Mathletics

Nova Scotia Program of Studies

Skill Quests

Grades 3 – 6

May, 2022

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Grade 3

1 Number

1.1 Students will be expected to develop number sense

Outcome	Quests	Content
1. Students will be expected to say the number sequence forward and backward by: 1s through transitions to 1000; 2s, 5s, 10s, or 100s, using any starting point to 1000; 3s, using starting points that are multiples of 3 up to 100; 4s, using starting points that are multiples of 4 up to 100; 25s, using starting points that are multiples of 25 up to 200.	Count to 1000	Counting by 5s to 1000, forward & backward
		Counting by 10s to 1000, forward & backward
		Counting by 100s to 1000, forward & backward
		Counting by 1s to 1000
		Skip counting by 3s
		Skip counting by 4s
		Skip counting by 25s
2. Students will be expected to represent and partition numbers to 1000.	Represent & describe numbers to 1000	Representing & describing numbers to 1000
		Connecting multiples of 10 & 100 to number words
3. Students will be expected to compare and order numbers up to 1000.	Compare & order numbers to 1000	Identifying numbers before & after within 1000
		Comparing numbers to 1000
		Ordering numbers to 1000
4. Students will be expected to estimate quantities less than 1000 using referents.	Estimate quantities less than 1000	Estimating quantities using referents
5. Students will be expected to illustrate, concretely and pictorially, the meaning of place value for numerals to 1000.	Place value of numbers up to 1000	Identifying place value of numbers to 1000
		Using place value to partition 3-digit numbers
		Non-standard partitioning, 3-digit numbers
		Solving place value number problems
6. Students will be expected to describe and apply mental mathematics strategies for adding two 2-digit numerals.	Add 2-digit numbers, mental strategies	Adding 2-digit numbers, jump strategy
		Adding 2-digit numbers, split strategy
		Adding 2-digit numbers, bridge to ten
		Adding 2-digit numbers, using place value

		Adding 2-digit numbers, rounding & compensating
		Adding tens to a 2-digit number, models
7. Students will be expected to describe and apply mental mathematics strategies for subtracting two 2-digit numerals.	Subtract 2-digit numbers, mental methods	Subtracting 2-digit numbers, jump strategy
		Subtracting 2-digit numbers, split strategy
		Subtracting 2-digit numbers, bridging to ten
		Subtracting 2-digit numbers, round & compensate
		Subtracting tens from a 2-digit number, models
8. Students will be expected to apply estimation strategies to predict sums and differences of 1-, 2-, and 3-digit numerals in a problem-solving context.	Estimate: two 2-digit number problems	Estimating with two 2-digit number problems
9. Students will be expected to demonstrate an understanding of addition and subtraction of numbers (limited to 1-, 2-, and 3-digit numerals) with answers to 1000 by: using personal strategies for adding and subtracting with and without the support of manipulatives; creating and solving problems in context that involve addition and subtraction of numbers concretely, pictorially, and symbolically.	Addition & subtraction to 1000	Adding up to 1000 using jump strategy
		Adding up to 1000 using bridging to ten
		Adding up to 1000 using split strategy
		Adding up to 1000 using rounding & compensating
		Adding up to 1000 using formal algorithm
		Subtracting up to 1000 using jump strategy
		Subtracting up to 1000 using split strategy
		Subtracting up to 1000 using bridging to ten
		Subtracting up to 1000 - rounding & compensating
		Subtracting up to 1000 using formal algorithm
		Adding & subtracting to 1000 using jump strategy
		Adding & subtracting to 1000 using split strategy
		Representing add/subtract problems using bar model
		Solving addition & subtraction word problems

10. Students will be expected to apply mental mathematics strategies and number properties to develop quick recall of basic addition facts to 18 and related basic subtraction facts.	Mental strategies - add/sub facts to 18	Using the commutative property of addition
		Adding 3 single-digit numbers to 18
		Finding the difference between 2 numbers
		Using doubles & near doubles to add & subtract
		Mental strategies for addition & subtraction facts
		Adding & subtracting zero
11. Students will be expected to demonstrate an understanding of multiplication to 5 × 5 by: representing and explaining multiplication using equal grouping and arrays; creating and solving problems in context that involves multiplication; modelling multiplication using concrete and visual representations and recording the process symbolically; relating multiplication to repeated addition; relating multiplication to division.	Multiplication concepts to 5 × 5	Using repeated addition to multiply
		Exploring multiplication by 2
		Exploring multiplication by 3
		Exploring multiplication by 4
		Exploring multiplication by 5
		Recalling multiplication facts to 5 × 5
12. Students will be expected to demonstrate an understanding of division by: representing and explaining division using equal sharing and equal grouping; creating and solving problems in context that involve equal sharing and equal grouping; modelling equal sharing and equal grouping using concrete and visual representations, and recording the process symbolically; relating division to repeated subtraction; relating division to multiplication (Limited to division related to multiplication facts up to 5 × 5.)	Division concepts (up to 5 × 5 facts)	Using repeated subtraction to divide
		Dividing by 2
		Dividing by 3
		Dividing by 4
		Dividing by 5
	Relate multiplication & division	Modelling multiplication & division relationship
		Solving problems using arrays
		Multiplication & division word problems
13. Students will be expected to demonstrate an understanding of fractions by: explaining that a fraction represents a part of a whole; describing situations in which fractions are used; comparing fractions of the same whole with like denominators.	Fraction concepts	Finding halves
		Finding fourths
		Working with halves & fourths
		Working with thirds
		Working with sixths
		Working with thirds & sixths
		Working with fifths
		Working with eighths

		Working with halves, fourths & eighths
		Working with halves, thirds, fourths
		Representing simple fractions
		Ordering & comparing fractions

2 Patterns and Relations (Patterns)

2.1 Students will be expected to use patterns to describe the world and to solve problems

Outcome	Quests	Content
1. Students will be expected to demonstrate an understanding of increasing patterns by describing, extending, comparing, and creating numerical (numbers to 1000) patterns and non-numerical patterns using manipulatives, diagrams, sounds, and actions.	Increasing patterns	Working with increasing number patterns to 100
		Working with increasing number patterns to 1000
		Working with visual patterns
2. Students will be expected to demonstrate an understanding of decreasing patterns by describing, extending, comparing, and creating numerical (numbers to 1000) patterns and non-numerical patterns using manipulatives, diagrams, sounds, and actions.	Decreasing patterns	Working with decreasing number patterns within 100
		Working with decreasing number pattern within 1000

3 Patterns and Relations (Variables and Equations)

3.1 Students will be expected to represent algebraic expressions in multiple ways

Outcome	Quests	Content
3. Students will be expected to solve one-step addition and subtraction equations involving symbols representing an unknown number.	One-step add/sub problems with unknowns	One-step number problems with unknowns up to 20
		One-step number problems with unknowns up to 100

4 Measurement

4.1 Students will be expected to use direct and indirect measurement to solve problems

Outcome	Quests	Content
1. Students will be expected to relate the passage of time to common activities using non-standard and standard units (minutes, hours, days, weeks, months, years).	Understand passage of time	Understanding passage of time concepts
		Introducing time in hours, minutes & seconds
2. Students will be expected to relate the number of seconds to a minute, the numbers of minutes to an hour, the numbers of hours to a day, and the number of days to a month in a problem-solving context.	Understand measures of time	Using calendars
		Solving problems related to units of time
3. Students will be expected to demonstrate an understanding of measuring length (cm, m) by: selecting and justifying referents for the units centimetre or metre (cm, m); modelling and describing the relationship between the units centimetre or metre (cm, m); estimating length using referents; measuring and recording length, width, and height.	Understand & measure length (m, cm)	Measuring in standard units: cm & m
		Selecting units of measurement: m, cm
		Ordering & comparing lengths: m, cm
		Converting between m & cm
		Estimating & measuring in cm
		Measuring length of 3-D objects
4. Students will be expected to demonstrate an understanding of measuring mass (g, kg) by: selecting and justifying referents for the units gram and kilogram (g, kg); modelling and describing the relationship between the units gram and kilogram (g, kg); estimating mass using referents; measuring and recording mass.	Understand & measure mass (kg, g)	Measuring mass: kilograms
		Measuring mass: grams
		Selecting units of measurement: kg, g
		Understanding relationships between kg & g
5. Students will be expected to demonstrate an understanding of perimeter of regular, irregular, and composite shapes by: estimating perimeter using referents for centimetre or metre (cm, m); measuring and recording perimeter (cm, m); create different shapes for a given perimeter (cm, m) to	Understand & measure perimeter	Understanding & calculating perimeter

demonstrate that many shapes are possible for a perimeter.		

5 Geometry (3-D Objects and 2-D Shapes)

5.1 Students will be expected to describe the characteristics of 3-D objects and 2-D shapes and analyze the relationships among them

Outcome	Quests	Content
1. Students will be expected to describe 3-D objects according to the shape of the faces and the number of edges and vertices.	3-D objects	Introducing the attributes of 3-D objects
		Introducing cubes
		Introducing cylinders
		Introducing spheres
		Introducing cones
		Introducing prisms & pyramids
		Describing the attributes of 3-D objects
		Comparing & sorting 3-D objects
		Making basic models of 3-D objects
2. Students will be expected to name, describe, compare, create, and sort regular and irregular polygons, including triangles, quadrilaterals, pentagons, hexagons, and octagons according to the number of sides.	Sort & identify 2-D shapes	Comparing 2-D shapes
		Identifying & naming 2-D shapes
		Sorting 2-D shapes
	Regular & irregular polygons	Understanding regular & irregular polygons

6 Statistics and Probability (Data Analysis)

6.1 Students will be expected to collect, display, and analyze data to solve problems

Outcome	Quests	Content
1. Students will be expected to collect first-hand data and organize it using tally marks, line plots, charts, and lists to answer questions.	Organize first-hand data	Understanding & using line plots
		Understanding & using data in lists & tables
		Understanding the statistical process
2. Students will be expected to construct, label, and interpret bar graphs to solve problems.	Bar graphs	Understanding & using bar graphs

Grade 4

1 Number

1.1 Students will be expected to develop number sense

Outcome	Quests	Content
1. Students will be expected to represent and partition whole numbers to 10 000.	Number concepts to 10 000	Reading & writing numbers to 10 000
		Understanding place value, 4-digit numbers
		Partitioning 4-digit numbers
2. Students will be expected to compare and order numbers to 10 000.	Compare & order numbers to 10 000	Identifying numbers before & after to 10 000
		Identifying missing numbers to 10 000
		Comparing & ordering numbers to 10 000
3. Students will be expected to demonstrate an understanding of addition and subtraction of numbers with answers to 10 000 (limited to three- and four-digit numerals) by: using personal strategies for adding and subtracting; estimating sums and differences; solving problems involving addition and subtraction.	Addition to 10 000	Adding up to 10 000 using number line
		Adding up to 10 000 using place value
		Adding up to 10 000 using a split strategy
		Adding up to 10 000 using rounding & compensating
		Adding up to 10 000 using algorithm
		Choosing mixed addition strategies
	Subtraction to 10 000	Subtracting up to 10 000 using number line
		Subtracting up to 10 000 using place value
		Subtracting up to 10 000 using a split strategy
		Subtracting up to 10 000 using round & compensate
		Subtracting up to 10 000 using algorithms
		Choosing mixed subtraction strategies
	Add & subtract word problems to 10 000	Solving addition & subtraction word problems

4. Students will be expected to apply and explain the properties of 0 and 1 for multiplication and the property of 1 for division.	Multiply by 0 & 1, divide by 1	Multiplying by 1 or 0
		Dividing by 1
5. Students will be expected to describe and apply mental mathematics strategies, to recall basic multiplication facts to 9 × 9, and to determine related division facts.	Multiplication facts to 9 × 9	Exploring multiplication by 2
		Exploring multiplication by 3
		Exploring multiplication by 4
		Exploring multiplication by 5
		Exploring multiplication by 6
		Exploring multiplication by 7
		Exploring multiplication by 8
		Exploring multiplication by 9
		Recalling multiplication facts to 7 × 7
	Division facts to 81 ÷ 9	Dividing by 2 & 5
		Dividing by 3 & 6
		Dividing by 4 & 8
		Dividing by 9
	Multiplication & division facts	Recall multiplication & division facts to 7 × 7
		Understand relationship, multiplication & division
6. Students will be expected to demonstrate an understanding of multiplication (one-, two-, or three-digit by one-digit numerals) to solve problems by: using personal strategies for multiplication, with and without concrete materials; using arrays to represent multiplication; connecting concrete representations to symbolic representations; estimating products; applying the distributive property.	Multiplication, 2- or 3-digit by 1-digit	Multiplying 2- or 3-digits by 1-digit, place value
		Multiplying 2- or 3-digits by 1-digit, doubling
		Multiplying 2- or 3-digits by 1-digit, area model
		Multiplying 2- or 3-digits by 1-digit, factoring
		Multiplying 2- or 3-digits by 1-digit, algorithm
		Multiply to 3-digits x 1-digit, expanded algorithm
		Multiply to 3-digits x 1-digit, round to estimate
		Multiplying by multiples of 10 & 100
7. Students will be expected to demonstrate an understanding of division (one-digit divisor and up to two-digit dividend) to solve problems by: using personal strategies for dividing, with and without concrete materials; estimating quotients; relating division to multiplication.	Division, 2-digits by 1-digit	Dividing 2-digits by 1-digit, models
		Dividing 2-digits by 1-digit, halving
		Dividing 2-digits by 1-digit, related facts
		Dividing 2-digits by 1-digit, inverse relationship
		Dividing 2-digits by 1-digit, extended algorithm
		Dividing 2-digits by 1-digit, algorithm

		Dividing 2-digits by 1-digit, round to estimate
		Dividing by 1 using bar models
8. Students will be expected to demonstrate an understanding of fractions less than or equal to 1 by using concrete, pictorial, and symbolic representations to: name and record fractions for the parts of one whole or a set; compare and order fractions; model and explain that for different wholes, two identical fractions may not represent the same quantity; provide examples of where fractions are used.	Represent fractions less than/equal to 1	Introducing the terms numerator & denominator
		Understanding fractions
		Representing halves, fourths & eighths
		Representing thirds & sixths
		Representing fifths
		Representing tenths
		Representing eighths
	Compare & order fractions	Comparing & ordering unit fractions with models
		Comparing & ordering common fractions with models
		Comparing fractions with the same numerator
		Comparing fractions with the same denominator
9. Students will be expected to describe and represent decimals (tenths and hundredths) concretely, pictorially, and symbolically.	Decimals to hundredths	Introducing decimal notation
		Introducing decimal tenths
		Introducing decimal hundredths
10. Students will be expected to relate decimals to fractions and fractions to decimals (to hundredths).	Connect decimals & fractions	Connecting decimals & fractions, tenths
		Connecting decimals & fractions, hundredths
		Connecting decimals & fractions, up to hundredths
11. Students will be expected to demonstrate an understanding of addition and subtraction of decimals (limited to hundredths) by: estimating sums and differences; using mental mathematics strategies to solve problems; using personal strategies to determine sums and differences.	Add & subtract decimals to hundredths	Adding decimals to tenths
		Subtracting decimals to tenths
		Adding decimals to hundredths
		Subtracting decimals to hundredths
		Estimating decimal sums & differences
		Adding & subtracting decimal word problems
	Use decimals in the context of money	Using decimals in money
		Estimating & calculating change
		Solving word problems involving money

2 Patterns and Relations (Patterns)

2.1 Students will be expected to use patterns to describe the world and to solve problems

Outcome	Quests	Content
1. Students will be expected to identify and describe patterns found in tables and charts, including a multiplication chart.	Patterns in tables & charts	Exploring increasing number patterns
		Identifying number patterns up to 1000
		Investigating number sequences
2. Students will be expected to translate among different representations of a pattern (a table, a chart, or concrete materials).	Different representations in patterns	Relating patterns to tables or charts
		Creating addition patterns from a given rule
		Creating multiplication patterns from a given rule
3. Students will be expected to represent, describe, and extend patterns and relationships, using charts and tables, to solve problems.	Use patterns to solve problems	Using patterns to solve problems
		Identifying & describing additive number patterns
4. Students will be expected to identify and explain mathematical relationships, using charts and diagrams, to solve problems.	Use Venn & Carroll diagrams	Introducing Venn diagrams
		Introducing Carroll diagrams
		Relating Carroll & Venn diagrams
		Describing pattern rules

3 Patterns and Relations (Variables and Equations)

3.1 Students will be expected to represent algebraic expressions in multiple ways

Outcome	Quests	Content
5. Students will be expected to express a given problem as an equation in which a symbol is used to represent an unknown number.	Express a problem as an equation	Matching equations to word problems
		Using symbols to represent unknown numbers
6. Students will be expected to solve one-step equations involving a symbol to represent an unknown number.	One-step equations using all operations	Finding missing numbers: add & subtract equations
		One-step equations: addition & subtraction
		One-step equations: multiplication & division
		One-step equations: balancing number sentences

4 Measurement

4.1 Students will be expected to use direct and indirect measurement to solve problems

Outcome	Quests	Content
1. Students will be expected to read and record time using digital and analog clocks, including 24- hour clocks.	Read & record time	Telling time to the hour & half hour
		Telling time to the quarter hour
		Telling time to 5 minutes
		Telling time to the minute
		Using am & pm notation
		Using 24-hour time
2. Students will be expected to read and record calendar dates in a variety of formats.	Read & record calendar dates	Reading & writing calendar dates
3. Students will be expected to demonstrate an understanding of area of regular and irregular 2-D shapes by: recognizing that area is measured in square units; selecting and justifying referents for the units square centimetre (cm2) or square metre (m2); estimating area using referents for cm2 or m2; determining and recording area (cm2 or m2); constructing different rectangles for a given area (cm2 or m2) in order to demonstrate that many different rectangles may have the same area.	Understand area	Measuring area using non-standard units
		Introducing formal units for area: cm^2
		Introducing formal units for area: m^2
	Measure the area of rectangles	Estimating & measuring areas of rectangles
		Comparing & ordering rectangular areas
		Finding the area of a rectangle, arrays
		Finding the area of a rectangle, area model
		Finding the area of rectangles, formula
	Approximate area, non-rectilinear shapes	Approximating areas, non-rectilinear shapes

5 Geometry (3-D Objects and 2-D Shapes)

5.1 Students will be expected to describe the characteristics of 3-D objects and 2-D shapes and analyze the relationships among them

Outcome	Quests	Content
1. Students will be expected to describe and construct rectangular and triangular prisms.	Understand prisms	Introducing rectangular & triangular prisms
		Identifying prisms in the environment
		Comparing & describing prisms
		Connecting nets to rectangular & triangular prisms

6 Geometry (Transformations)

6.1 Students will be expected to describe and analyze position and motion of objects and shapes

Outcome	Quests	Content
2. Students will be expected to demonstrate an understanding of congruency, concretely and pictorially.	Congruent shapes	Understanding congruent shapes
3. Students will be expected to demonstrate an understanding of line symmetry by: identifying symmetrical 2-D shapes; creating symmetrical 2-D shapes; drawing one or more lines of symmetry in a 2-D shape.	Recognize & draw line symmetry	Recognizing line symmetry
		Identifying & drawing lines of symmetry

7 Statistics and Probability (Data Analysis)

7.1 Students will be expected to collect, display, and analyze data to solve problems

Outcome	Quests	Content
1. Students will be expected to demonstrate an understanding of many-to-one correspondence.	Understand many-to-one correspondence	Comparing pictographs - different correspondence
2. Students will be expected to construct and interpret pictographs and bar graphs involving many-to-one correspondence to draw conclusions.	Graphs using many-to-one correspondence	Using pictographs with many-to-one correspondence
		Compare pictographs with different correspondence
		Using bar graphs with many-to-one correspondence

Grade 5

1 Number

1.1 Students will be expected to develop number sense

Outcome	Quests	Content
1. Students will be expected to represent and partition whole numbers to 1 000 000.	Number concepts to 1 000 000	Reading & writing numbers up to 6 digits
		Comparing & ordering numbers up to 6 digits
		Identifying place value of 6-digit numbers
		Using place value to partition 6-digit numbers
2. Students will be expected to use estimation strategies, including front-end, front-end adjusted, rounding, and compatible numbers in problem-solving contexts.	Strategies for estimation & computation	Rounding numbers up to 6-digits
		Round numbers to estimate - addition & subtraction
		Checking calculations when adding & subtracting
		Using compensation to add & subtract
		Rounding numbers to estimate - multiply & divide
		Checking calculations when multiplying & dividing
3. Students will be expected to describe and apply mental mathematics strategies and number properties to recall, with fluency, answers for basic multiplication facts to 81 and related division facts.	Multiplication facts to 9 x 9	Multiplication facts for 2
		Multiplication facts for 3
		Multiplication facts for 4
		Multiplication facts for 5
		Multiplication facts for 6
		Multiplication facts for 7
		Multiplication facts for 8
		Multiplication facts for 9
		Multiplying by 1 or 0
		Recalling multiplication facts to 9 x 9
		Relationship between multiplication & division
	Division facts to 81 ÷ 9	Dividing by 2 & 5
		Dividing by 3 & 6
		Dividing by 4 & 8
		Dividing by 9
		Recall multiplication & division facts to 9 x 9

4. Students will be expected to apply mental mathematics strategies for multiplication, including: multiplying by multiples of 10, 100, and 1000; halving and doubling; using the distributive property.	Mental strategies to multiply	Multiplying by multiples of 10, 100 & 1000
		Multiplying using doubling
		Multiplying using doubling & halving
		Multiplying using distributive property
5. Students will be expected to demonstrate, with and without concrete materials, an understanding of multiplication (two-digit by two-digit) to solve problems.	Multiply 2-digits by up to 2-digits	Multiplying 2-digits by 2-digits, area model
		Multiplying 2-digits by 2-digits, factorizing
		Multiplying 2-digits by 2-digits, use known facts
		Multiplying 2-digits by 2-digits, formal algorithm
		Solving multiplication word problems
6. Students will be expected to demonstrate, with and without concrete materials, an understanding of division (three-digit by one-digit), and interpret remainders to solve problems.	Divide up to 3-digits by 1-digit	Dividing up to 3-digit by 1-digit, no remainders
		Dividing by partitioning, no remainders
		Dividing 3-digits by 1-digit, factoring
		Finding the remainder, 2-digits by 1-digit
		Dividing by partitioning with remainders
		Dividing 3-digits by 1-digit, formal algorithm
7. Students will be expected to demonstrate an understanding of fractions by using concrete, pictorial, and symbolic representations to: create sets of equivalent fractions; compare and order fractions with like and unlike denominators.	Equivalent fractions	Finding equivalent fractions with models
		Finding equivalent fractions using multiplication
		Finding equivalent fractions using a number line
	Compare & order fractions	Comparing unit fractions, different denominators
		Comparing & ordering proper fractions
8. Students will be expected to describe and represent decimals (tenths, hundredths, and thousandths) concretely, pictorially, and symbolically.	Decimals to thousandths	Understanding decimals to thousandths
		Partitioning decimal numbers to thousandths
9. Students will be expected to relate decimals to fractions and fractions to decimals (to thousandths).	Relate decimals & fractions	Relating decimals & fractions up to thousandths

10. Students will be expected to compare and order decimals (to thousandths) by using benchmarks, place value, and equivalent decimals.	Compare & order decimals to thousandths	Comparing & ordering decimals to thousandths
11. Students will be expected to demonstrate an understanding of addition and subtraction of decimals (limited to thousandths).	Add & subtract decimals to thousandths	Adding decimals to thousandths
		Subtracting decimals to thousandths
		Adding & subtracting decimal word problems
		Estimating sums & differences to thousandths

2 Patterns & Relations (Patterns)

2.1 Students will be expected to use patterns to describe the world and to solve problems

Outcome	Quests	Content
1. Students will be expected to determine the pattern rule to make predictions about subsequent terms.	Represent, analyze & apply patterns	Additive & subtractive number patterns
		Generating add/subtract patterns from a given rule
		Working with repeating number & shape patterns
		Multiplication & division number patterns
		Modelling number patterns from a table of values
		Writing pattern rules as algebraic expressions
		Working with shape patterns & rules

3 Patterns & Relations (Variables & Equations)

3.1 Students will be expected to represent algebraic expressions in multiple ways

Outcome	Quests	Content
2. Students will be expected to solve problems involving single-variable, one-step equations with whole number coefficients and whole number solutions.	One-step equations with variables	Writing one-step equations using variables
		Solving one-step equations & word problems
		Solving one-step equations using bar model
	Equations with letter variables	Expressing word problems as equations

4 Measurement

4.1 Students will be expected to use direct and indirect measurement to solve problems

Outcome	Quests	Content
1. Students will be expected to design and construct different rectangles, given a perimeter or an area or both (whole numbers), and make generalizations.	Perimeter of rectangles	Introducing perimeter
	Area of rectangles, formula	Finding the area of rectangles, formula
	Relationship between area & perimeter	Solving perimeter & area problems
2. Students will be expected to demonstrate an understanding of measuring length (mm) by: selecting and justifying referents for the unit millimetre (mm); modelling and describing the relationship between millimetre (mm) and centimetre (cm) units, and between millimetre (mm) and metre (m) units.	Measure length in millimetres	Introducing millimetres
		Recording length in decimal notation
	Relationship between mm, cm & m	Comparing & ordering lengths in mm & cm
		Converting between mm & cm
		Converting between m & cm
		Selecting appropriate units of length: mm, cm & m
3. Students will be expected to demonstrate an understanding of volume by: selecting and justifying referents for cubic centimetre (cm3) or cubic metre (m3) units; estimating volume using referents for cubic centimetre (cm3) or cubic metre (m3); measuring and recording volume (cm3 or m3); constructing rectangular prisms for a given volume.	Measure volume in cubic units	Using unit cubes to measure volume
		Using cubic cm & m to measure volume
		Estimating volume using cubic cm & m
4. Students will be expected to demonstrate an understanding of capacity by: describing the relationship between millilitre (mL) and litre (L) units; selecting and justifying referents for millilitre (mL) and litre (L) units; estimating capacity using referents for millilitre (mL) and litre (L); measuring and recording capacity (mL or L).	Measure capacity in L & mL	Introducing litres & millilitres
		Using millilitres & litres as references
		Measuring capacity in mL
		Estimating capacity using mL & L
		Selecting units to measure capacity (mL, L)

5 Geometry (3-D Objects & 2-D Shapes)

5.1 Students will be expected to describe the characteristics of 3-D objects and 2-D shapes and analyze the relationships among them

Outcome	Quests	Content
1. Students will be expected to describe and provide examples of edges and faces of 3-D objects, and sides of 2-D shapes that are parallel, intersecting, perpendicular, vertical, and horizontal.	Features of 2-D shapes & 3-D objects	Identifying features on 3-D objects
		Identifying features on 2-D shapes
2. Students will be expected to name, identify, and sort quadrilaterals, including rectangles, squares, trapezoids, parallelograms, and rhombi, according to their attributes.	Identify & sort quadrilaterals	Sorting & naming quadrilaterals
		Classifying quadrilaterals

6 Geometry (Transformations)

6.1 Students will be expected to describe and analyze position and motion of objects and shapes

Outcome	Quests	Content
4. Students will be expected to identify and describe a single transformation, including a translation, rotation, and reflection of 2-D shapes.	Single transformations of 2-D shapes	Introducing slides/translations
		Introducing flips/reflections
		Introducing turns/rotations
		One-step translations, reflections & rotations
5. Students will be expected to identify right angles.	Identify 90° angles	Introducing right angles
		Identifying right angles in quadrilaterals

7 Statistics & Probability (Data Analysis)

7.1 Students will be expected to collect, display, and analyze data to solve problems

Outcome	Quests	Content
2. Students will be expected to construct and interpret double bar graphs to draw conclusions.	Double bar graphs	Interpreting data, double bar graphs
		Representing data, double bar graphs

8 Statistics & Probability (Chance & Uncertainty)

8.1 Students will be expected to use experimental or theoretical probabilities to represent and solve problems involving uncertainty

Outcome	Quests	Content
3. Students will be expected to describe the likelihood of a single outcome occurring, using words such as impossible, possible, and certain.	Likelihood of single outcomes	Exploring the language of probability
4. Students will be expected to compare the likelihood of two possible outcomes occurring, using words such as less likely, equally likely, or more likely.	Likelihood of 2 possible outcomes	Describing chances of everyday events
		Understanding chance experiments, equal outcomes
		Understanding chance experiments, unequal outcomes
		Understand chance experiments, independent events

Grade 6

1 Number

1.1 Students will be expected to develop number sense

Outcome	Quests	Content
1. Students will be expected to demonstrate an understanding of place value for numbers greater than one million and less than one-thousandth.	Place value to billions	Reading & writing numbers up to billions
		Identifying place value up to billions
	Place value smaller than thousandths	Place value smaller than thousandths
	Situational questions	Situational questions, larger than one million
		Situational questions, smaller than one thousandth
2. Students will be expected to solve problems involving whole numbers and decimal numbers.	Solve problems: whole numbers & decimals	Multiplying decimals & whole numbers
		Dividing decimals & whole numbers
		Adding decimals & whole numbers
		Subtracting decimals & whole numbers
3. Students will be expected to demonstrate an understanding of factors and multiples by: determining multiples and factors of numbers less than 100; identifying prime and composite numbers; solving problems using multiples and factors	Prime & composite numbers	Introducing prime & composite numbers
	Prime factors	Using prime factors
	Find factors & multiples	Finding multiples up to 100, including LCM
		Finding factors up to 100, including GCF
		Situational questions, factors & multiples
4. Students will be expected to relate improper fractions to mixed numbers and mixed numbers to improper fractions.	Improper fractions & mixed numbers	Comparing & ordering mixed numbers
		Comparing & ordering improper fractions
		Comparing & ordering fractions & mixed numbers
		Converting improper fractions to mixed numbers
		Converting mixed numbers to improper fractions

5. Students will be expected to demonstrate an understanding of ratio, concretely, pictorially, and symbolically.	Introduction to ratios	Introducing ratios
		Simplifying ratios
		Dividing a quantity into a given ratio
		Identifying equivalent ratios
6. Students will be expected to demonstrate an understanding of percent (limited to whole numbers) concretely, pictorially, and symbolically.	Whole-number percentages	Introducing percentages
	Percentage equivalents	Representing percentage & fraction equivalents
		Representing percentage & decimal equivalents
		Fraction, decimal & percentage equivalents
	Calculate percentage discounts	Calculating percentage discounts
	Calculate percentages of whole numbers	Calculating simple percentages
7. Students will be expected to demonstrate an understanding of integers contextually, concretely, pictorially, and symbolically.	Read & represent integers	Investigating integers
		Understanding integers in real-life contexts
		Comparing & ordering integers
8. Students will be expected to demonstrate an understanding of multiplication and division of decimals (one-digit whole number multipliers and one-digit natural number divisors).	Multiply decimals to thousandths	Multiplying decimals to thousandths
		Multiplying decimals & whole numbers, base 10
	Divide decimals to thousandths	Dividing decimals & whole numbers, base 10
		Dividing decimals to thousandths
9. Students will be expected to explain and apply the order of operations, excluding exponents, with and without technology (limited to whole numbers).	Order of operations with whole numbers	Order of operations, addition & subtraction
		Order of operations, multiplication & division
		Order of operations, 4 operations
		Order of operations, grouping symbols
		Situational questions, order of operations

2 Patterns & Relations (Patterns)

2.1 Students will be expected to use patterns to describe the world and to solve problems

Outcome	Quests	Content
1. Students will be expected to demonstrate an understanding of the relationships within tables of values to solve problems.	Relationships within tables	Determining missing values in a table of values
		Making predictions about linear growing patterns
2. Students will be expected to represent and describe patterns and relationships, using graphs and tables.	Patterns in tables of values & graphs	Creating a table of values, visual pattern
		Representing linear patterns, tables & graphs

3 Patterns & Relations (Variables & Equations)

3.1 Students will be expected to represent algebraic expressions in multiple ways

Outcome	Quests	Content
3. Students will be expected to represent generalizations arising from number relationships using equations with letter variables.	Patterns, expressions & equations	Writing an equation to represent a table of values
		Writing expressions, rule for a pattern
4. Students will be expected to demonstrate and explain the meaning of preservation of equality concretely, pictorially, and symbolically.	Preservation of equality	Solving 1-step equations
		Solving 1-step equations using a balance
		Solving 1-step equations using algebra tiles
		Understanding the preservation of equality
		Creating equivalent forms of an equation

4 Measurement

4.1 Students will be expected to use direct and indirect measurement to solve problems

Outcome	Quests	Content
1. Students will be expected to demonstrate an understanding of angles by: identifying examples of angles in the environment; classifying angles according to their measure; estimating the measure of angles using 45°, 90°, and 180° as reference angles; determining angle measures in degrees; drawing and labelling angles when the measure is specified.	Angle measurement & classification	Classifying angles
		Measuring angles with a circular protractor
2. Students will be expected to demonstrate that the sum of interior angles is 180° in a triangle and 360° in a quadrilateral.	Sum of interior angles	Finding the missing angle of a triangle
		Finding the missing angle of a quadrilateral
3. Students will be expected to develop and apply a formula for determining the: perimeter of polygons; area of rectangles, volume of right rectangular prisms.	Relationships between area & perimeter	Solving perimeter & area problems
	Volume of rectangular prisms	Finding the volume of rectangular prisms
		Finding the missing dimension, rectangular prisms
	Area of rectangles	Finding the area of rectangles
	Perimeter of polygons	Determining the perimeter of polygons

5 Geometry (3-D Objects & 2-D Shapes)

5.1 Students will be expected to describe the characteristics of 3-D objects and 2-D shapes and analyze the relationships among them

Outcome	Quests	Content
1. Students will be expected to construct and compare triangles, including scalene, isosceles, equilateral, right, obtuse, or acute in different orientations.	Classification of triangles	Classifying triangles by their sides & angles
2. Students will be expected to describe and compare the sides and angles of regular and irregular polygons.	Regular & irregular polygons	Understanding regular & irregular polygons

6 Geometry (Transformations)

6.1 Students will be expected to describe and analyze position and motion of objects and shapes

Outcome	Quests	Content
3. Students will be expected to perform a combination of translation(s), rotation(s), and/or reflection(s) on a single 2-D shape, with and without technology, and draw and describe the image.	Combinations of transformations	Identifying combinations of transformations
4. Students will be expected to perform a combination of successive transformations of 2-D shapes to create a design and identify and describe the transformations.	Recognize tessellations	Recognizing tessellations
5. Students will be expected to identify and plot points in the first quadrant of a Cartesian plane using whole number ordered pairs.	The Cartesian plane, first quadrant	Plotting points in the first quadrant
		Plotting points that create a shape
6. Students will be expected to perform and describe single transformations of a 2-D shape in the first quadrant of a Cartesian plane (limited to whole number vertices).	Transformations in the first quadrant	Investigating translations in the first quadrant
		Identifying reflections in the first quadrant
		Identifying rotations in the first quadrant

7 Statistics & Probability (Data Analysis)

7.1 Students will be expected to collect, display, and analyze data to solve problems

Outcome	Quests	Content
1. Students will be expected to create, label, and interpret line graphs to draw conclusions.	Construct line graphs	Constructing a line graph
		Interpreting data in a line graph
		Choosing graphs, continuous vs discrete data
2. Students will be expected to select, justify, and use appropriate methods of collecting data, including questionnaires, experiments, databases, and electronic media.	Data collection	Collecting data: questionnaires
3. Students will be expected to graph collected data and analyze the graph to solve problems.	Select data displays	Selecting data displays

8 Statistics & Probability (Chance & Uncertainty)

8.1 Students will be expected to use experimental or theoretical probabilities to represent and solve problems involving uncertainty

Outcome	Quests	Content
4. Students will be expected to demonstrate an understanding of probability by: identifying all possible outcomes of a probability experiment; differentiating between experimental and theoretical probability; determining the theoretical probability of outcomes in a probability experiment; determining the experimental probability of outcomes in a probability experiment; comparing experimental results with the theoretical probability for an experiment.	Theoretical & experimental probability	Comparing observed & expected frequencies
		Probability of 0 and 1
		Predicting the probability of a specific outcome
		Listing the sample space for an event

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