle, a square, a triangle, and a parallelogram, using a variety of tools (e.g., concrete materials, geoboard, dynamic geometry software, grid paper), given the area and/or perimeter	5.3, 5.4, 5.5 8.1, 8.2, 8.3, 8.4, 8.6, Ch. 8 Task	9.9	**Length** *Pathway 1:* Perimeter of a Rectangle *Pathway 2:* Perimeter: Using Standard Units **Area** *Pathway 1:* Area of a Rectangle *Pathway 2:* Using Standard Units of Area	– create, through investigation using a variety of tools (e.g., pattern blocks, geoboard, grid paper) and strategies, two-dimensional shapes with the same perimeter or the same area (e.g., rectangles and parallelograms with the same base and the same height)		– compare, using a variety of tools (e.g., geoboard, patterns blocks, dot paper), two-dimensional shapes that have the same perimeter or the same area
– determine, through investigation using a variety of tools (e.g., pattern blocks, Power Polygons, dynamic geometry software, grid paper) and strategies (e.g., paper folding, cutting, and rearranging), the relationship between the area of a rectangle and the areas of parallelograms and triangles, by decomposing (e.g., cutting up a parallelogram into a rectangle and two congruent triangles) and composing (e.g., combining two congruent triangles to form a parallelogram)	8.2, 8.3, 8.6, Ch. 8 Task	9.4, 9.5				

Measurement: Measurement Relationships ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– develop the formulas for the area of a parallelogram (i.e., *Area of parallelogram* = *base* x *height*) and the area of a triangle [i.e., *Area of triangle* = (*base* x *height*) ÷ 2], using the area relationships among rectangles, parallelograms, and triangles	8.2, 8.3, 8.4, Ch. 8 Task	9.6	**Length** *Pathway 1:* Perimeter of a Rectangle *Pathway 2:* Perimeter: Using Standard Units **Area** *Pathway 1:* Area of a Rectangle *Pathway 2:* Using Standard Units of Area	– determine, through investigation using a variety of tools (e.g., concrete materials, dynamic geometry software, grid paper) and strategies (e.g., building arrays), the relationships between the length and width of a rectangle and its area and perimeter, and generalize to develop the formulas [i.e., *Area* = *length* x *width*; *Perimeter* = (2 x *length*) + (2 x *width*)]	– determine, through investigation, the relationship between the side lengths of a rectangle and its perimeter and area – pose and solve meaningful problems that require the ability to distinguish perimeter and area (e.g., "I need to know about area when I cover a bulletin board with construction paper. I need to know about perimeter when I make the border.")	
– solve problems involving the estimation and calculation of the areas of triangles and the areas of parallelograms	8.2, 8.4, 8.5, 8.6, Ch. 8 Task, 11.3, Ch. 11 Task	9.4, 9.5, 9.6, 9.9	**Length** *Pathway 1:* Perimeter of a Rectangle **Area** *Pathway 1:* Area of a Rectangle *Pathway 2:* Using Standard Units of Area	– solve problems requiring the estimation and calculation of perimeters and areas of rectangles		
– determine, using concrete materials, the relationship between units used to measure area and apply the relationship to solve problems that involve conversions from square metres to square centimetres	8.1	9.2				

Measurement: Measurement Relationships ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– determine, through investigation using a variety of tools and strategies (e.g., decomposing rectangular prisms into triangular prisms; stacking congruent triangular layers of concrete materials to form a triangular prism), the relationship between the height, the area of the base, and the volume of a triangular prism, and generalize to develop the formula (i.e., *Volume = area of base* x *height*)	11.3	9.7	**Volume and Capacity** *Pathway 1:* Volume Related to Area of Base *Pathway 2:* Relating Volume and Capacity	– determine, through investigation using stacked congruent rectangular layers of concrete materials, the relationship between the height, the area of the base, and the volume of a rectangular prism, and generalize to develop the formula (i.e., *Volume = area of base* x *height*)		
– determine, through investigation using a variety of tools (e.g., nets, concrete materials, dynamic geometry software, Polydrons) and strategies, the surface area of rectangular and triangular prisms	11.2, 11.4, Ch. 11 Task	6.5, 9.8				
– solve problems involving the estimation and calculation of the surface area and volume of triangular and rectangular prisms	11.3, 11.4, Ch. 11 Task	6.5, 6.6, 9.7, 9.8				

Measurement: Measurement Relationships ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
			Time *Pathway 1:* Using Elapsed Time *Pathway 2:* Reading a Clock	– estimate, measure (i.e., using an analogue clock), and represent time intervals to the nearest second – estimate and determine elapsed time, with and without using a time line, given the durations of events expressed in minutes, hours, days, weeks, months, or years – solve problems involving the relationship between a 12-hour clock and a 24-hour clock (e.g., 15:00 is 3 hours after 12 noon, so 15:00 is the same as 3:00 p.m.)	– estimate, measure (i.e., using an analogue clock), and represent time intervals to the nearest minute – estimate and determine elapsed time, with and without using a time line, given the durations of events expressed in five-minute intervals, hours, days, weeks, months, or years – solve problems involving the relationship between years and decades, and between decades and centuries	– solve problems involving the relationships between minutes and hours, hours and days, days and weeks, and weeks and years, using a variety of tools (e.g., clocks, calendars, calculators) – read time using analogue clocks, to the nearest five minutes, and using digital clocks (e.g., 1:23 means twenty-three minutes after one o'clock), and represent time in 12-hour notation
				– measure and record temperatures to determine and represent temperature changes over time (e.g., record temperature changes in an experiment or over a season)		– estimate, read (i.e., using a thermometer), and record positive temperatures to the nearest degree Celsius (i.e., using a number line; using appropriate notation) – identify benchmarks for freezing, cold, cool, warm, hot, and boiling temperatures as they relate to water and for cold, cool, warm, and hot temperatures as they relate to air (e.g., water freezes at 0°C; the air temperature on a warm day is about 20°C, but water at 20°C feels cool)

Geometry and Spatial Sense: Geometric Properties						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– sort and classify quadrilaterals by geometric properties related to symmetry, angles, and sides, through investigation using a variety of tools (e.g., geoboard, dynamic geometry software) and strategies (e.g., using charts, using Venn diagrams)	7.5, 7.6, Ch. 7 Task	3.2 with supporting TG note	**2-D Shapes** *Pathway 1:* Classifying Triangles *Pathway 2:* Classifying Quadrilaterals *Pathway 3:* Line Symmetry	– distinguish among polygons, ~~regular polygons,~~ and other two-dimensional shapes – identify triangles (i.e., acute, right, obtuse, scalene, isosceles, equilateral), and classify them according to angle and side properties	– identify and compare different types of quadrilaterals (i.e., rectangle, square, trapezoid, parallelogram, rhombus) and sort and classify them by their geometric properties (e.g., sides of equal length; parallel sides; symmetry; number of right angles)	– identify and compare various polygons (i.e., triangles, quadrilaterals, pentagons, hexagons, heptagons, octagons) and sort them by their geometric properties (i.e., number of sides; side lengths; number of interior angles; number of right angles) – explain the relationships between different types of quadrilaterals (e.g., a square is a rectangle because a square has four sides and four right angles; a rhombus is a parallelogram because opposite sides of a rhombus are parallel) – identify congruent two-dimensional shapes by manipulating and matching concrete materials (e.g., by translating, reflecting, or rotating pattern blocks)
– sort polygons according to the number of lines of symmetry and the order of rotational symmetry, through investigation using a variety of tools (e.g., tracing paper, dynamic geometry software, Mira)	7.5, 7.6, Ch. 7 Task 14.3	7.6				

Geometry and Spatial Sense: Geometric Properties						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– measure and construct angles up to 180° using a protractor, and classify them as acute, right, obtuse, or straight angles	7.1, 7.2, 7.4, 7.6, Ch. 7 Task 14.1, 14.2, 14.3, Ch. 14 Task	3.1	**2-D Shapes** *Pathway 1:* Classifying Triangles *Pathway 2:* Classifying Quadrilaterals *Pathway 3:* Line Symmetry **Angles** *Pathway 1:* Measuring and Drawing Angles *Pathway 2:* Comparing Angles	– identify and classify acute, right, obtuse, and straight angles – measure and construct angles up to 90º, using a protractor	– identify benchmark angles (i.e., straight angle, right angle, half a right angle), using a reference tool (e.g., paper and fasteners, pattern blocks, straws), and compare other angles to these benchmarks (e.g., "The angle the door makes with the wall is smaller than a right angle but greater than half a right angle.") – relate the names of the benchmark angles to their measures in degrees (e.g., a right angle is 90º)	– use a reference tool (e.g., paper corner, pattern block, carpenter's square) to identify right angles and to describe angles as greater than, equal to, or less than a right angle – compare various angles, using concrete materials and pictorial representations, and describe angles as *bigger than*, *smaller than*, or *about the same as* other angles (e.g., "Two of the angles on the red pattern block are bigger than all the angles on the green pattern block.")
– construct polygons using a variety of tools, given angle and side measurements	7.2, 7.3, 7.4, 7.6, Ch. 7 Task also: Ch. 8 Task	3.4, Unit 3 Technology Feature, page 96	**2-D Shapes** *Pathway 1:* Classifying Triangles	– construct triangles, using a variety of tools (e.g., protractor, compass, dynamic geometry software), given acute or right angles and side measurements		

Geometry and Spatial Sense: Geometric Relationships						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– build three-dimensional models using connecting cubes, given isometric sketches or different views (i.e., top, side, front) of the structure	11.1, 11.5, 11.6, 11.7, 11.8, Ch. 11 Task	3.6	**3-D Shapes** *Pathway 1:* Modelling with Nets *Pathway 2:* Modelling with Skeletons *Pathway 3:* Modelling with Solid Shapes	– distinguish among prisms, right prisms, pyramids, and other three-dimensional figures – identify prisms and pyramids from their nets	– identify and describe prisms and pyramids, and classify them by their geometric properties (i.e., shape of faces, number of edges, number of vertices), using concrete materials – construct a three-dimensional figure from a picture or model of the figure, using connecting cubes (e.g., use connecting cubes to construct a rectangular prism) – construct skeletons of three-dimensional figures, using a variety of tools (e.g., straws and modelling clay, toothpicks and marshmallows, Polydrons), and sketch the skeletons – construct prisms and pyramids from given nets – construct three-dimensional figures (e.g., cube, tetrahedron), using only congruent shapes	– compare and sort prisms and pyramids by geometric properties (i.e., number and shape of faces, number of edges, number of vertices), using concrete materials – identify and describe the two-dimensional shapes that can be found in a three-dimensional figure – describe and name prisms and pyramids by the shape of their base (e.g., rectangular prism, square-based pyramid) – construct rectangular prisms (e.g., using given paper nets; using Polydrons), and describe geometric properties (i.e., number and shape of faces, number of edges, number of vertices) of the prisms
– sketch, using a variety of tools (e.g., isometric dot paper, dynamic geometry software), isometric perspectives and different views (i.e., top, side, front) of three-dimensional figures built with interlocking cubes	11.5, 11.6, 11.7, 11.8, Ch. 11 Task	3.6	**3-D Shapes** *Pathway 1:* Modelling with Nets	– construct nets of prisms and pyramids, using a variety of tools (e.g., grid paper, isometric dot paper, Polydrons, computer application)	– draw and describe nets of rectangular and triangular prisms	

Geometry and Spatial Sense: Location and Movement						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– explain how a coordinate system represents location, and plot points in the first quadrant of a Cartesian coordinate plane	1.4, Ch. 1 Task, 3.2, 3.3, 3.4, 3.7, 3.8, Ch. 3 Task	5.5, 7.1	**Location and Movement** *Pathway 1:* Using Cardinal Directions on Grids *Pathway 2:* Locating Objects on Grids	– locate an object using the cardinal directions (i.e., north, south, east, west) and a coordinate system (e.g., "If I walk 5 steps north and 3 steps east, I will arrive at the apple tree.") – compare grid systems commonly used on maps	– identify and describe the general location of an object using a grid system (e.g., "The library is located at A3 on the map.")	– describe movement from one location to another using a grid map (e.g., to get from the swings to the sandbox, move three squares to the right and two squares down)
– identify, perform, and describe, through investigation using a variety of tools (e.g., grid paper, tissue paper, protractor, computer technology), rotations of 180º and clockwise and counterclockwise rotations of 90°, with the centre of rotation inside or outside the shape	14.1, 14.2, 14.3, 14.4, 14.5, 14.6, Ch. 14 Task	7.1, 7.2	**Transformations** *Pathway 1:* Single Rotations *Pathway 2:* Multiple Reflections *Pathway 3:* Multiple Translations *Pathway 4:* Single Reflections and Translations	– identify, perform, and describe translations, using a variety of tools (e.g., geoboard, dot paper, computer program)	– identify, perform, and describe reflections using a variety of tools (e.g., Mira, dot paper, technology)	– identify flips, slides, and turns, through investigation using concrete materials and physical motion, and name flips, slides, and turns as reflections, translations, and rotations (e.g., a slide to the right is a translation; a turn is a rotation)
– create and analyse designs made by reflecting, translating, and/or rotating a shape, or shapes, by 90º or 180º	14.4, 14.5, 14.6, Ch. 14 Task	7.2	**Transformations** *Pathway 1:* Single Rotations *Pathway 2:* Multiple Reflections *Pathway 3:* Multiple Translations *Pathway 4:* Single Reflections and Translations **2-D Shapes** *Pathway 3:* Line Symmetry	– create and analyse designs by translating and/or reflecting a shape, or shapes, using a variety of tools (e.g., geoboard, grid paper, computer program)	– draw the lines of symmetry of two-dimensional shapes, through investigation using a variety of tools and strategies – create and analyse symmetrical designs by reflecting a shape, or shapes, using a variety of tools and identify the congruent shapes in the designs	– complete and describe designs and pictures of images that have a vertical, horizontal, or diagonal line of symmetry

Patterning and Algebra: Patterns and Relationships						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– identify geometric patterns, through investigation using concrete materials or drawings, and represent them numerically	14.5 also: 1.2, 1.6	10.1, 10.3	**Patterns** *Pathway 1:* Using Pattern Rules *Pathway 2:* Growing and Shrinking Patterns *Pathway 3:* Repeating Patterns	– create, identify, and extend numeric and geometric patterns, using a variety of tools (e.g., concrete materials, paper and pencil, calculators, spreadsheets) – build a model to represent a number pattern presented in a table of values that shows the term number and the term – make predictions related to growing and shrinking geometric and numeric patterns	– extend, describe, and create repeating, growing, and shrinking number patterns (e.g., "I created the pattern 1, 3, 4, 6, 7, 9, …. I started at 1, then added 2, then added 1, then added 2, then added 1, and I kept repeating this.") – make predictions related to repeating geometric and numeric patterns	– identify, extend, and create a repeating pattern involving two attributes using a variety of tools – identify and describe, through investigation, number patterns involving addition, subtraction, and multiplication, represented on a number line, on a calendar, and on a hundreds chart – extend repeating, growing, and shrinking number patterns – create a number pattern involving addition or subtraction, given a pattern represented on a number line or a pattern rule expressed in words – represent simple geometric patterns using a number sequence, a number line, or a bar graph
– make tables of values for growing patterns, given pattern rules in words, then list the ordered pairs (with the first coordinate representing the term number and the second coordinate representing the term) and plot the points in the first quadrant, using a variety of tools	1.4, Ch. 1 Task also: 3.2, 3.3, 14.5	1.1, 10.1, 10.2, 10.3		– make a table of values for a pattern that is generated by adding or subtracting a number (i.e., a constant) to get the next term, or by multiplying or dividing by a constant to get the next term, given either the sequence or the pattern rule in words (e.g., start with 12 and add 5 to each term to get the next term)	– connect each term in a growing or shrinking pattern with its term number (e.g., in the sequence 1, 4, 7, 10, …, the first term is 1, the second term is 4, the third term is 7, and so on), and record the patterns in a table of values that shows the term number and the term	

Patterning and Algebra: Patterns and Relationships						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– determine the term number of a given term in a growing pattern that is represented by a pattern rule in words, a table of values, or a graph	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, Ch. 1 Task, 14.5	10.1				
– describe pattern rules (in words) that generate patterns by adding or subtracting a constant, or multiplying or dividing by a constant, to get the next term, then distinguish such pattern rules from pattern rules, given in words, that describe the general term by referring to the term number (e.g., for 2, 4, 6, 8,…, the pattern rule for the general term is "double the term number")	1.2, 1.3, 1.4, 1.5, Ch. 1 Task, 14.5	1.1, 1.2, 10.1, 10.3	**Patterns** *Pathway 1:* Using Pattern Rules		– create a number pattern involving addition, subtraction, or multiplication, given a pattern rule expressed in words (e.g., the pattern rule "start at 1 and multiply each term by 2 to get the next term" generates the sequence 1, 2, 4, 8, 16, 32, 64, …)	
– determine a term, given its term number, by extending growing and shrinking patterns that are generated by adding or subtracting a constant, or multiplying or dividing by a constant, to get the next term	1.2, 1.3, 1.4, 1.5, 1.6, Ch. 1 Task	1.1, 1.2, 10.1, 10.2, 10.3				
– extend and create repeating patterns that result from rotations, through investigation using a variety of tools (e.g., pattern blocks, dynamic geometry software, geoboards, dot paper)	14.5	7.8 with supporting TG note		– extend and create repeating patterns that result from translations, through investigation using a variety of tools (e.g., pattern blocks, dynamic geometry software, dot paper)	– extend and create repeating patterns that result from reflections, through investigation using a variety of tools (e.g., pattern blocks, dynamic geometry software, dot paper)	– demonstrate, through investigation, an understanding that a pattern results from repeating an action, repeating an operation, using a transformation (e.g., slide, flip, turn), or making some other repeated change to an attribute (e.g., colour, orientation)

Patterning and Algebra: Variables, Expressions, and Equations						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– demonstrate an understanding of different ways in which variables are used – identify, through investigation, the quantities in an equation that vary and those that remain constant (e.g., in the formula for the area of a triangle, $A = (b \times h)/2$, the number 2 is a constant, whereas *b* and *h* can vary and may change the value of *A*)	1.3, 1.4, 1.5, 1.7, 1.8, Ch. 1 Task	1.4 9.1, 9.4, 9.6 with supporting TG note		– demonstrate, through investigation, an understanding of variables as changing quantities, given equations with letters or other symbols that describe relationships involving simple rates		
– solve problems that use two or three symbols or letters as variables to represent different unknown quantities – determine the solution to a simple equation with one variable, through investigation using a variety of tools and strategies (e.g., modelling with concrete materials, using guess and check with and without the aid of a calculator)	1.7, 1.8	1.4	**Equality** *Pathway 1:* Using Algebra *Pathway 2:* Solving Equations	– demonstrate, through investigation, an understanding of variables as unknown quantities represented by a letter or other symbol – determine the missing number in equations involving addition, subtraction, multiplication, or division and one- or two-digit numbers, using a variety of tools and strategies	– determine, through investigation, the inverse relationship between multiplication and division – determine the missing number in equations involving multiplication of one- and two-digit numbers, using a variety of tools and strategies – identify, through investigation and use the commutative property of multiplication to facilitate computation with whole numbers – identify, through investigation and use the distributive property of multiplication over addition to facilitate computation with whole numbers	– determine, through investigation, the inverse relationship between addition and subtraction – determine, the missing number in equations involving addition and subtraction of one- and two-digit numbers, using a variety of tools and strategies – identify, through investigation, the properties of zero and one in multiplication – identify, through investigation, and use the associative property of addition to facilitate computation with whole numbers

Data Management and Probability: Collection and Organization of Data						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– collect data by conducting a survey (e.g., use an Internet survey tool) or an experiment to do with themselves, their environment, issues in their school or community, or content from another subject, and record observations or measurements	3.1, 3.6, 3.9, Ch. 3 Task	5.4, 5.6, 5.7	**Displaying Data** *Pathway 1:* Data: Using Broken-Line Graphs *Pathway 2:* Data: Using Stem-and-Leaf Plots *Pathway 3:* Data: Using Double Bar Graphs *Pathway 4:* Data: Using Line Plots	– collect data by conducting a survey or an experiment (e.g., gather and record air temperature over a two-week period) to do with themselves, their environment, issues in their school or community, or content from another subject, and record observations or measurements	– collect data by conducting a survey (e.g., "Choose your favourite meal from the following list: breakfast, lunch, dinner, other.") or an experiment to do with themselves, their environment, issues in their school or the community, or content from another subject, and record observations or measurements	– collect data by conducting a simple survey about themselves, their environment, issues in their school or community, or content from another subject
– collect and organize discrete or continuous primary data and secondary data (e.g., electronic data from websites such as E-Stat or Census At Schools) and display the data in charts, tables, and graphs (including continuous line graphs) that have appropriate titles, labels (e.g., appropriate units marked on the axes), and scales (e.g., with appropriate increments) that suit the range and distribution of the data, using a variety of tools (e.g., graph paper, spreadsheets, dynamic statistical software)	3.1, 3.3, 3.4, 3.6, 3.7, 3.9, Ch. 3 Task	5.4, 5.6, 5.7, Unit 5 Technology Feature page 182, 6.8, 10.4, Unit 10 Technology Feature, page 397	**Displaying Data** *Pathway 1:* Data: Using Broken-Line Graphs *Pathway 2:* Data: Using Stem-and-Leaf Plots *Pathway 3:* Data: Using Double Bar Graphs *Pathway 4:* Data: Using Line Plots	– distinguish between discrete data (i.e., data organized using numbers that have gaps between them, such as whole numbers, and often used to represent a count, such as the number of times a word is used) and continuous data – collect and organize discrete or continuous primary data and secondary data and display the data in charts, tables, and graphs (including broken-line graphs) that have appropriate titles, labels, and scales that suit the range and distribution of the data using a variety of tools	– collect and organize discrete primary data and display the data in charts, tables, and graphs (including stem-and-leaf plots and double bar graphs) that have appropriate titles, labels (e.g., appropriate units marked on the axes), and scales (e.g., with appropriate increments) that suit the range and distribution of the data, using a variety of tools (e.g., graph paper, simple spreadsheets, dynamic statistical software)	– collect and organize categorical or discrete primary data and display the data in charts, tables, and graphs (including vertical and horizontal bar graphs), with appropriate titles and labels and with labels ordered appropriately along horizontal axes, as needed, using many-to-one correspondence (e.g., in a pictograph, one car sticker represents 3 cars; on a bar graph, one square represents 2 students) – demonstrate an ability to organize objects into categories, by sorting and classifying objects using two or more attributes simultaneously

Data Management and Probability: Collection and Organization of Data ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– select an appropriate type of graph to represent a set of data, graph the data using technology, and justify the choice of graph (i.e., from types of graphs already studied, such as pictographs, horizontal or vertical bar graphs, stem-and-leaf plots, double bar graphs, broken-line graphs, and continuous line graphs)	3.1, 3.3, 3.4, 3.6, 3.7, 3.9, Ch. 3 Task	5.4, Unit 5 Technology Feature, page 182		– demonstrate an understanding that sets of data can be samples of larger populations (e.g., to determine the most common shoe size in your class, you would include every member of the class in the data; to determine the most common shoe size in Ontario for your age group, you might collect a large sample from classes across the province) – describe, through investigation, how a set of data is collected (e.g., by survey, measurement, observation) and explain whether the collection method is appropriate		
– determine, through investigation, how well a set of data represents a population, on the basis of the method that was used to collect the data	3.1, 3.8	5.7				

Data Management and Probability: Data Relationships						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– read, interpret, and draw conclusions from primary data (e.g., survey results, measurements, observations) and from secondary data (e.g., sports data in the newspaper, data from the Internet about movies), presented in charts, tables, and graphs (including continuous line graphs)	3.1, 3.3, 3.4, 3.6, 3.7, 3.8, 3.9, Ch. 3 Task	5.1, 5.2, 5.4, 5.6, 5.7	**Summarizing Data** *Pathway 1:* Data: Using the Mean *Pathway 2:* Data: Using the Median and Mode **Displaying Data** *Pathway 1:* Data: Using Broken-Line Graphs *Pathway 2:* Data: Using Stem-and-Leaf Plots *Pathway 3:* Data: Using Double Bar Graphs *Pathway 4:* Data: Using Line Plots	– read, interpret, and draw conclusions from primary data (e.g., survey results, measurements, observations) and from secondary data (e.g., precipitation or temperature data in the newspaper, data from the Internet about heights of buildings and other structures), presented in charts, tables, and graphs (including broken-line graphs)	– read, interpret, and draw conclusions from primary data (e.g., survey results, measurements, observations) and from secondary data (e.g., temperature data in the newspaper, data from the Internet about endangered species), presented in charts, tables, and graphs (including stem-and-leaf plots and double bar graphs)	– read primary data presented in charts, tables, and graphs (including vertical and horizontal bar graphs), then describe the data using comparative language, and describe the shape of the data (e.g., "Most of the data are at the high end."; "All of the data values are different.") – interpret and draw conclusions from data presented in charts, tables, and graphs
– compare, through investigation, different graphical representations of the same data	3.6, 3.7, 3.9	5.4, Unit 5 Technology Feature, page 182	**Summarizing Data** *Pathway 1:* Data: Using the Mean *Pathway 2:* Data: Using the Median and Mode **Displaying Data** *Pathway 1:* Data: Using Broken-Line Graphs *Pathway 2:* Data: Using Stem-and-Leaf Plots *Pathway 3:* Data: Using Double Bar Graphs *Pathway 4:* Data: Using Line Plots	– compare similarities and differences between two related sets of data, using a variety of strategies (e.g., by representing the data using tally charts, stem-and-leaf plots, double bar graphs, or broken-line graphs; by determining measures of central tendency [i.e., mean, median, and mode]; by describing the shape of a data set across its range of values)	– compare similarities and differences between two related sets of data, using a variety of strategies (e.g., by representing the data using tally charts, stem-and-leaf plots, or double bar graphs; by determining the mode or the median; by describing the shape of a data set across its range of values)	

Data Management and Probability: Data Relationships ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– explain how different scales used on graphs can influence conclusions drawn from the data	3.6, 3.7	5.4, Unit 5 Technology Feature, page 182				
– demonstrate an understanding of mean (e.g., *mean* differs from *median* and *mode* because it is a value that "balances" a set of data – like the centre point or fulcrum in a lever), and use the mean to compare two sets of related data, with and without the use of technology	3.5, 3.9, Ch. 3 Task	5.2	**Summarizing Data** *Pathway 1:* Data: Using the Mean *Pathway 2:* Data: Using the Median and Mode	– calculate the mean for a small set of data and use it to describe the shape of the data set across its range of values, using charts, tables, and graphs (e.g., "The data values fall mainly into two groups on both sides of the mean."; "The set of data is not spread out evenly around the mean.")	– describe the shape of a set of data across its range of values, using charts, tables, and graphs (e.g. "The data values are spread out evenly."; "The set of data bunches up around the median.")	– demonstrate an understanding of mode (e.g., "The mode is the value that shows up most often on a graph."), and identify the mode in a set of data
– demonstrate, through investigation, an understanding of how data from charts, tables, and graphs can be used to make inferences and convincing arguments (e.g., describe examples found in newspapers and magazines)	3.1, 3.8, 3.9, Ch. 3 Task	5.1				
Data Management and Probability: Probability						
– express theoretical probability as a ratio of the number of favourable outcomes to the total number of possible outcomes, where all outcomes are equally likely (e.g., the theoretical probability of rolling an odd number on a six-sided number cube is 3/6 because, of six equally likely outcomes, only three are favourable – that is, the odd numbers 1, 3, 5)	13.4, 13.5, 13.6, Ch. 13 Task	11.1, 11.2	**Probability** *Pathway 1:* Probability: Using Numbers *Pathway 2:* Probability: Using Words	– determine and represent all the possible outcomes in a simple probability experiment (e.g., when tossing a coin, the possible outcomes are heads and tails; when rolling a number cube, the possible outcomes are 1, 2, 3, 4, 5, and 6), using systematic lists and area models (e.g., a rectangle is divided into two equal areas to represent the outcomes of a coin toss experiment)	– determine, through investigation, how the number of repetitions of a probability experiment can affect the conclusions drawn	

Data Management and Probability: Data Relationships ctd.						
Grade 6 Ontario expectations	***Nelson Mathematics 6***	***Math Makes Sense 6***	***Leaps and Bounds 5/6* Topics**	**Grade 5 Ontario expectations**	**Grade 4 Ontario expectations**	**Grade 3 Ontario expectations**
– represent the probability of an event (i.e., the likelihood that the event will occur), using a value from the range of 0 (never happens or impossible) to 1 (always happens or certain)	13.1, 13.2, 13.3, 13.4, 13.5, 13.6, Ch. 13 Task	11.1				
– predict the frequency of an outcome of a simple probability experiment or game, by calculating and using the theoretical probability of that outcome (e.g., "The theoretical probability of spinning red is 1/4 since there are four different-coloured areas that are equal. If I spin my spinner 100 times, I predict that red should come up about 25 times.")	13.2, 13.5, 13.6	11.5	**Probability** *Pathway 1:* Probability: Using Numbers *Pathway 2:* Probability: Using Words	– represent, ~~using a common fraction,~~ the probability that an event will occur in simple games and probability experiments (e.g., "My spinner has four equal sections and one of those sections is coloured red. The probability that I will land on red is 1/4.")	– predict the frequency of an outcome in a simple probability experiment, explaining their reasoning; conduct the experiment; and compare the result with the prediction	– predict the frequency of an outcome in a simple probability experiment or game (e.g., "I predict that an even number will come up 5 times and an odd number will come up 5 times when I roll a number cube 10 times."), then perform the experiment, and compare the results with the predictions, using mathematical language