Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Number Sense				
Represent, Compare and Order Numbers 0 to 10 000	**Represent, Compare and Order Numbers 0.01 to 10 000**	**Represent, Compare and Order Numbers 0.01 to 1 000 000**	**Represent, Compare and Order Integers**	**Represent, Compare and Order Rational Numbers**
4m12 Represent, compare, and order whole numbers to 10 000, using a variety of tools Number Lines in Disguise	**5m12** Represent, compare, and order whole numbers and decimal numbers from 0.01 to 100 000, using a variety of tools and strategies	**6m11** Represent, compare, and order whole numbers and decimal numbers from 0.001 to 1 000 000, using a variety of tools and strategies	**7m13** Identify and compare integers found in real-life contexts	**8m13** Represent, compare, and order rational numbers (i.e., positive and negative fractions and decimals to thousandths)
Representing Numbers	Number Lines in Disguise		**7m14** Represent and order integers, using a variety of tools	Number Lines in Disguise
That Number Square!	Representing Numbers	Represent, compare, and order whole numbers to 10 000, using a variety of tools	Number Lines in Disguise	Greater Than or Less Than?
Number Match	Greater Than or Less Than?		Greater Than or Less Than?	**8m14** Translate between equivalent forms of a number (i.e., decimals, fractions, percents)
4m13 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	Nice or Nasty	Number Lines in Disguise		
	5m13 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	Greater Than or Less Than?	**Number Sense and Numeration Overall: 7m8**	**Number Sense and Numeration Overall: 8m8**
Nice or Nasty		Nice or Nasty		
Roman Numerals		Spiralling Decimals		
Coded Hundred Square	Roman Numerals	**6m12** 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		
The Deca Tree	Coded Hundred Square			
Which Scripts?	The Deca Tree			
4m14 Read and print in words whole numbers to one thousand, using meaningful contexts	Spiralling Decimals			
	Which Scripts?	Coded Hundred Square		
	5m14 Read and print in words whole numbers to ten thousand, using meaningful contexts	The Deca Tree		
		Spiralling Decimals		

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
4m15 Round four-digit whole numbers to the nearest ten, hundred, and thousand, in problems arising from real-life situations **4m16** Represent, compare, and order decimal numbers to tenths, using a variety of tools, and using standard decimal notation **4m22** Solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 10 000 **4m24** Count forward by tenths from any decimal number expressed to one decimal place, using concrete materials and number lines **Number Sense and Numeration Overall: 4m8**	**5m18** Demonstrate and explain equivalent representations of a decimal number, using concrete materials and drawings **5m19** Read and write money amounts to $1000 **5m21** Count forward by hundredths from any decimal number expressed to two decimal places, using concrete materials and number lines **Number Sense and Numeration Overalls: 5m8, 5m9**	Which Scripts? **6m13** Read and print in words whole numbers to one hundred thousand, using meaningful contexts **6m16** Solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 1 000 000 **Number Sense and Numeration Overall: 6m8**		
Numeration				

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Operations Involving Numbers 0 to 10 000	**Operations Involving Numbers 0.01 to 10 000**	**Operations Involving Numbers 0.001 to 1 000 000**	**Represent, Compare, Order and Operate Using Decimal Numbers**	**Multi-Step Problems Involving Whole and Decimal Numbers**
4m 13 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	**5m13** 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	**6m12** 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	**7m11** Represent, compare, and order decimals to hundredths and fractions, using a variety of tools	**8m13** Represent, compare, and order rational numbers (i.e., positive and negative fractions and decimals to thousandths)
Nice or Nasty	Roman Numerals	Coded Hundred Square	Spiralling Decimals	Up, Down, Flying Around
Roman Numerals	Coded Hundred Square	The Deca Tree	**7m14** Represent and order integers, using a variety of tools	**8m16** Solve multi-step problems arising from real-life contexts and involving whole numbers and decimals, using a variety of tools and strategies
Coded Hundred Square	The Deca Tree	Spiralling Decimals	**7m18** Divide whole numbers by simple fractions and by decimal numbers to hundredths, using concrete materials	**8m18** Use estimation when solving problems involving operations with whole numbers, decimals, percents, integers, and fractions, to help judge the reasonableness of a solution
The Deca Tree	Spiralling Decimals	**6m19** Solve problems involving the multiplication and division of whole numbers (four-digit by two-digit), using a variety of tools and strategies	**7m19** Use a variety of mental strategies to solve problems involving the addition and subtraction of fractions and decimals	**8m21** Represent the multiplication and division of integers, using a variety of tools
Spiralling Decimals	**5m15** Round decimal numbers to the nearest tenth, in problems arising from real-life situations Round the Dice Decimals 2	Long Multiplication Method in Multiplying Madness?	**7m20** Solve problems involving the multiplication and division of decimal numbers to thousandths by one-digit whole numbers,	Galley Division
4m26 Solve problems involving the addition and subtraction of four-digit numbers, using student-generated algorithms and standard algorithms	**5m20** Solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 100 000	**6m20** Add and subtract decimal numbers to thousandths, using concrete materials, estimation, algorithms, and calculators		
4m32 Multiply two-digit whole numbers by one-digit whole numbers, using a variety of tools, student-generated algorithms, and standard algorithms	**5m23** Add and subtract decimal numbers to hundredths, including money amounts, using concrete	**6m21** Multiply and divide decimal numbers to tenths		
4m33 Divide two-digit whole numbers by one-digit whole				

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
numbers, using a variety of tools and student-generated algorithms **4m34** Use estimation when solving problems involving the addition, subtraction, and multiplication of whole numbers, to help judge the reasonableness of a solution **4m83** Identify, through investigation, and use the commutative property of multiplication to facilitate computation with whole numbers **4m84** Identify, through investigation, and use the distributive property of multiplication over addition to facilitate computation with whole numbers **Number Sense and Numeration Overalls: 4m8, 4m10** **Patterning and Algebra Overall: 4m75**	materials, estimation, and algorithms **5m24** Multiply two-digit whole numbers by two-digit whole numbers, using estimation, student-generated algorithms, and standard algorithms Method in Multiplying Madness? **5m25** Divide three-digit whole numbers by one-digit whole numbers, using concrete materials, estimation, student-generated algorithms, and standard algorithms The Remainders Game **Number Sense and Numeration Overalls: 5m8, 5m10**	by whole numbers, using concrete materials, estimation, algorithms, and calculators Route Product **6m22** Multiply whole numbers by 0.1, 0.01, and 0.001 using mental strategies **6m23** Multiply and divide decimal numbers by 10, 100, 1000, and 10 000 using mental strategies Repetitiously **6m24** Use estimation when solving problems involving the addition and subtraction of whole numbers and decimals, to help judge the reasonableness of a solution **6m66** Determine the solution to a simple equation with one variable, through investigation using a variety of tools and strategies	using a variety of tools and strategies **7m21** Solve multi-step problems arising from real-life contexts and involving whole numbers and decimals, using a variety of tools and strategies Forgot the Numbers **7m22** Use estimation when solving problems involving operations with whole numbers, decimals, and percents, to help judge the reasonableness of a solution **7m23** Evaluate expressions that involve whole numbers and decimals, including expressions that contain brackets, using order of operations **7m26** Add and subtract integers, using a variety of tools Forwards Add Backwards Cryptarithms	**8m22** Solve problems involving operations with integers, using a variety of tools Napier's Location Arithmetic **8m23** Evaluate expressions that involve integers, including expressions that contain brackets and exponents, using order of operations **8m62** Evaluate algebraic expressions with up to three terms, by substituting fractions, decimals, and integers for the variables **8m64** Solve and verify linear equations involving a one-variable term and having solutions that are integers, by using inspection guess and check and a "balance" model **Number Sense and Numeration Overall: 8m9**

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
		Number Sense and Numeration Overalls: 6m8, 6m9 **Patterning and Algebra Overall: 6m56**	**7m35** Solve problems that require conversion between metric units of measure **Number Sense and Numeration Overalls: 7m8, 7m9** **Measurement Overall: 7m32**	
Mental Math, Multiplicative Relationships and Equality **4m25** Add and subtract two-digit numbers, using a variety of mental strategies Diagonal Sums **4m29** Multiply to 9 x 9 and divide to 81 ÷ 9, using a variety of mental strategies Multiplication Square Jigsaw Shape Times Shape Times Tables Shifts **4m30** Solve problems involving the multiplication of one-digit whole numbers, using a variety of mental strategies	**Mental Math, Multiplicative Relationships and Equality** **5m22** Solve problems involving the addition, subtraction, and multiplication of whole numbers, using a variety of mental strategies **5m30** Demonstrate an understanding of simple multiplicative relationships involving whole-number rates, through investigation using concrete materials and drawings **5m69** Demonstrate, through investigation, an understanding of variables as	**Mental Math, Whole Number Relationships and Order of Operations** **6m17** Identify composite numbers and prime numbers, and explain the relationship between them (i.e., any composite number can be factored into prime factors) Various Venns **6m18** Use a variety of mental strategies to solve addition, subtraction, multiplication, and division problems involving whole numbers	**Whole Number Relationships and Operations** **7m12** Generate multiples and factors, using a variety of tools and strategies Factor-multiple Chains Factors and Multiples Gabriel's Problem Dozens Missing Multipliers Factors and Multiples Puzzle **7m16** Represent perfect squares and square roots, using a variety of tools Sticky Numbers **7m21** Solve multi-step problems arising from real-	**Whole Number Relationships and Powers of Ten** **8m11** Express repeated multiplication using exponential notation Power Mad! **8m12** Represent whole numbers in expanded form using powers of ten **8m15** Determine common factors and common multiples using the prime factorization of numbers Counting Cogs Stars 14 Divisors

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
4m31 Multiply whole numbers by 10, 100, and 1000, and divide whole numbers by 10 and 100, using mental strategies **4m35** Describe relationships that involve simple whole-number multiplication **4m37** Demonstrate an understanding of simple multiplicative relationships involving unit rates, through investigation using concrete materials and drawings **4m81** Determine, through investigation, the inverse relationship between multiplication and division Multiplication Squares **4m82** Determine the missing number in equations involving multiplication of one- and two-digit numbers, using a variety of tools and strategies	unknown quantities represented by a letter or other symbol **5m70** 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 **Number Sense and Numeration Overalls: 5m10, 5m11** **Patterning and Algebra Overall: 5m62**	**6m25** 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 Four Goodness Sake Make 100 **Number Sense and Numeration Overalls: 6m8, 6m9**	life contexts and involving whole numbers and decimals, using a variety of tools and strategies **7m22** Use estimation when solving problems involving operations with whole numbers, decimals, and percents, to help judge the reasonableness of a solution **7m23** Evaluate expressions that involve whole numbers and decimals, including expressions that contain brackets, using order of operations The 24 Game **Number Sense and Numeration Overalls: 7m8, 7m9**	**8m24** Multiply and divide decimal numbers by various powers of ten **8m25** Estimate, and verify using a calculator, the positive square roots of whole numbers, and distinguish between whole numbers that have whole-number square roots (i.e., perfect square numbers) and those that do not Powers and Roots - Short Problems **Number Sense and Numeration Overalls: 8m8, 8m9**

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Number Sense and Numeration Overalls: 4m10, 4m11 **Patterning and Algebra Overall: 4m75**				
Numeration: Fractions, Decimals and Percentages				
Represent, Compare, and Order Fractions 4m17 Represent fractions using concrete materials, words, and standard fractional notation, and explain the meaning of the denominator as the number of fractional parts of a whole or a set, and the numerator as the number of fractional parts being considered [part-whole relationships] Fraction Match Fractional Triangles Bryony's Triangle **4m18** Compare and order fractions (i.e., halves, thirds, fourths, fifths, tenths) by considering the size and the number of fractional parts	**Represent, Compare, and Order Fractions** **5m16** Represent, compare, and order fractional amounts with like denominators, including proper and improper fractions and mixed numbers, using a variety of tools and using standard fractional notation Fractional Triangles Bryony's Triangle **5m17** Demonstrate and explain the concept of equivalent fractions, using concrete materials Fraction Match Fair Feast Matching Fractions	**Fractions, Ratios and Rates** **6m14** Represent, compare, and order fractional amounts with unlike denominators, including proper and improper fractions and mixed numbers, using a variety of tools and using standard fractional notation Fractional Triangles Bryony's Triangle Ordering Fractions **6m26** Represent ratios found in real-life contexts, using concrete materials, drawings, and standard fractional notation Pumpkin Pie Problem Orange Drink Jumping	**Represent, Compare, Order and Operate Using Fractions** **7m11** Represent, compare, and order decimals to hundredths and fractions, using a variety of tools **7m18** Divide whole numbers by simple fractions and by decimal numbers to hundredths, using concrete materials **7m19** Use a variety of mental strategies to solve problems involving the addition and subtraction of fractions and decimals **7m24** Add and subtract fractions with simple like and unlike denominators, using a variety of tools and algorithms	**Operations Involving Fractions** **8m18** Use estimation when solving problems involving operations with whole numbers, decimals, percents, integers, and fractions, to help judge the reasonableness of a solution **8m19** Represent the multiplication and division of fractions, using a variety of tools and strategies **8m20** Solve problems involving addition, subtraction, multiplication, and division with simple fractions **8m62** Evaluate algebraic expressions with up to three terms, by substituting

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4m19 Compare fractions to the benchmarks of 0, ½, and 1 **4m23** Count forward by halves, thirds, fourths, and tenths to beyond one whole, using concrete materials and number lines **Number Sense and Numeration Overalls: 4m8, 4m9**	**Number Sense and Numeration Overall: 5m8**	Mixing Lemonade **6m28** Represent relationships using unit rates **Number Sense and Numeration Overalls: 6m8, 6m10**	Linked Chains **7m25** Demonstrate, using concrete materials, the relationship between the repeated addition of fractions and the multiplication of that fraction by a whole number **Number Sense and Numeration Overalls: 7m8, 7m9**	fractions, decimals, and integers for the variables **Number Sense and Numeration Overall: 8m9** **Patterning and Algebra Overall: 8m55**
Fractions and Decimal Tenths Relationships **4m17** Represent fractions using concrete materials, words, and standard fractional notation, and explain the meaning of the denominator as the number of fractional parts of a whole or a set, and the numerator as the number of fractional parts being considered [part-whole relationships] **4m20** Demonstrate and explain the relationship	**Fractions and Decimal Hundredths Relationships** **5m16** Represent, compare, and order fractional amounts with like denominators, including proper and improper fractions and mixed numbers using a variety of tools and using standard fractional notation **5m17** Demonstrate and explain the concept of equivalent fractions, using concrete materials Fraction Match	**Fractions, Decimals, Ratios and Rates** **6m14** Represent, compare, and order fractional amounts with unlike denominators, including proper and improper fractions and mixed numbers, using a variety of tools and using standard fractional notation A4 Fraction Subtraction **6m15** Estimate quantities using benchmarks of 10%, 25%, 50%, 75%, and 100%	**Fractions, Decimals, Percents, Ratios** **7m15** Select and justify the most appropriate representation of a quantity (i.e., fraction, decimal, percent) for a given context Retiring to Paradise **7m22** Use estimation when solving problems involving operations with whole numbers, decimals, and percents, to help judge the reasonableness of a solution	**Solve Problems involving Proportions** **8m14** Translate between equivalent forms of a number (i.e., decimals, fractions, percents) **8m17** Solve problems involving percents expressed to one decimal place and whole-number percents greater than 100 **8m18** Use estimation when solving problems involving operations with whole numbers, decimals,

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between equivalent fractions, using concrete materials and drawings	Linked Chains	**6m26** Represent ratios found in real-life contexts, using concrete materials, drawings, and standard fractional notation	**7m27** Determine, through investigation, the relationships among fractions, decimals, percents, and ratios	percents, integers, and fractions, to help judge the reasonableness of a solution
Fraction Match	**5m18** Demonstrate and explain equivalent representations of a decimal number, using concrete materials and drawings	Pumpkin Pie Problem	Matching Fractions, Decimals and Percentages	**8m26** Identify and describe real-life situations involving two quantities that are directly proportional
Fair Feast		Orange Drink		
A4 Fraction Subtraction		Jumping	**7m28** Solve problems that involve determining whole number percents, using a variety of tools	Fruit Basket Ratio
Matching Fractions		Mixing Lemonade		**8m27** Solve problems involving proportions, using concrete materials, drawings, and variables
4m36 Determine and explain, through investigation, the relationship between fractions (i.e., halves, fifths, tenths) and decimals to tenths, using a variety of tools and strategies	**5m28** Describe multiplicative relationships between quantities by using simple fractions and decimals	**6m27** Determine and explain, through investigation using concrete materials, drawings, and calculators, the relationships among fractions (i.e., with denominators of 2, 4, 5, 10, 25, 50, and 100), decimal numbers, and percents	**7m29** Demonstrate an understanding of rate as a comparison, or ratio, of two measurements with different units	Tray Bake
	5m29 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		**7m30** Solve problems involving the calculation of unit rates	**8m28** Solve problems involving percent that arise from real-life contexts
Number Sense and Numeration Overalls: 4m8, 4m11		Fraction Match		**8m29** Solve problems involving rates
		Doughnut Percents	**7m74** Collect and organize categorical, discrete, or continuous primary data and secondary data and display the data in charts, tables, and graphs (including relative frequency tables and circle graphs) that have	**8m46** Determine, through investigation using a variety of tools, relationships among area, perimeter, corresponding side lengths, and corresponding angles of similar shapes
	Number Sense and Numeration Overalls: 5m8, 5m11	**Number Sense and Numeration Overalls: 6m8, 6m10**		**8m76** Compare two attributes or characteristics,

Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
			appropriate titles, labels, and scales that suit the range and distribution of the data, using a variety of tools **Number Sense and Numeration Overalls: 7m8, 7m9, 7m10** **Data Management and Probability Overall: 7m70**	using a scatter plot, and determine whether or not the scatter plot suggests a relationship **8m79** Compare two attributes or characteristics, using a variety of data management tools and strategies (i.e., pose a relevant question, then design an experiment or survey, collect and analyse the data, and draw conclusions) **Number Sense and Numeration Overalls: 8m9, 8m10** **Geometry and Spatial Sense Overall: 8m41** **Data Management and Probability Overall: 8m66**
Measurement				
Time **4m42** Estimate, measure (i.e., using an analogue clock) and	**Time** **5m33** Estimate, measure (i.e., using an analogue clock), and			

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
represent time intervals to the nearest minute Clocks **4m43** 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 Two Clocks **4m56** Solve problems involving the relationship between years and decades, and between decades and centuries **Measurement Overalls: 4m38, 4m39**	represent time intervals to the nearest second Clocks **5m34** 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 Two Clocks **5m39** Solve problems involving the relationship between a 12-hour clock and a 24-hour clock **Measurement Overalls: 5m31, 5m32** Decimal Time			
Money **4m21** Read and represent money amounts to $100 **4m28** Add and subtract money amounts by making simulated purchases and providing change for	**Temperature** **5m35** Measure and record temperatures to determine and represent temperature changes over time **5m74** Distinguish between discrete data (i.e., data organized using a variety of			

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amounts up to $100, using a variety of tools **Number Sense and Numeration Overalls: 4m8, 4m10**	tools 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 (i.e., data organized using all numbers on a number line that fall within the range of the data, and used to represent measurements such as heights or ages of trees) **5m75** Collect data by conducting a survey 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 **5m76** Collect and organize discrete or continuous primary data and secondary data and display the data in charts, tables, and graphs			

Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
	(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 **5m79** Read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs (including broken-line graphs) **5m80** 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 **5m81** Compare similarities and differences between two related sets of data, using a variety of strategies **Measurement Overall: 5m31** **Data Management Overalls: 5m71, 5m72**			

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Linear Measurement **4m40** Estimate, measure, and record length, height, and distance, using standard units (i.e., millimetre, centimetre, metre, kilometre) Olympic Starters **4m41** Draw items using a ruler, given specific lengths in millimetres or centimetres **4m48** Describe, through investigation, the relationship between various units of length (i.e., millimetre, centimetre, decimetre, metre, kilometre) **4m49** Select and justify the most appropriate standard unit (i.e., millimetre, centimetre, metre, kilometre) to measure the side lengths and perimeters of various polygons **Measurement Overalls:** **4m38, 4m39**	**Linear Measurement** **5m37** 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 **Measurement Overall: 5m32**	**Linear, Perimeter, and Area – Measurements and Constructions** **6m31** Demonstrate an understanding of the relationship between length, height, width, and distance, and to measure the perimeter of various polygons estimated and precise measurements, and determine and justify when each kind is appropriate Perimeter Expressions **6m32** Estimate, measure, and record length, area, mass, capacity, and volume, using the metric measurement system **6m33** 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		

Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
		6m35 Construct a rectangle, a square, a triangle, and a parallelogram, using a variety of tools, given the area and/or perimeter Area and Perimeter Fence It Constructing Triangles Perimeter Possibilities **Measurement Overalls: 6m29, 6m30**		
Perimeter and Area **4m26** Solve problems involving the addition and subtraction of four-digit numbers, using student-generated algorithms and standard algorithms **4m27** Add and subtract decimal numbers to tenths, using concrete materials and student-generated algorithms **4m31** Multiply whole numbers by 10, 100, and 1000, and divide whole	**Perimeter and Area** **5m36** Estimate and measure the perimeter and area of regular and irregular polygons, using a variety of tools and strategies Torn Shapes Smaller and Smaller Perimeter Challenge **5m37** Select and justify the most appropriate standard unit (i.e., millimetre, centimetre, decimetre, metre, kilometre) to measure	**Area of Parallelograms and Triangles** **6m32** Estimate, measure, and record length, area, mass, capacity, and volume, using the metric measurement system **6m35** Construct a rectangle, a square, a triangle, and a parallelogram, using a variety of tools, given the area and/or perimeter Area and Perimeter Fence It Constructing Triangles	**Area** **7m17** Explain the relationship between exponential notation and the measurement of area and volume **7m33** Research and report on real-life applications of area measurements Warmsnug Double Glazing **7m36** Solve problems that require conversion between metric units of area (i.e., square centimetres, square metres)	**Circles** **8m33** Solve problems that require conversions involving metric units of area, volume, and capacity (i.e., square centimetres and square metres; cubic centimetres and cubic metres; millilitres and cubic centimetres) **8m34** Measure the circumference, radius, and diameter of circular objects, using concrete materials **8m35** Determine, through investigation using a variety

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numbers by 10 and 100, using mental strategies **4m32** Multiply two-digit whole numbers by one-digit whole numbers, using a variety of tools, student-generated algorithms, and standard algorithms **4m33** Divide two-digit whole numbers by one-digit whole numbers, using a variety of tools and student-generated algorithms **4m44** Estimate, measure using a variety of tools and strategies, and record the perimeter and area of polygons **4m49** Select and justify the most appropriate standard unit (i.e., millimetre, centimetre, metre, kilometre) to measure the side lengths and perimeters of various polygons **4m50** Determine, through investigation, the relationship	the perimeter of various polygons **5m38** Solve problems requiring conversion from metres to centimetres and from kilometres to metres **5m40** Create, through investigation using a variety of tools and strategies, two-dimensional shapes with the same perimeter or the same area Dicey Perimeter, Dicey Area **5m41** Determine, through investigation using a variety of tools and strategies, 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)] **5m42** Solve problems requiring the estimation and	Perimeter Possibilities **6m36** Determine, through investigation using a variety of tools and strategies, the relationship between the area of a rectangle and the areas of parallelograms and triangles, by decomposing and composing Triangles in a Square Tilted Squares **6m37** 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 **6m38** Solve problems involving the estimation and calculation of the areas of triangles and the areas of parallelograms Tangram Area	**7m37** Determine, through investigation using a variety of tools and strategies, the relationship for calculating the area of a trapezoid, and generalize to develop the formula [i.e., Area = (sum of lengths of parallel sides x height) ÷ 2] **7m38** Solve problems involving the estimation and calculation of the area of a trapezoid Trapezium Four **7m39** Estimate and calculate the area of composite two-dimensional shapes by decomposing into shapes with known area relationships Tangram Area **7m66** Translate phrases describing simple mathematical relationships into algebraic expressions, using concrete materials Quadratic Patterns	of tools and strategies, the relationships for calculating the circumference and the area of a circle, and generalize to develop the formulas [i.e., Circumference of a circle = π x diameter; Area of a circle = π x (radius)2] **8m36** Solve problems involving the estimation and calculation of the circumference and the area of a circle Circular Area Centre Square Rolling Around **8m44** Construct a circle, given its centre and radius, or its centre and a point on the circle, or three points on the circle **Measurement Overall: 8m31** **Geometry and Spatial Sense Overall: 8m40**

Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
between the side lengths of a rectangle and its perimeter and area Fitted Numerically Equal **4m51** Pose and solve meaningful problems that require the ability to distinguish perimeter and area **4m57** Compare, using a variety of tools, two-dimensional shapes that have the same perimeter or the same area **4m89** 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, and scales that suit the range and distribution of the data, using a variety of tools	calculation of perimeters and areas of rectangles **5m68** Demonstrate, through investigation, an understanding of variables as changing quantities, given equations with letters or other symbols that describe relationships involving simple rates **5m69** Demonstrate, through investigation, an understanding of variables as unknown quantities represented by a letter or other symbol **5m70** 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 **Measurement Overalls: 5m31, 5m32**	Isometric Areas Isosceles Triangles **6m39** Determine, using concrete materials, the relationship between units used to measure area (i.e., square centimetre, square metre), and apply the relationship to solve problems that involve conversions from square metres to square centimetres **6m63** Demonstrate an understanding of different ways in which variables are used **6m64** Identify, through investigation, the quantities in an equation that vary and those that remain constant **6m65** Solve problems that use two or three symbols or letters as variables to represent different unknown quantities	Number Pyramids Your Number Is Summing Consecutive Numbers Shifting Times Tables Seven Squares Odds, Evens and More Evens **7m67** Evaluate algebraic expressions by substituting natural numbers for the variables The Simple Life Fruity Totals Shape Products **Number Sense and Numeration Overall: 7m8** **Measurement Overalls: 7m31, 7m32** **Patterning and Algebra Overall: 7m59**	

NRICH tasks mapped to the mathematics curriculum in Ontario, Canada

Problems have detailed teachers' resources suggesting how they can be integrated into lessons

Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
4m90 Read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs (including stem-and-leaf plots and double bar graphs) **4m93** Compare similarities and differences between two related sets of data, using a variety of strategies **Number Sense and Numeration Overall: 4m10** **Measurement Overalls: 4m38, 4m39** **Data Management Overalls: 4m85, 4m86**	**Patterning and Algebra Overall: 5m62**	**6m66** Determine the solution to a simple equation with one variable, through investigation using a variety of tools and strategies **Measurement Overall: 6m29, 6m30** **Patterning and Algebra Overall: 6m56**		

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Mass **4m55** Estimate, measure, and record the mass of objects, using the standard units of the kilogram and the gram What's My Weight **4m52** Compare and order a collection of objects, using standard units of mass (i.e., gram, kilogram) and/or capacity (i.e., millilitre, litre) **4m53** Determine, through investigation, the relationship between grams and kilograms **4m55** Select and justify the most appropriate standard unit to measure mass (i.e., milligram, gram, kilogram) and the most appropriate standard unit to measure the capacity of a container (i.e., millilitre, litre) **Measurement Overalls: 4m38, 4m39**	**Mass** **5m45** Select and justify the most appropriate standard unit to measure mass (i.e., milligram, gram, kilogram, tonne) **Measurement Overall: 5m32**	**Mass** **6m32** Estimate, measure, and record length, area, mass, capacity, and volume, using the metric measurement system **6m34** Solve problems requiring conversion from larger to smaller metric units Watermelons **Measurement Overalls: 6m29, 6m30**		

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Volume and Capacity **4m46** Estimate, measure, and record the capacity of containers, using the standard units of the litre and the millilitre **4m47** Estimate, measure using concrete materials, and record volume, and relate volume to the space taken up by an object Pouring Problem **4m52** Compare and order a collection of objects, using standard units of mass (i.e., gram, kilogram) and/or capacity (i.e., millilitre, litre) Next Size Up **4m54** Determine, through investigation, the relationship between millilitres and litres **4m55** Select and justify the most appropriate standard unit to measure mass (i.e., milligram, gram, kilogram) and the most appropriate	**Volume and Capacity** **5m43** 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 **5m44** 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 the base x height) **5m69** Demonstrate, through investigation, an understanding of variables as unknown quantities	**Volume, Surface Area and Capacity** **6m32** Estimate, measure, and record length, area, mass, capacity, and volume, using the metric measurement system **6m34** Solve problems requiring conversion from larger to smaller metric units **6m40** Determine, through investigation using a variety of tools and strategies, 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) **6m41** Determine, through investigation using a variety of tools and strategies, the surface area of rectangular and triangular prisms Brush Loads Cubes		

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
standard unit to measure the capacity of a container (i.e., millilitre, litre) **Measurement Overalls: 4m38, 4m39**	represented by a letter or other symbol **5m70** 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 Measurement Overall: 5m32 Patterning and Algebra Overall: 5m62	**6m42** Solve problems involving the estimation and calculation of the surface area and volume of triangular and rectangular prisms Painted Cube **6m63** Demonstrate an understanding of different ways in which variables are used **6m64** Identify, through investigation, the quantities in an equation that vary and those that remain constant **6m65** Solve problems that use two or three symbols or letters as variables to represent different unknown quantities **6m66** Determine the solution to a simple equation with one variable, through investigation using a variety of tools and strategies **Measurement Overalls: 6m29, 6m30**		

Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
		Patterning and Algebra **Overall: 6m56**		
Geometry and Spatial; Sense				
Angles and Geometric Properties of 2D Shapes **4m61** Draw the lines of symmetry of two-dimensional shapes, through investigation using a variety of tools and strategies Symmetry Challenge **4m62** Identify and compare different types of quadrilaterals (i.e., rectangle, square, trapezoid, parallelogram, rhombus) and sort and classify them by their geometric properties Always, Sometimes, or Never? Shape Stringy Quads **4m63** Identify benchmark angles (i.e., straight angle, right angle, half a right angle), using a reference tool, and compare other angles to these benchmarks	**Angles and Geometric Properties of 2D Shapes** **5m49** Distinguish among polygons, regular polygons, and other two-dimensional shapes Always, Sometimes, or Never? Shape **5m51** Identify and classify acute, right, obtuse, and straight angles **5m52** Measure and construct angles up to 90º, using a protractor **5m53** Identify triangles (i.e., acute, right, obtuse, scalene, isosceles, equilateral), and classify them according to angle and side properties Triangles All Around **5m54** Construct triangles, using a variety of tools, given acute or right angles and side measurements	**Angles and Geometric Properties of 2D Shapes** **6m46** Sort and classify quadrilaterals by geometric properties related to symmetry, angles, and sides, through investigation using a variety of tools and strategies National Flags Stringy Quads Completing Quadrilaterals **6m47** Sort polygons according to the number of lines of symmetry and the order of rotational symmetry, through investigation using a variety of tools Shady Symmetry **6m48** Measure and construct angles up to 180° using a protractor, and	**Angles and Geometric Properties of 2D Shapes** **7m46** Construct related lines (i.e., parallel; perpendicular; intersecting at 30º, 45º, and 60º), using angle properties and a variety of tools and strategies **7m47** Sort and classify triangles and quadrilaterals by geometric properties related to symmetry, angles, and sides, through investigation using a variety of tools and strategies Triangles in Circles Where are They? **7m48** Construct angle bisectors and perpendicular bisectors, using a variety of tools and strategies, and represent equal angles and equal lengths using mathematical notation	**Angles and Geometric Properties of 2D Shapes** **8m43** Sort and classify quadrilaterals by geometric properties, including those based on diagonals, through investigation using a variety of tools Diagonals **8m45** Determine, through investigation using a variety of tools, relationships among area, perimeter, corresponding side lengths, and corresponding angles of similar shapes **8m47** Determine, through investigation using a variety of tools and strategies, the angle relationships for intersecting lines and for parallel lines and transversals, and the sum of the angles of a triangle

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4m64 Relate the names of the benchmark angles to their measures in degrees **Geometry and Spatial Sense Overall: 4m58** Shapes on the Playground Polydron	**Geometry and Spatial Sense Overall: 5m46** Shapes on the Playground Polydron	classify them as acute, right, obtuse, or straight angles Estimating Angles **6m49** Construct polygons using a variety of tools, given angle and side measurements **Geometry and Spatial Sense Overall: 6m43** Shapes on the Playground; Polydron	Bisector Intersection **7m50** Identify, through investigation, the minimum side and angle information (i.e., side-side-side; side-angle-side; angle-side-angle) needed to describe a unique triangle **Geometry and Spatial Sense Overalls: 7m43, 7m44**	**8m48** Solve angle-relationship problems involving triangles, intersecting lines, and parallel lines and transversals Angles in Three Squares **8m49** Determine the Pythagorean relationship, through investigation using a variety of tools and strategies Pythagoras' Theorem & Trigonometry **8m50** Solve problems involving right triangles geometrically, using the Pythagorean relationship Pythagorean Triples Pythagoras' Dream **Geometry and Spatial Sense Overalls: 8m40, 8m41**
3D Figures **4m65** Identify and describe prisms and pyramids, and classify them by their	**3D Figures** **5m50** Distinguish among prisms, right prisms,	**3D Figures** **6m50** Build three-dimensional models using connecting cubes, given	**Measurement, Surface Area, Volume** **7m17** Explain the relationship between	**Cylinders** **8m32** Research, describe, and report on applications of

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
geometric properties (i.e., shape of faces, number of edges, number of vertices), using concrete materials **4m66** Construct a three-dimensional figure from a picture or model of the figure, using connecting cubes **4m67** Construct skeletons of three-dimensional figures, using a variety of tools, and sketch the skeletons **4m68** Draw and describe nets of rectangular and triangular prisms **4m69** Construct prisms and pyramids from given nets **4m70** Construct three-dimensional figures, using only congruent Shapes **Geometry and Spatial Sense Overalls: 4m58, 4m59** A Chain of Eight Polyhedra	pyramids, and other three-dimensional figures **5m55** Identify prisms and pyramids from their nets Cut Nets **5m56** Construct nets of prisms and pyramids, using a variety of tools **Geometry and Spatial Sense Overalls: 5m46, 5m47**	isometric sketches or different views (i.e., top, side, front) of the structure **6m51** Sketch, using a variety of tools, isometric perspectives and different views (i.e., top, side, front) of three-dimensional figures built with interlocking cubes **Geometry and Spatial Sense Overall: 6m44**	exponential notation and the measurement of area and volume **7m21** Solve multi-step problems arising from real-life contexts and involving whole numbers and decimals, using a variety of tools and strategies Tilted Tank **7m34** Sketch different polygonal prisms that share the same volume **7m35** Solve problems that require conversion between metric units of measure **7m40** Determine, through investigation using a variety of tools and strategies, the relationship between the height, the area of the base, and the volume of right prisms with simple polygonal bases, and generalize to develop the formula (i.e., Volume = area of base x height)	volume and capacity measurement **8m33** Solve problems that require conversions involving metric units of area, volume, and capacity (i.e., square centimetres and square metres; cubic centimetres and cubic metres; millilitres and cubic centimetres) **8m37** Determine, through investigation using a variety of tools and strategies, the relationship between the area of the base and height and the volume of a cylinder, and generalize to develop the formula (i.e., Volume = area of base x height) **8m38** Determine, through investigation using concrete materials, the surface area of a cylinder **8m39** Solve problems involving the surface area and the volume of cylinders, using a variety of strategies

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			Tilted Tank **7m41** Determine, through investigation using a variety of tools, the surface area of right prisms **7m42** Solve problems that involve the surface area and volume of right prisms and that require conversion between metric measures of capacity and volume (i.e., millilitres and cubic centimetres) Changing Areas, Changing Volumes Cuboid Challenge **7m49** Investigate, using concrete materials, the angles between the faces of a prism, and identify right prisms **7m66** Translate phrases describing simple mathematical relationships into algebraic expressions, using concrete materials Quadratic Patterns	Efficient Cutting **Measurement Overalls:** **8m30, 8m31** 3D Shapes

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
			Number Pyramids Your Number Is Summing Consecutive Numbers Shifting Times Tables Seven Squares Odds, Evens and More Evens **7m67** Evaluate algebraic expressions by substituting natural numbers for the variables The Simple Life Fruity Totals Shape Products **7m69** Solve linear equations of the form ax = c or c = ax and ax + b = c or variations such as b + ax = c and c = bx + a (where a, b, and c are natural numbers) by modelling with concrete materials, by inspection, or by guess and check, with and without the aid of a calculator	

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
			Number Sense and Numeration Overalls: 7m8, 7m9 **Measurement Overall: 7m32** **Geometry and Spatial Sense Overall: 7m43** **Patterning and Algebra Overall: 7m59** 3D Shapes	
Location, Movement and Geometric Patterns **4m71** Identify and describe the general location of an object using a grid system **4m72** Identify, perform, and describe reflections using a variety of tools **4m73** Create and analyse symmetrical designs by reflecting a shape, or shapes, using a variety of tools, and identify the congruent shapes in the designs National Flags **4m79** Make predictions related to repeating	**Location, Movement and Geometric Patterns** **5m57** Locate an object using the cardinal directions (i.e., north, south, east, west) and a coordinate system Chippy's Journeys **5m58** Compare grid systems commonly used on maps (i.e., the use of numbers and letters to identify an area; the use of a coordinate system based on the cardinal directions to describe a specific location)	**Location, Movement and Geometric Patterns** **6m52** Explain how a coordinate system represents location, and plot points in the first quadrant of a Cartesian coordinate plane A Cartesian Puzzle Treasure Island Coordinate Challenge Eight Hidden Squares **6m53** Identify, perform, and describe, through investigation using a variety of tools, rotations of 180º and clockwise and counter	**Location and Transformations** **7m51** Determine, through investigation using a variety of tools, relationships among area, perimeter, corresponding side lengths, and corresponding angles of congruent shapes Shape Draw **7m52** Demonstrate an understanding that enlarging or reducing two-dimensional shapes creates similar shapes Twice as Big?	**Location and Movement** **8m52** Graph the image of a point, or set of points, on the Cartesian coordinate plane after applying a transformation to the original point(s) (i.e., translation; reflection in the x-axis, the y-axis, or the angle bisector of the axes that passes through the first and third quadrants; rotation of 90°, 180°, or 270° about the origin) Transformation Game **8m53** Identify, through investigation, real-world

Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
geometric and numeric patterns **Repeating Patterns** **4m80** Extend and create repeating patterns that result from reflections, through investigation using a variety of tools **Geometry and Spatial Sense Overall: 4m60** **Patterning and Algebra Overall: 4m74**	**5m59** Identify, perform, and describe translations, using a variety of tools **5m60** Create and analyse designs by translating and/or reflecting a shape, or shapes, using a variety of tools **5m63** Create, identify, and extend numeric and geometric patterns, using a variety of tools **5m66** Make predictions related to growing and shrinking geometric and numeric patterns **5m67** Extend and create repeating patterns that result from translations, through investigation using a variety of tools **Geometry and Spatial Sense Overall: 5m48** **Patterning and Algebra Overall: 5m61**	clockwise rotations of 90°, with the centre of rotation inside or outside the shape **Peg Rotation** **6m54** Create and analyse designs made by reflecting, translating, and/or rotating a shape, or shapes, by 90º or 180º **Polygon Pictures** **6m62** Extend and create repeating patterns that result from rotations, through investigation using a variety of tools **Geometry and Spatial Sense Overall: 6m45** **Patterning and Algebra Overall: 6m55**	**7m53** Distinguish between and compare similar shapes and congruent shapes, using a variety of tools and strategies **7m54** Plot points using all four quadrants of the Cartesian coordinate plane **7m55** Identify, perform, and describe dilatations (i.e., enlargements and reductions), through investigation using a variety of tools **Who is the fairest of them all?** **7m56** Create and analyse designs involving translations, reflections, dilatations, and/or simple rotations of two-dimensional shapes, using a variety of tools and strategies **Reflecting Squarely** **Attractive Rotations** **Robotic Rotations**	movements that are translations, reflections, and rotations **Geometry and Spatial Sense Overall: 8m42**

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
			7m57 Determine, through investigation using a variety of tools, polygons or combinations of polygons that tile a plane, and describe the transformation(s) involved Semi-regular Tessellations Polygon Rings **Geometry and Spatial Sense Overalls: 7m44, 7m45**	
Patterning				
Numeric Patterns **4m76** Extend, describe, and create repeating, growing, and shrinking number patterns Tables without Tens Carrying Cards **4m77** Connect each term in a growing or shrinking pattern with its term number, and record the patterns in a table of values that shows the term number and the term	**Numeric Patterns** **5m63** Create, identify, and extend numeric and geometric patterns, using a variety of tools Tables without Tens Carrying Cards **5m64** Build a model to represent a number pattern presented in a table of values that shows the term number and the term **5m65** Make a table of values for a pattern that is	**Numeric Patterns** **6m57** Identify geometric patterns, through investigation using concrete materials or drawings, and represent them numerically Cuisenaire Spirals Up and Down Staircases Sticky Triangles **6m58** Make tables of values, for growing patterns given pattern rules, in words, then list the ordered pairs (with the first coordinate	**Linear Growing Patterns** **7m60** Represent linear growing patterns, using a variety of tools and strategies **7m61** Make predictions about linear growing patterns, through investigation with concrete materials **7m62** Develop and represent the general term of a linear growing pattern, using	**Linear Relationships** **8m56** Represent, through investigation with concrete materials, the general term of a linear pattern, using one or more algebraic expressions Special Numbers **8m57** Represent linear patterns graphically (i.e., make a table of values that shows the term number and the term, and plot the

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
4m78 Create a number pattern involving addition, subtraction, or multiplication, given a pattern rule expressed in words	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	representing the term number and the second coordinate representing the term) and plot the points in the first quadrant, using a variety of tools	algebraic expressions involving one operation	coordinates on a graph), using a variety of tools
4m79 Make predictions related to repeating geometric and numeric patterns	**5m66** Make predictions related to growing and shrinking geometric and numeric patterns	**6m59** 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	**7m63** Compare pattern rules that generate a pattern by adding or subtracting a constant, or multiplying or dividing by a constant, to get the next term with pattern rules that use the term number to describe the general term	Functions and Graphs - Short Problems
Patterning and Algebra Overall: 4m74	**Patterning and Algebra Overall: 5m61**	**6m60** 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	Special Numbers	**8m58** Determine a term, given its term number, in a linear pattern that is represented by a graph or an algebraic equation
			7m64 Model real-life relationships involving constant rates where the initial condition starts at 0, through investigation using tables of values and graphs	**8m60** Model linear relationships using tables of values, graphs, and equations, through investigation using a variety of tools
		Exploring Number Patterns You Make	**7m65** Model real-life relationships involving constant rates, using algebraic equations with variables to represent the changing quantities in the relationship	**8m63** Make connections between solving equations and determining the term number in a pattern, using the general term
		Tables without Tens	**7m66** Translate phrases describing simple	Printing Error
		Carrying Cards		**Patterning and Algebra Overalls: 8m54, 8m55**

Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
		6m61 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 **Patterning and Algebra Overalls: 6m55**	mathematical relationships into algebraic expressions, using concrete materials Quadratic Patterns Number Pyramids Your Number Is Summing Consecutive Numbers Shifting Times Tables Seven Squares Odds, Evens and More Evens **7m67** Evaluate algebraic expressions by substituting natural numbers for the variables The Simple Life Fruity Totals Shape Products **7m68** Make connections between evaluating algebraic expressions and determining the term in a pattern using the general term Where Can We Visit? **7m69** Solve linear equations of the form ax = c or c = ax	

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
			and ax + b = c or variations such as b + ax = c and c = bx + a (where a, b, and c are natural numbers) by modelling with concrete materials, by inspection, or by guess and check, with and without the aid of a calculator The Simple Life **Patterning and Algebra Overalls: 7m58, 7m59**	
Algebra				
		Equality - Unknown Quantities **6m63** Demonstrate an understanding of different ways in which variables are used **6m64** Identify, through investigation, the quantities in an equation that vary and those that remain constant Diagonal Sums **6m65** Solve problems that use two or three symbols or	**Unknown Quantities** **7m66** Translate phrases describing simple mathematical relationships into algebraic expressions, using concrete materials Quadratic Patterns Number Pyramids Your Number Is Summing Consecutive Numbers Shifting Times Tables Seven Squares	**Unknown Quantities** **8m51** Determine, through investigation using concrete materials, the relationship between the numbers of faces, edges, and vertices of a polyhedron (i.e., number of faces + number of vertices = number of edges + 2) **8m59** Describe different ways in which algebra can be used in real-life situations

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		letters as variables to represent different unknown quantities **6m66** Determine the solution to a simple equation with one variable, through investigation using a variety of tools and strategies Interactive Number Patterns **Patterning and Algebra Overall: 6m56** Two and Two Price Match	Odds, Evens and More Evens **7m67** Evaluate algebraic expressions by substituting natural numbers for the variables The Simple Life Fruity Totals Shape Products **7m69** Solve linear equations of the form ax = c or c = ax and ax + b = c or variations such as b + ax = c and c = bx + a (where a, b, and c are natural numbers) by modelling with concrete materials, by inspection, or by guess and check, with and without the aid of a calculator Creating and Manipulating Linear and Quadratic Expressions - Short Problems **Patterning and Algebra Overall: 7m59**	**8m61** Translate statements describing mathematical relationships into algebraic expressions and equations Litov's Mean Value Theorem **8m62** Evaluate algebraic expressions with up to three terms, by substituting fractions, decimals, and [positive] integers for the variables **8m64** Solve and verify linear equations involving a one-variable term and having solutions that are [positive] integers by using inspection, guess and check, and a "balance model" Functions and Graphs - Short Problems **Geometry and Spatial Sense Overall: 8m41** **Patterning and Algebra Overall: 8m55**
Data Management				

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Collect, Organize, Display and Interpret Categorical Data **4m88** Collect data by conducting a survey 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 Compare the Squares Real Statistics **4m89** 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 and scales that suit the range and distribution of the data, using a variety of tools Our Sports The Car That Passes	**Collect, Organize, and Display Primary Data** **5m75** Collect data by conducting a survey 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 Compare the Squares Real Statistics **5m76** 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 Our Sports The Car That Passes	**Collect, Organize and Display Primary and Secondary Data** **6m70** Collect data by conducting a survey 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 Compare the Squares Real Statistics **6m71** Collect and organize discrete or continuous primary data and secondary data and display the data in charts, tables, and graphs (including continuous line graphs) that have appropriate titles, labels, and scales that suit the range and distribution of the data, using a variety of tools Our Sports	**Collect, Organize and Display Data** **7m73** Collect data by conducting a survey 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 Our Sports The Car That Passes **7m74** Collect and organize categorical, discrete, or continuous primary data and secondary data and display the data in charts, tables, and graphs (including relative frequency tables and circle graphs) that have appropriate titles, labels, and scales that suit the range and distribution of the data, using a variety of tools	**Collect, Organize and Display Data** **8m68** Collect data by conducting a survey 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 **8m69** Organize into intervals a set of data that is spread over a broad range **8m70** Collect and organize categorical, discrete, or continuous primary data and secondary data, and display the data in charts, tables, and graphs (including histograms and scatter plots) that have appropriate titles, labels, and scales that suit the range and distribution of the data, using a variety of tools

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
4m90 Read, interpret, and draw conclusions from primary data and from secondary data presented in charts, tables, and graphs (including stem-and-leaf plots and double bar graphs) **Data Management and Probability Overalls: 4m85, 4m86**	**Data Management and Probability Overall: 5m71**	The Car That Passes **6m72** 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) **6m73** 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 How Big Are Classes 5, 6 and 7? **Data Management and Probability Overall: 6m67**	Tools for Thinking about Probability **7m75** 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) Fill Me Up **7m76** Distinguish between a census and a sample from a population **7m77** Identify bias in data collection methods **Data Management and Probability Overall: 7m70**	Tools for Thinking about Probability **8m71** 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, including histograms and scatter plots); – explain the relationship between a census, a representative sample, sample size, and a population **8m75** Demonstrate an understanding of the appropriate uses of bar graphs and histograms by comparing their characteristics **Data Management and Probability Overalls: 8m65, 8m66**
Collect, Organize, Display and Interpret Numerical Data	**Collect, Organize, Display, and Interpret Numerical Data**	**Interpret Data** **6m74** Read, interpret, and draw conclusions from	**Data Analysis and Interpretation**	**Data Analysis and Interpretation**

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
4m88 Collect data by conducting a survey 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 Real Statistics Going for Gold **4m89** 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, and scales that suit the range and distribution of the data, using a variety of tools **4m90** Read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs	**5m74** 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 (i.e., data organized using all numbers on a number line that fall within the range of the data, and used to represent measurements such as heights or ages of trees) **5m75** Collect data by conducting a survey 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 Real Statistics Going for Gold	primary data and from secondary data, presented in charts, tables, and graphs (including continuous line graphs) Real Statistics Going for Gold Presenting the Project **6m75** Compare, through investigation, different graphical representations of the same data Match the Matches If the World Were a Village **6m76** Explain how different scales used on graphs can influence conclusions drawn from the data How Big are Classes 5, 6, and 7 **6m77** Demonstrate an understanding of mean, and use the mean to compare two sets of related data, with and without the use of technology Match the Matches	**7m75** 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) Fill Me Up **7m76** Distinguish between a census and a sample from a population **7m77** Identify bias in data collection methods **7m78** Read, interpret, and draw conclusions from primary data and from secondary data presented in charts, tables, and graphs (including relative frequency tables and circle graphs) Bat Wings What's the Weather Like? **7m79** Identify, through investigation, graphs that present data in misleading ways	**8m72** Explain the relationship between a census, a representative sample, sample size, and a population **8m73** Read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs (including frequency tables with intervals, histograms, and scatter plots) Bat Wings What's the Weather Like? **8m74** Determine, through investigation, the appropriate measure of central tendency (i.e., mean, median, or mode) needed to compare sets of data M, M and M Unequal Averages **8m76** Compare two attributes or characteristics using a scatter plot, and determine whether or not

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
(including stem-and-leaf plots and double bar graphs) **Presenting the Project** **4m91** Demonstrate, through investigation, an understanding of median and determine the median of a set of data **4m92** Describe the shape of a set of data across its range of values, using charts, tables, and graphs **4m93** Compare similarities and differences between two related sets of data, using a variety of strategies **Now and Then** **Data Management Overalls: 4m85, 4m86**	**5m76** 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 **5m77** Demonstrate an understanding that sets of data can be samples of larger populations **If the World Were a Village** **5m78** Describe, through investigation, how a set of data is collected and explain whether the collection method is appropriate **5m79** Read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs (including broken-line graphs)	**The Mean Problem** **6m78** Demonstrate, through investigation, an understanding of how data from charts, tables, and graphs can be used to make inferences and convincing arguments **If the World Were a Village** **Going for Gold** **Presenting the Project** **Data Management Overall: 6m68**	**7m80** Determine, through investigation, the effect on a measure of central tendency (i.e., mean, median, and mode) of adding or removing a value or values **Unequal Averages** **Average Temperature** **M, M and M** **7m81** Identify and describe trends, based on the distribution of the data, presented in tables and graphs, using informal language **7m82** Make inferences and convincing arguments that are based on the analysis of charts, tables, and graphs **Bat Wings** **Data Management and Probability Overalls: 7m70, 7m71**	the scatter plot suggests a relationship **8m77** Identify and describe trends, based on the rate of change of data from tables and graphs, using informal language **Journey to School** **8m78** Make inferences and convincing arguments that are based on the analysis of charts, tables, and graphs **Bat Wings** **8m79** Compare two attributes of characteristics, using a variety of data management tools and strategies (i.e., pose a relevant question, then design an experiment or survey, collect and analyse the data, and draw conclusions) **Data Management and Probability Overalls: 8m65, 8m66**

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
	Presenting the Project **5m80** 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 Match the Matches **5m81** Compare similarities and differences between two related sets of data, using a variety of strategies Now and Then **Data Management Overalls: 5m71, 5m72**			
Probability				
Probability **4m88** Collect data by conducting a survey or an experiment to do with themselves, their environment, issues in their school or the community, or content from another subject, and record	**Probability** **5m16** Represent, compare, and order fractional amounts with like denominators, including proper and improper fractions and mixed numbers, using a variety of tools and using standard fractional	**Probability** **6m70** Collect data by conducting a survey or an experiment to do with themselves, their environment, issues in their school or community, or content from another subject, and record	**Probability** **7m73** Collect data by conducting a survey or an experiment to do with themselves, their environment, issues in their school or community, or content from another subject and record	**Probability** **8m68** Collect data by conducting a survey or an experiment to do with themselves, their environment, issues in their school or community, or content from another subject and record

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Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
observations or measurements	notation	observations or measurements	observations or measurements	observations or measurements
4m89 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 and scales that suit the range and distribution of the data, using a variety of tools	**5m75** Collect data by conducting a survey 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	**6m71** Collect and organize discrete or continuous primary data and secondary data and display the data in charts, tables, and graphs (including continuous line graphs) that have appropriate titles, labels, and scales that suit the range and distribution of the data, using a variety of tools	**7m74** Collect and organize categorical, discrete, or continuous primary data and secondary data and display the data in charts, tables, and graphs (including relative frequency tables and circle graphs) that have appropriate titles, labels and scales that suit the range and distribution of the data, using a variety of tools	**8m70** Collect and organize categorical, discrete, or continuous primary data and secondary data and display the data in charts, tables, and graphs (including histograms and scatter plots) that have appropriate titles, labels, and scales that suit the range and distribution of data, using a variety of tools
4m90 Read, interpret, and draw conclusions from primary data and from secondary data presented in charts, tables, and graphs (including stem-and-leaf plots and double bar graphs)	**5m76** 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	Tools for Thinking about Probability	Tools for Thinking about Probability	Tools for Thinking about Probability
4m94 Predict the frequency of an outcome in a simple probability experiment, explaining their reasoning; conduct the experiment; and compare the result with the prediction	**5m79** Read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs (including broken-line graphs)	**6m74** Read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs (including continuous line graphs)	**7m78** Read, interpret, and draw conclusions from primary data and from secondary data presented in charts, tables, and graphs (including relative frequency tables and circle graphs)	**8m73** Read, interpret, and draw conclusions from primary data and from secondary data, presented in charts, tables, and graphs (including frequency tables with intervals, histograms and scatter plots)
Same or Different?		**6m79** Express theoretical probability as a ratio of the number of favourable outcomes to the total number of possible	**7m83** Research and report on real-world applications of probabilities expressed in	**8m80** Compare, through investigation, the theoretical probability of an event (i.e., the ratio of the number of

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4m95 Determine, through investigation, how the number of repetitions of a probability experiment can affect the conclusions drawn It's a Tie Three Spinners **Data Management Overall: 4m85, 4m86, 4m87**	**5m82** Determine and represent all the possible outcomes in a simple probability experiment, using systematic lists and area models Same or Different? **5m83** Represent, using a common fraction, the probability that an event will occur in simple games and probability experiments **5m84** Pose and solve simple probability problems, and solve them by conducting probability experiments and selecting appropriate methods of recording the results Same or Different? It's a Tie **Number Sense and Numeration Overall: 5m8** **Data Management Overalls: 5m71, 5m72, 5m73**	outcomes, where all outcomes are equally likely It's a Tie **6m80** 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) Same or Different? **6m81** Predict the frequency of an outcome of a simple probability experiment or game, by calculating and using the theoretical probability of that outcome Statistical Shorts Same or Different? Interactive Spinners **Data Management Overalls: 6m67, 6m68, 6m69**	fraction, decimal, and percent form Statistical Shorts **7m84** Make predictions about a population when given a probability **7m85** Represent in a variety of ways all the possible outcomes of a probability experiment involving two independent events (i.e., one event does not affect the other event), and determine the theoretical probability of a specific outcome involving two independent events Strange Dice **7m86** Perform a simple probability experiment involving two independent events, and compare the experimental probability with the theoretical probability of a specific outcome Interactive Spinners	ways a favourable outcome can occur compared to the total number of possible outcomes) with experimental probability, and explain why they might differ Interactive Spinners Statistical Shorts **8m81** Determine, through investigation, the tendency of experimental probability to approach theoretical probability as the number of trials in an experiment increases, using class-generated data and technology-based simulation models Misunderstanding Randomness Can't Find a Coin **8m82** Identify the complementary event for a given event, and calculate the theoretical probability

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			Data Management and Probability Overalls: 7m70, 7m71, 7m72	that a given event will not occur **Data Management and Probability Overalls: 8m65, 8m66, 8m67**