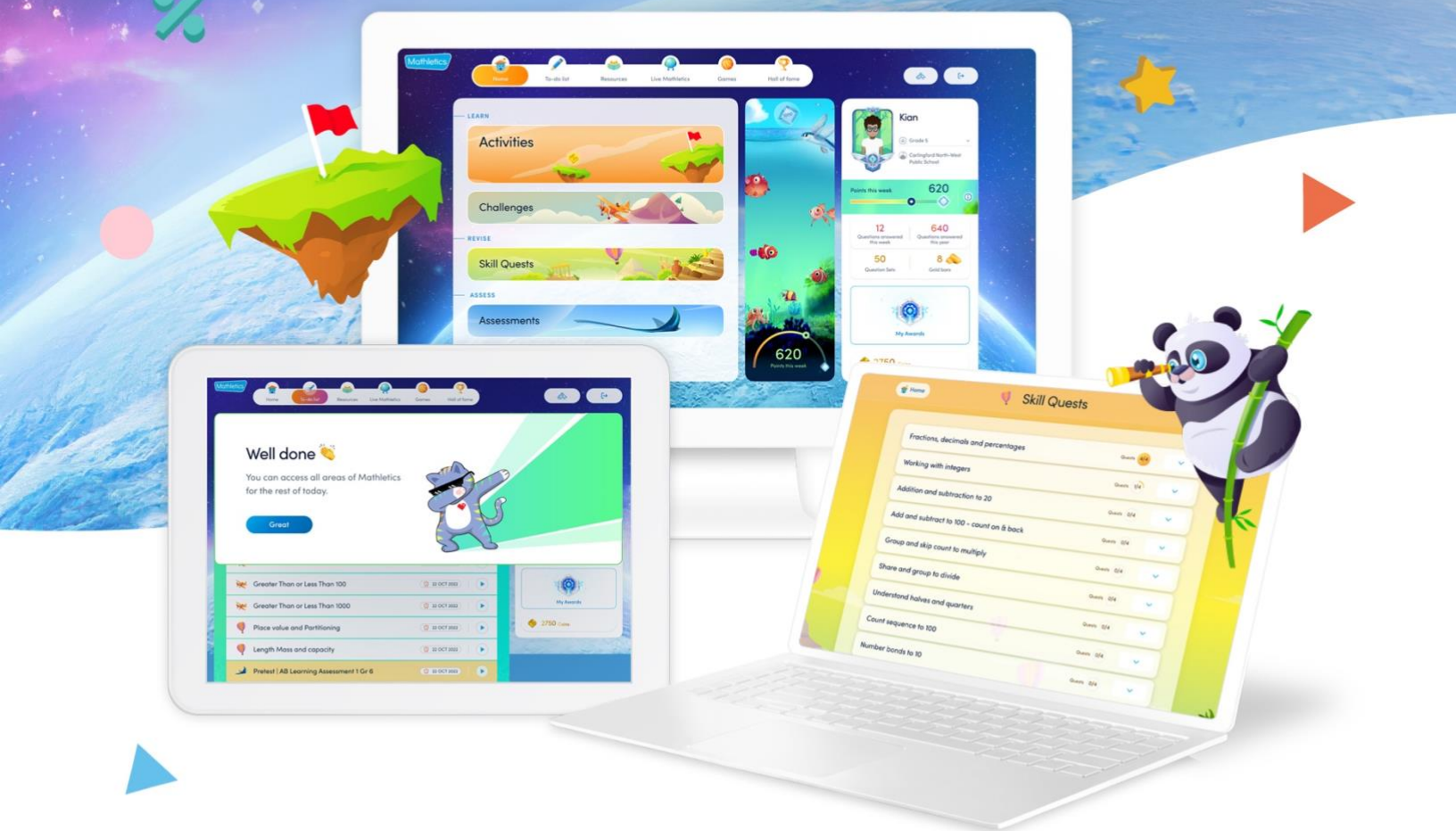
Mathletics

Alberta Program of Studies

Activities (Courses) and Skill Quests



Grades 7-10

July, 2025

Mathletics

Grade 7

1 Number

1.1 Develop number sense

7.N.Divisibility Determine and explain why a number is divisible by 2, 3, 4, 5, 6, 8, 9 or 10, and why a number cannot be divided by 0	
Course Topics	**Activities**
Number – Integers	Divisibility Tests (2, 5, 10)
	Divisibility Tests (3, 4, 9)
	Divisibility Tests
Topics	**Skill Quests**
Divisibility rules	Introducing divisibility rules for dividing by 2
	Introducing divisibility rules for dividing by 3
	Introducing divisibility rules for dividing by 4
	Introducing divisibility rules for dividing by 5
	Introducing divisibility rules for dividing by 6
	Introducing divisibility rules for dividing by 8
	Introducing divisibility rules for dividing by 9
	Introducing divisibility rules for dividing by 10
	Divisibility rules: dividing by 2, 3, 4, 5, 6, 10

7.N.Operations with decimals Demonstrate an understanding of the addition, subtraction, multiplication and division of decimals to solve problems (for more than 1-digit divisors or 2-digit multipliers, the use of technology is expected)	
Course Topics	**Activities**
Number – Decimals	Decimals on a Number Line
	Comparing Decimals
	Adding Decimals
	Subtract Decimals 2
	Adding and Subtracting Decimals
	Decimal Complements
	Multiply Decimals: 10, 100, 1000
	Divide Decimals: 10, 100, 1000
	Decimal by Whole Number
	Decimal by Decimal
	Divide Decimal by Whole Number
	Divide Decimal by Decimal
	Estimate Decimal Sums 1
	Estimate Decimal Differences 1
Topics	**Skill Quests**
Operations with decimals	Solving decimal word problems, 4 operations
	Adding decimals

	Subtracting decimals
	Multiplying decimals
	Multiplying decimals using place value
	Dividing decimals
	Order of operations, decimals

7.N.Percents Solve problems involving percents from 1% to 100%.	
Course Topics	**Activities**
Number – Percentages	Calculating Percentages (Mental)
	Percentage of an amount using fractions (<100%)
	Quantities to Percentages (no units)
	Quantities to Percentages (with units)
	What Percentage?
	Calculating Percentages 1
Topics	**Skill Quests**
Percents, fractions & decimals	Solving word problems involving percentages
	Converting percents into fractions & decimals

7.N.Fractions and decimals Demonstrate an understanding of the relationship between positive terminating decimals and positive fractions and between positive repeating decimals and positive fractions.	
Course Topics	**Activities**
Number – Fractions	Decimals to Fractions 1
	Decimals to Fractions 2
	Fractions to Decimals
	Fraction to Terminating Decimal
Topics	**Skill Quests**
Decimals & fractions	Investigating terminating & repeating decimals
	Converting terminating decimals to fractions
	Converting repeating decimals to fractions
	Converting fractions to terminating decimals
	Converting fractions to repeating decimals

7.N.Add/subtract fractions Demonstrate an understanding of adding and subtracting positive fractions and mixed numbers, with like and unlike denominators, concretely, pictorially and symbolically (limited to positive sums and differences).	
Course Topics	**Activities**
Number – Fractions	Add: Common Denominator
	Add: No Common Denominator
	Add Like Mixed Numbers
	Add Unlike Mixed Numbers
	Subtract: No Common Denominator
	One Take Fraction
	Subtract Like Fractions
	Mixed Numerals

	Add Mixed Numbers: Same Sign
	Subtract Mixed Numbers: Signs Differ
Topics	**Skill Quests**
Teacher directed	

7.N.Add and subtract integers Demonstrate an understanding of addition and subtraction of integers, concretely, pictorially and symbolically.	
Course Topics	**Activities**
Number – Integers	Integers on a Number Line
	Ordering Integers (Number Line)
	Comparing Integers
	Negative or Positive?
	Integers: Add and Subtract
	More with Integers
	Add Integers
	Integers: Subtraction
	Adding Integers: Positive, Negative or Zero
Topics	**Skill Quests**
Add fractions & mixed numbers	Adding fractions, like denominator
	Adding a whole number & a fraction
	Adding improper fractions, like denominator
	Adding mixed numbers, like denominator
	Adding fractions, unlike denominator
	Adding improper fractions, unlike denominator
	Adding mixed numbers, unlike denominator
Subtract fractions & mixed numbers	Subtracting fractions, like denominator
	Subtracting a fraction from a whole number
	Subtracting improper fractions, like denominator
	Subtracting with mixed numbers, like denominator
	Subtracting fractions, unlike denominator
	Subtracting improper fractions, unlike denominator
	Subtracting with mixed numbers, unlike denominator
Add & subtract fractions, word problems	Adding & subtracting fractions, word problems

7.N.Compare and order Compare and order positive fractions, positive decimals (to thousandths) and whole numbers by using: benchmarks, place value, equivalent fractions and/or decimals.	
Course Topics	**Activities**
Number - Fractions	Identifying Fractions on a Number Line
	Decimals to Fractions 1
	Decimals to Fractions 2
	Fractions to Decimals
Topics	**Skill Quests**
Teacher directed	

2 Patterns and Relations (Patterns)

2.1 Use patterns to describe the world and to solve problems

7.PR.Patterns and linear relations Demonstrate an understanding of oral and written patterns and their equivalent linear relations	
Course Topics	**Activities**
PR – Patterns	Increasing Patterns
	Decreasing Patterns
	Pick the Next Number
Topics	**Skill Quests**
Patterns & linear relations	Representing written patterns as linear relations

7.PR.Table of values Create a table of values from a linear relation, graph the table of values, and analyze the graph to draw conclusions and solve problems	
Course Topics	**Activities**
PR – Patterns	Table of Values
	Pattern Rules and Tables
	Find the Pattern Rule
Topics	**Skill Quests**
Discrete linear relations	Graphing discrete linear relations using a table
	Matching graphs & linear relations
	Creating tables of values for linear relations

3 Patterns and Relations (Variables and Equations)

3.1 Represent algebraic expressions in multiple ways

7.PR.Preservation of equality Demonstrate an understanding of preservation of equality by: modelling preservation of equality, concretely, pictorially and symbolically, applying preservation of equality to solve equations	
Course Topics	**Activities**
PR – Equations	Find the Missing Number 1
	Missing Numbers: Variables
Topics	**Skill Quests**
Preservation of equality	Understanding the preservation of equality
	Equivalent forms of equations
	Solving 1-step equations using a balance

7.PR.Expressions and equations Explain the difference between an expression and an equation	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Expressions & equations	Distinguishing between expressions & equations
	Identifying parts of expressions & equations

7.PR.Evaluate expressions Evaluate an expression, given the value of the variable(s)	
Course Topics	**Activities**
PR – Expressions	Writing Algebraic Expressions
	Simple Substitution
	Simple Substitution 2
	Simple Substitution 3
	Complex Substitution
	Recognising Like Terms
	Like Terms: Add, Subtract
	Like Terms: Add and Subtract
Topics	**Skill Quests**
Evaluate an expression	Evaluating expressions using substitution

7.PR.Linear equations 1 Model and solve, concretely, pictorially and symbolically, problems that can be represented by one-step linear equations of the form x + a = b, where a and b are integers	
Course Topics	**Activities**
PR – Equations	Solve Equations: Add, Subtract 1
	Solve Equations: Multiply, Divide 1
	Solving Simple Equations
Topics	**Skill Quests**
Linear equations, integers	Solving linear equations with integers
	Modelling & solving 1-step equations, algebra tile

7.PR.Linear equations 2 Model and solve, concretely, pictorially and symbolically, problems that can be represented by linear equations of the form: ax + b = c, ax = b, x/a = b, a = ≠ 0 where a, b and c are whole numbers	
Course Topics	**Activities**
PR – Equations	Solve Equations: Add, Subtract 1
	Solve Equations: Multiply, Divide 1
	Solving Simple Equations
Topics	**Skill Quests**
Linear equations, whole numbers	Solving 2-step equations
	Modelling & solving 2-step equations, algebra tile
	Modelling real-life scenarios using equations
	Solving 1-step equations
	Solving 1-step equations using algebra tiles
	Checking solutions of two-step equations

4 Shape and Space (Measurement)

4.1 Use direct and indirect measurement to solve problems

7.SS.Circles Demonstrate an understanding of circles by: describing the relationships among radius, diameter and circumference, relating circumference to pi, determining the sum of the central angles, constructing circles with a given radius or diameter, solving problems involving the radii, diameters and circumferences of circles	
Course Topics	**Activities**
SS – Circles	Labelling Circles
	Arc Length
	Perimeter and Circles
	Calculate Circumference of Circles
Topics	**Skill Quests**
Circles	Finding the circumference of circles
	Introducing the parts of a circle
	Introducing circumference
	Sum of the central angles of a circle

7.SS.Area Develop and apply a formula for determining the area of: triangles, parallelograms, circles	
Course Topics	**Activities**
SS – Circles	Area: Circles 1
SS – Area	Area: Squares and Rectangles
	Area: Triangles
	Area: Composite Shapes
	Area: Parallelograms (Metric)
Topics	**Skill Quests**
Determine the area	Determining the area of a triangle
	Determining the area of a parallelogram
	Determining the area of a circle

5 Shape and Space (3-D Objects and 2-D Shapes)

5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them

7.SS.Geometric constructions Perform geometric constructions, including: perpendicular line segments, parallel line segments, perpendicular bisectors, angle bisectors.	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Lines & angles	Identifying parallel & perpendicular lines

6 Shape and Space (Transformations)

6.1 Describe and analyze position and motion of objects and shapes

7.SS.Cartesian plane Identify and plot points in the four quadrants of a Cartesian plane, using integral ordered pairs	
Course Topics	**Activities**
SS – Coordinates	Coordinate Graphs: 1st Quadrant
	Number Plane
	Coordinate Graphs
	Graphing from a Table of Values
	Reading Values from a Line
	What Line am I?
Topics	**Skill Quests**
The Cartesian plane	Introducing Cartesian coordinates
	Drawing shapes on the coordinate plane

7.SS.Transformations Perform and describe transformations (translations, rotations or reflections) of a 2-D shape in all four quadrants of a Cartesian plane (limited to integral number vertices)	
Course Topics	**Activities**
SS – Transformations	Symmetry or Not?
	Rotational Symmetry
	Transformations
	Horizontal and Vertical Change
	Transformations: Coordinate Plane
	Rotations: Coordinate Plane
Topics	**Skill Quests**
Transformations on the Cartesian plane	Successive translations on the coordinate plane
	Rotations on the coordinate plane
	Reflections on the coordinate plane
	Combinations of transformations

7 Statistics and Probability (Data Analysis)

7.1 Collect, display and analyze data to solve problems

7.SP.Central tendency and range Demonstrate an understanding of central tendency and range by: determining the measures of central tendency (mean, median, mode) and range, determining the most appropriate measures of central tendency to report findings	
Course Topics	**Activities**
SP - Data Analysis	Mode
	Mean
	Median
	Data Extremes and Range
	Which Measure of Central Tendency?
Topics	**Skill Quests**
Measures of central tendency & range	Understanding mean
	Understanding median
	Understanding mode
	Understanding range
	Choosing statistical measures for data

7.SP.Outliers Determine the effect on the mean, median and mode when an outlier is included in a data set	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Outliers	Investigating the effect of outliers

7.SP.Circle graphs Construct, label and interpret circle graphs to solve problems	
Course Topics	**Activities**
SP - Data Analysis	Sector Graphs
	Creating a Sector Graph
Topics	**Skill Quests**
Circle graphs	Interpreting & constructing circle graphs

8 Statistics and Probability (Chance and Uncertainty)

8.1 Use experimental or theoretical probabilities to represent and solve problems involving uncertainty

7.SP.Probabilities Express probabilities as ratios, fractions and percents	
Course Topics	**Activities**
SP – Probability	What are the Chances?
	Find the Probability
	Simple Probability
	Fair Games
	Relative Frequency
Topics	**Skill Quests**
Probability: decimals/fractions/percents	Probability: decimals, fractions & percents

7.SP.Sample space Identify the sample space (where the combined sample space has 36 or fewer elements) for a probability experiment involving two independent events	
Course Topics	**Activities**
SP – Probability	What are the Chances?
	Find the Probability
	Simple Probability
	Fair Games
	Relative Frequency
Topics	**Skill Quests**
Sample space	Identifying the sample space

7.SP.Theoretical and experimental probability Conduct a probability experiment to compare the theoretical probability (determined using a tree diagram, table or other graphic organizer) and experimental probability of two independent events	
Course Topics	**Activities**
SP – Probability	Find the Probability
	Simple Probability
	Fair Games
	Tree Diagram
Topics	**Skill Quests**
Theoretical & experimental probability	Understanding independent events
	Determining theoretical probability, tree diagrams
	Exploring fair games

Grade 8

1 Number

1.1 Develop number sense

8.N.Perfect squares and squares roots Demonstrate an understanding of perfect squares and square roots, concretely, pictorially and symbolically (limited to whole numbers)	
Course Topics	**Activities**
Number - Mult., Division & Squares	Square Roots
	Square Roots 1
Topics	**Skill Quests**
Squares & square roots	Perfect squares
	Finding square roots

8.N.Estimate square roots Determine the approximate square root of numbers that are not perfect squares (limited to whole numbers)	
Course Topics	**Activities**
Number - Mult., Division & Squares	Estimating Square Roots
Topics	**Skill Quests**
Estimate square roots	Estimating square roots

8.N.Percents Demonstrate an understanding of percents greater than or equal to 0%, including greater than 100%	
Course Topics	**Activities**
Number - Fractions, Decimals & Percent.	Decimals to Fractions 1
	Fractions to Decimals 2
	Fraction to Terminating Decimal
	Percentages to Fractions (with and without simplification)
	Percentages greater than 100% to Mixed Numerals
	Percentages to Decimals
	Common Fractions as Percentages
	Fractions to Percentages (Non-Calculator)
	Fractions to Percentages (Calculator)
	Mixed Numerals to Percentages greater than 100%
	Decimals to Percentages
	Decimal to Percentage
	Match Decimals and Percentages
	Solve Percent Equations
	Percentage Word Problems

Topics	Skill Quests
Percents greater than or equal to 0%	Percents greater than 100%
	Converting percents to fractions & mixed numbers
	Converting percents to decimals
	Solving problems involving consecutive percents
	Increasing & decreasing amounts by percents
	Solving problems involving combined percents

8.N.Ratio and rate Demonstrate an understanding of ratio and rate	
Course Topics	**Activities**
Number - Ratio & Rates	Simplify Ratios: 2 Whole Numbers
	Simplify Ratios: 3 Whole Numbers
	Simplify Ratios: Decimals
	Simplify Ratios: Fractions
	Simplify Ratios: Mixed Numbers
	Equivalent Ratios
	Ratio
Topics	**Skill Quests**
Understand ratio & rate	Unit rate
	Introduction to ratios

8.N.Proportional reasoning Solve problems that involve rates, ratios and proportional reasoning	
Course Topics	**Activities**
Number - Ratio & Rates	Dividing a Quantity Into a Ratio
	Ratio Word Problems
	Word Problems: Ratio
	Best Buy
	Unitary Method
	Rates Word Problems
	Rates Calculations
	Distance Travelled
	Average Speed
	Time Taken
	Travel Graphs
Topics	**Skill Quests**
Rates, ratios & proportional reasoning	Simplifying & comparing rates
	Solving rate problems
	Dividing a quantity in a given ratio
	Solving ratio problems
	Solving proportions problems

8.N.Multiply/divide fractions Demonstrate an understanding of multiplying and dividing positive fractions and mixed numbers, concretely, pictorially and symbolically	
Course Topics	**Activities**
Number – Fractions	Fractions of a Collection
	Unit Fractions
	Fraction of an Amount
	Multiply Fraction by Whole Number
	Multiply Fraction by Fraction
	Multiply Two Fractions 1
	Multiplying Fractions
	Multiply Mixed Numbers
	More Fraction Problems
	Using Reciprocals
	Divide by a Unit Fraction
	Divide Whole Number by Fraction
	Divide Fractions Visual Model
	Divide Fractions by Fractions 1
	Dividing Fractions
	Divide Mixed Numbers
	Operations with Fractions
	Divide Mixed Numbers with Signs
Topics	**Skill Quests**
Multiply fractions & mixed numbers	Multiplying unit fractions by whole numbers
	Multiplying proper fractions by whole numbers
	Multiplying mixed numbers by whole numbers
	Multiplying fractions
	Multiplying mixed numbers
Divide fractions & mixed numbers	Dividing fractions & whole numbers
	Dividing fractions
	Dividing whole numbers & mixed numbers
	Dividing mixed numbers & fractions
	Dividing mixed numbers
	Dividing fractions, word problems

8.N.Multiply and divide integers Demonstrate an understanding of multiplication and division of integers, concretely, pictorially and symbolically	
Course Topics	**Activities**
Number - Mult., Division & Squares	Multiply 2 Digits Area Model
	Division Facts 1
	Dividing by 10, 100, 1000
	Integers: Multiplication and Division
	Integers: Multiply and Divide
	Multiplying and Dividing Integers
	Integers: Order of Operations (BEDMAS)
Topics	**Skill Quests**
Multiply & divide integers	Multiplying integers
	Dividing integers
	Multiplying & dividing integers
	Multiplying integers using models
	Dividing integers using models

2 Patterns and Relations (Patterns)

2.1 Use patterns to describe the world and to solve problems

8.PR.Two-variable linear relations Graph and analyze two-variable linear relations	
Course Topics	**Activities**
PR - Variables & Equations	Graphing from a Table of Values 2
Topics	**Skill Quests**
Linear relations	Graphing discrete linear relations
	Identifying equation from a discrete linear graph

3 Patterns and Relations (Variables and Equations)

3.1 Represent algebraic expressions in multiple ways

8.PR.Linear equations Model and solve problems concretely, pictorially and symbolically, using linear equations of the form: ax = b, x/a = b , a ≠ 0 , ax + b = c, x/a + b = c, a ≠ 0, a(x + b) = c where a, b and c are integers	
Course Topics	**Activities**
PR - Variables & Equations	Using the Distributive Property
	Solving Simple Equations
	Equations with Fractions
	Solve Two-Step Equations
	Solving More Equations
	Equations with Grouping Symbols
	Checking Solutions
	Find the Mistake
	Equations to Solve Problems
Topics	**Skill Quests**
Linear equations, integers	Modelling & solving 2-step linear equations
	Solving linear equation word problems
	Solving 2-step linear equations, mixed operations
	Solving 1-step linear equations, add & subtract
	Solving 1-step linear equations, multiply & divide
	Solving 1-step linear equations, mixed operations
	Solving linear equations, distributive property
	Checking solutions using substitution

4 Shape and Space (Measurement)

4.1 Use direct and indirect measurement to solve problems

8.SS.Pythagorean theorem Develop and apply the Pythagorean theorem to solve problems	
Course Topics	**Activities**
SS - Pythagorean Theorem	Hypotenuse of a Right Triangle
	Pythagoras: Find a Short Side (integers only)
	Pythagoras: Find a Short Side (rounding needed)
	Pythagoras: Find a Short Side (decimal values)
	Pythagorean Theorem
	Pythagorean Triads
	Pythagoras and Perimeter
	Cone and Pyramid Dimensions
Topics	**Skill Quests**
Pythagorean theorem	Identifying the sides of a right triangle
	Converse of the Pythagorean Theorem
	Finding the length of the missing side, short side
	Finding the length of the missing side, hypotenuse
	Finding the length of the missing side
	Matching right triangles to word problems
	Identifying Pythagorean triples

8.SS.Nets Draw and construct nets for 3-D objects	
Course Topics	**Activities**
SS - 3D Shape	Nets
Topics	**Skill Quests**
Nets of 3-D objects	Connecting prisms with their nets
	Connecting 3-D objects with their nets

8.SS.Surface area Determine the surface area of: right rectangular prisms, right triangular prisms, right cylinders to solve problems	
Course Topics	**Activities**
SS - 3D Shape	Surface Area: Rectangular Prisms
	Surface Area: Rectangular Prisms 1
	Surface Area: Triangular Prisms
Topics	**Skill Quests**
Surface area	Finding the surface area of rectangular prisms
	Finding the surface area of triangular prisms
	Finding the surface area of cylinders

8.SS.Volume Develop and apply formulas for determining the volume of right rectangular prisms, right triangular prisms and right cylinders	
Course Topics	**Activities**
SS - 3D Shape	Volume: Rectangular Prisms 1
	Volume: Rectangular Prisms 2
	Volume of Triangular Prisms
Topics	**Skill Quests**
Volume	Finding the volume of cubes & rectangular prisms
	Finding the volume of triangular prisms
	Finding the volume of cylinders
	Solving volume problems, right prisms & cylinders

5 Shape and Space (3-D Objects and 2-D Shapes)

5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them

8.SS.3-D object views Draw and interpret top, front and side views of 3-D objects composed of right rectangular prisms	
Course Topics	**Activities**
SS – Transformations	Symmetry or Not?
	Rotational Symmetry
	Transformations
	Horizontal and Vertical Change
	Transformations: Coordinate Plane
	Rotations: Coordinate Plane
Topics	**Skill Quests**
Top, front & side views of 3-D objects	Drawing top, front & side views of 3-D objects

6 Shape and Space (Transformations)

6.1 Describe and analyze position and motion of objects and shapes

8.SS.Congruence of polygons Demonstrate an understanding of the congruence of polygons	
Course Topics	**Activities**
SS – Transformations	Congruent Figures (Dot Grid)
	Congruent Figures: Find Values
Topics	**Skill Quests**
Congruence of polygons	Identifying congruent figures, transformations
	Exploring translations, coordinates
	Describing reflections, coordinates
	Exploring rotations, coordinates

7 Statistics and Probability (Data Analysis)

7.1 Collect, display and analyze data to solve problems

8.SP.Evaluate data displays Critique ways in which data is presented in circle graphs, line graphs, bar graphs and pictographs	
Course Topics	**Activities**
SP - Data Analysis & Probability	Reading from a Column Graph
	What are the Chances?
	Line Graphs: Interpretation
Topics	**Skill Quests**
Critique data displays	Critiquing data displays

8 Statistics and Probability (Chance and Uncertainty)

8.1 Use experimental or theoretical probabilities to represent and solve problems involving uncertainty

8.SP.Probability of independent events Solve problems involving the probability of independent events	
Course Topics	**Activities**
SP - Data Analysis & Probability	Find the Probability
	Simple Probability
	Fair Games
	Relative Frequency
Topics	**Skill Quests**
Probability of independent events	Finding the probability of 2 independent events

Grade 9

1 Number

1.1 Develop number sense

9.N.1 Demonstrate an understanding of powers with integral bases (excluding base 0) and whole number exponents by: representing repeated multiplication, using powers, using patterns to show that a power with an exponent of zero is equal to one, solving problems involving powers	
Course Topics	**Activities**
N - Powers & Roots	Exponent Notation
	Exponents
Topics	**Skill Quests**
Teacher directed	

9.N.2 Demonstrate an understanding of operations on powers with integral bases (excluding base 0) and whole number exponents: (am)(an) = am+n, am ÷ an = am-n, m > n, (am) n = amn, (ab)m = ambm, (a/b)n = an/bn, b ≠ 0	
Course Topics	**Activities**
N - Powers & Roots	Simplifying with Exponent Laws 1
	Properties of Exponents
	The Zero Exponent
	Exponent Notation and Algebra
	Zero Exponent and Algebra
Topics	**Skill Quests**
Teacher directed	

9.N.3 Demonstrate an understanding of rational numbers by: comparing and ordering rational numbers, solving problems that involve arithmetic operations on rational numbers	
Course Topics	**Activities**
N – Revision	Integers: Multiplication and Division
	Multiplying and Dividing Integers
	Ordering Integers (Number Line)
	Money Problems: Four Operations
	Add Decimals: Different signs
	Comparing Decimals 2
	Divide Decimal by Whole Number
	Divide Decimals
N - Fractions revision	Add Mixed Numbers: Same Sign
	Subtract Mixed Numbers: Signs Differ
	Multiply Two Fractions 1
	Multiply Mixed Numbers

	Dividing Fractions
	Divide Mixed Numbers
	Ordering Fractions 1
	Add Mixed Numbers: Signs Can Differ
	Add Unlike Mixed Numbers
	Mixed Numerals
	Divide Mixed Numbers with Signs
	Fraction Word Problems
	More Fraction Problems
Topics	**Skill Quests**
Teacher directed	

9.N.4 Explain and apply the order of operations, including exponents, with and without technology	
Course Topics	**Activities**
N – Revision	Order of Operations 2 (PEDMAS)
	Integers: Operations Order
Topics	**Skill Quests**
Teacher directed	

9.N.5 Determine the square root of positive rational numbers that are perfect squares	
Course Topics	**Activities**
N - Powers & Roots	Square Roots 1
	Square Roots
Topics	**Skill Quests**
Teacher directed	

9.N.6 Determine an approximate square root of positive rational numbers that are nonperfect squares	
Course Topics	**Activities**
N - Powers & Roots	Estimate Square Roots
Topics	**Skill Quests**
Teacher directed	

2 Patterns and Relations (Patterns)

2.1 Use patterns to describe the world and to solve problems

9.PR.1 Generalize a pattern arising from a problem-solving context, using a linear equation, and verify by substitution	
Course Topics	**Activities**
PR - Linear Relations	Find the Pattern Rule
	Pattern Rules and Tables
	Table of Values
Topics	**Skill Quests**
Teacher directed	

9.PR.2 Graph a linear relation, analyze the graph, and interpolate or extrapolate to solve problems	
Course Topics	**Activities**
PR - Linear Relations	Conversion Graphs
	Modelling Linear Relationships
	Table Of Values
	Graphing from a Table of Values
	Graphing from a Table of Values 2
	Determining a Rule for a Line
Topics	**Skill Quests**
Teacher directed	

3 Patterns and Relations (Variables and Equations)

3.1 Represent algebraic expressions in multiple ways

9.PR.3 Model and solve problems, using linear equations of the form: ax = b, x/a = b, a ≠ 0, ax + b = c, x/a + b = c, a ≠ 0, ax = b + cx, a(x + b) = c, ax + b = cx + d, a(bx + c) = d(ex + f), a/x = b, x ≠ 0 where a, b, c, d, e and f are rational numbers	
Course Topics	**Activities**
PR - Linear Equations	Solving More Equations
	Equations with Grouping Symbols
	Checking Solutions
	Find the Mistake
	Equations: Variables, Both Sides
	Solve Multi-Step Equations
	Writing Equations
	Solve Equations: Add, Subtract 1
	Solve Equations: Add, Subtract 2
	Solve Equations: Multiply, Divide 1
	Solve Equations: Multiply, Divide 2
	Equations to Solve Problems
Topics	**Skill Quests**
Teacher directed	

9.PR.4 Explain and illustrate strategies to solve single variable linear inequalities with rational coefficients within a problem-solving context	
Course Topics	**Activities**
PR - Linear Inequalities	Solve One-Step Inequalities 1
	Solve One-Step Inequalities 2
	Graphing Inequalities on Number Line
	Graphing Inequalities 2
	Graphing Inequalities 3
	Solving Inequalities 1
	Solving Inequalities 2
	Solving Inequalities 3
Topics	**Skill Quests**
Teacher directed	

9.PR.5 Demonstrate an understanding of polynomials (limited to polynomials of degree less than or equal to 2)	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

9.PR.6 Model, record and explain the operations of addition and subtraction of polynomial expressions, concretely, pictorially and symbolically (limited to polynomials of degree less than or equal to 2)	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

9.PR.7 Model, record and explain the operations of multiplication and division of polynomial expressions (limited to polynomials of degree less than or equal to 2) by monomials, concretely, pictorially and symbolically	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

4 Shape and Space (Measurement)

4.1 Use direct and indirect measurement to solve problems

9.SS.1 Solve problems and justify the solution strategy, using the following circle properties: the perpendicular from the centre of a circle to a chord bisects the chord, the measure of the central angle is equal to twice the measure of the inscribed angle subtended by the same arc, the inscribed angles subtended by the same arc are congruent, a tangent to a circle is perpendicular to the radius at the point of tangency	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

5 Shape and Space (3-D Objects and 2-D Shapes)

5.1 Describe the characteristics of 3-D objects and 2-D shapes, and analyze the relationships among them

9.SS.2 Determine the surface area of composite 3-D objects to solve problems	
Course Topics	**Activities**
SS - Surface Area	Nets
	Surface Area: Cylinders
	Surface Area: Triangular Prisms
	Surface Area: Rectangular Prisms
Topics	**Skill Quests**
Teacher directed	

9.SS.3 Demonstrate an understanding of similarity of polygons	
Course Topics	**Activities**
SS - Similarity	Similar Figures 1
	Similar Figures
	Using Similar Triangles
	Similar Triangles
	Similarity Proofs
Topics	**Skill Quests**
Teacher directed	

6 Shape and Space (Transformations)

6.1 Describe and analyze position and motion of objects and shapes

9.SS.4 Draw and interpret scale diagrams of 2-D shapes	
Course Topics	**Activities**
SS - Similarity	Using Similar Triangles
	Similar Triangles
	Scale Factor
Topics	**Skill Quests**
Teacher directed	

9.SS.5 Demonstrate an understanding of line and rotation symmetry	
Course Topics	**Activities**
SS - Symmetry	Symmetry or Not?
	Rotational Symmetry
	Lines of Symmetry
	Rotational Symmetry of Shapes
	Symmetry
Topics	**Skill Quests**
Teacher directed	

7 Statistics and Probability (Data Analysis)

7.1 Collect, display and analyze data to solve problems

9.SP.1 Describe the effect of: bias, use of language, ethics, cost, time and timing, privacy, cultural sensitivity on the collection of data	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

9.SP.2 Select and defend the choice of using either a population or a sample of a population to answer a question	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

9.SP.3 Develop and implement a project plan for the collection, display and analysis of data by: formulating a question for investigation, choosing a data collection method that includes social considerations, selecting a population or a sample, collecting the data, displaying the collected data in an appropriate manner, drawing conclusions to answer the question	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

8. Statistics and Probability (Chance and Uncertainty)

8.1 Use experimental or theoretical probabilities to represent and solve problems involving uncertainty

9.SP.4 Demonstrate an understanding of the role of probability in society	
Course Topics	**Activities**
SP - Probability	Simple Probability
	Fair Games
	Relative Frequency
	Probability - 'And' and 'Or'
	Dice and Coins
	Probability With Replacement
	Probability Without Replacement
	Find the Probability
Topics	**Skill Quests**
Teacher directed	

Grade 10C

1 Measurement

1.1 Develop spatial sense and proportional reasoning

10C.M.1 Solve problems that involve linear measurement, using: SI and imperial units of measure, estimation strategies, measurement strategies	
Course Topics	**Activities**
Measurement and Surface Area	Customary Units of Length
	Operations with Length

10C.M.2 Apply proportional reasoning to problems that involve conversions between SI and imperial units	
Course Topics	**Activities**
Measurement and Surface Area	Nautical Mile, Kilometre, Knot
	Converting Units of Length

10C.M.3 Solve problems, using SI and imperial units, that involve the surface area and volume of 3-D objects, including: right cones, right cylinders, right prisms, right pyramids spheres	
Course Topics	**Activities**
Measurement and Surface Area	Operations with Length
	Converting Units of Length
	Surface Area: Rearrange Formula
	Surface Area: Rectangular Prism
	Surface Area: Triangular Prisms
	Surface Area: Square Pyramids
	Surface Area: Cones
	Surface Area: Cylinders
	Surface Area: Cuboids
	Surface Area: Spheres
Measurement: Volume	Volume: Prisms
	Volume: Rectangular Prisms 1
	Volume: Rectangular Prisms 2
	Volume: Composite Figures
	Volume: Cones
	Volume: Spheres
	Volume: Triangular Prisms
	Volume: Pyramids
	Volume: Cylinders
	Volume: Rearrange Formula

10C.M.4 Develop and apply the primary trigonometric ratios (sine, cosine, tangent) to solve problems that involve right triangles	
Course Topics	**Activities**
Measurement: Trigonometry	Sin A
	Cos A
	Tan A
	Hypotenuse, Adjacent, Opposite
	Find Unknown Angles
	Find Unknown Sides
	Angle Sum of Triangle
	Trigonometry Problems 2
	Pythagorean Theorem
	Elevation and Depression

2 Algebra and Number

2.1 Develop algebraic reasoning and number sense

10C.AN.1 Demonstrate an understanding of factors of whole numbers by determining the: prime factors, greatest common factor, least common multiple, square root, cube root	
Course Topics	**Activities**
Algebra and Number-Factors, Roots	Factors
	Prime Factorization: Exponents
	Product of Prime Factors
	Prime or Composite?
	Greatest Common Factor
	Least Common Multiple
	Estimating Square Roots
	Estimating Cube Roots
	Square Roots

10C.AN.2 Demonstrate an understanding of irrational numbers by: representing, identifying and simplifying irrational numbers; ordering irrational numbers	
Course Topics	**Activities**
Algebra and Number-Irrational Numbers	Irrational Numbers
	Simplifying Irrational Numbers
	Adding and Subtracting
	Irrational Numbers
	Multiplying Irrational Numbers
	Expanding Irrational Number Expressions
	Irrational Number to Exponent Form
	Dividing Irrational Numbers
	Expanding Binomial Irrational Numbers

10C.AN.3 Demonstrate an understanding of powers with integral and rational exponents	
Course Topics	**Activities**
Algebra: Exponents	Negative Exponents
	Exponent Notation
	Multiplication with Exponents
	Exponent Form to Numbers
	Simplifying with Exponent Laws 1
	The Zero Exponent
	Irrational Number to Exponent Form
	Integer Exponents
	Exponent Notation and Algebra
	Properties of Exponents
	Fractional Exponents

10C.AN.4 Demonstrate an understanding of the multiplication of polynomial expressions (limited to monomials, binomials and trinomials) concretely, pictorially and symbolically	
Course Topics	**Activities**
Algebra-Polynomial Expressions	Algebraic Multiplication
	Dividing Expressions
	Expanding with Negatives
	Expanding Brackets
	Using the Distributive Property
	Expand then Simplify
	Recognising Like Terms
	Special Binomial Products
	Like Terms: Add and Subtract
	Expanding Binomial Products
	Like Terms: Add, Subtract
	Algebraic Fractions 1
	Algebraic Fractions 2
	Algebraic Fractions 3

10C.AN.5 Demonstrate an understanding of common factors and trinomial factoring, concretely, pictorially and symbolically	
Course Topics	**Activities**
Algebra: Factoring	Factoring Expressions
	Highest Common Algebraic Factor
	Factoring with Negatives
	Factoring Quadratics 1
	Factoring Quadratics 2
	Grouping in Pairs
	Factoring with Exponents

3 Relations and Functions

3.1 Develop algebraic and graphical reasoning through the study of relations

10C.RF.1 Interpret and explain the relationship among data graphs and situations	
Course Topics	**Activities**
Linear Relations	Line Graphs: Interpretation
Linear Relations and Functions	Graphing from a Table of Values

10C.RF.2 Demonstrate an understanding of relations and functions	
Course Topics	**Activities**
Linear Relations	Function Rules and Tables
	Find the Function Rule

10C.RF.3 Demonstrate an understanding of slope with respect to: rise and run, line segments and lines, rate of change, parallel lines, perpendicular lines	
Course Topics	**Activities**
Linear Relations	Gradient
	Gradients for Real
	y=ax
	Slope of a Line
	Are they Parallel?
	Are they Perpendicular?
	Horizontal and Vertical Lines
Linear Relations and Functions	Which Straight Line?
	Equation from Point and Gradient
	Equation from Two Point

10C.RF.4 Describe and represent linear relations, using: words, ordered pairs, tables of values, graphs, equations	
Course Topics	**Activities**
Linear Relations	Reading Values from a Line
	Graphing from a Table of Values
	Pattern Rules and Tables
	Find the Pattern Rule
	y=ax
Linear Relations and Functions	Equation of a Line 3
	Equation of a Line 2
	Equation of a Line 1
	General Form of a Line
	Equation from Point and Gradient
	Equation from Two Points

10C.RF.5 Determine the characteristics of the graphs of linear relations, including the: intercepts, slope, domain, range	
Course Topics	**Activities**
Linear Relations and Functions	Intercepts
	Graphing from a Table of Values
	Graphing from a Table of Values 2
	Determining a Rule for a Line
Linear Relations	Gradient
	Reading Values from a Line

10C.RF.6 Relate linear relations expressed in: slope–intercept form (y=mx + b); general form (Ax + By + C=0); slope–point form (y – y1 = m(x – x1)) to their graphs	
Course Topics	**Activities**
Linear Relations and Functions	Equation from Point and Gradient
	General Form of a Line
	Equation of a Line 3
	Equation of a Line 2
	Equation of a Line 1
	Which Straight Line?
	Equation from Two Points
Linear Relations	Gradients
	Gradients for Real
	y=ax
	Slope of a Line
	Are they Parallel?
	Are they Perpendicular?
	Horizontal and Vertical Lines

10C.RF.7 Determine the equation of a linear relation, given: a graph, a point and the slope, two points, a point and the equation of a parallel or perpendicular line to solve problems	
Course Topics	**Activities**
Linear Relations and Functions	Which Straight Line?
	Equation from Point and Gradient
	Modelling Linear Relationships
	Linear Modelling
	Equation of a Line 3
	Equation of a Line 2
	Equation of a Line 1
	Equation from Two Points
Linear Relations	Gradients
	Gradients for Real
	y=ax
	Slope of a Line
	Are they Parallel?
	Are they Perpendicular?

	Horizontal and Vertical Lines

10C.RF.8 Represent a linear function, using function notation	
Course Topics	**Activities**
Linear Relations and Functions	Functions Notation 1

10C.RF.9 Solve problems that involve systems of linear equations in two variables, graphically and algebraically	
Course Topics	**Activities**
Linear Relations	Breakeven Point
	Solve Systems by Graphing
Linear Relations and Functions	Linear Modelling
	Equations of a Line 2

Grade 10-3

1 Measurement

1.1 Develop spatial sense through direct and indirect measurement

10-3.M.1 Demonstrate an understanding of SI by: describing the relationships of the units for length, area, volume, capacity, mass and temperature; applying strategies to convert SI units to imperial units	
Course Topics	**Activities**
Measurement	Converting cm and mm
	Converting Volume
	Cups, Pints, Quarts, Gallons
	Capacity Addition
	Metres and Kilometres
	Centimetres and Metres
	Customary Units of Capacity
	Grams and Kilograms
	Millilitres and Litres
	Converting Units of Mass
	Mass Addition
	Customary Units of Weight 1
	Customary Units of Weight 2
	Converting Units of Length
	Customary Units of Length

10-3.M.2 Demonstrate an understanding of the imperial system by: describing the relationships of the units of length, area, volume, capacity, mass and temperature; comparing the American and British imperial units for capacity; applying strategies to convert imperial units to SI units	
Course Topics	**Activities**
Teacher directed	

10-3.M.3 Solve and verify problems that involve SI and imperial linear measurements, including decimal and fractional measurements	
Course Topics	**Activities**
Measurement	Mass Word Problems
	Capacity Word Problems

10-3.M.4 Solve problems that involve SI and imperial area measurements of regular, composite and irregular 2-D shapes and 3-D objects, including decimal and fractional measurements, and verify the solutions	
Course Topics	**Activities**
Measurement-Area	Area of Shapes
	Area: Squares and Rectangles
	Area: Right Triangles
	Area: Triangles
	Area: Parallelograms
	Area: Compound Figures
	Area: Composite Shapes
	Area: Circles
	Converting Units of Area
Measurement-Surface Area	Surface Area: Rectangular Prisms
	Surface Area: Rectangular Pyramids
	Surface Area: Triangular Prisms
	Surface Area: Cylinders
	Surface Area: Square Pyramids
	Surface Area: Cones
	Surface Area: Spheres
	Surface Area: Cuboids
	Surface Area: Rearrange Formula
	Nets

2 Geometry

2.1 Develop spatial sense

10-3.G.1 Analyze puzzles and games that involve spatial reasoning, using problem-solving strategies	
Course Topics	**Activities**
Teacher directed	

10-3.G.2 Demonstrate an understanding of Pythagorean theorem by: identifying situations that involve right triangles; verifying the formula; applying the formula; solving problems	
Course Topics	**Activities**
Geometry	Pythagorean Theorem
	Pythagorean Triads

10-3.G.3 Demonstrate an understanding of similarity of convex polygons including regular and irregular polygons	
Course Topics	**Activities**
Geometry	Similar Figures
	Similar Figures 1
	Scale Factor
	Using Similar Triangles

10-3.G.4 Demonstrate an understanding of the primary trigonometric ratios (sine, cosine, tangent) by: applying similarity to right triangles; generalizing patterns from similar right triangles; applying the primary trigonometric ratios; solving problems	
Course Topics	**Activities**
Trigonometry	Sin A
	Cos A
	Tan A
	Trigonometry Problems 1
	Trigonometry Problems 2
	Find Unknown Angles
	Find Unknown Sides
	Elevation and Depression

10-3.G.5 Solve problems that involve parallel, perpendicular and transversal lines, and pairs of angles formed between them	
Course Topics	**Activities**
Geometry	Angles and Parallel Lines
	Parallel Lines

10-3.G.6 Demonstrate an understanding of angles, including acute, right, obtuse, straight and reflex by: drawing; replicating and constructing; bisecting; solving problems	
Course Topics	**Activities**
Geometry	Classifying Angles
	Labelling Angles
	Estimating Angles
	What Type of Angle?
	Angle Sum of a Triangle
	Angle Sum of a Quadrilateral
	Angles in a Revolution
	Exterior Angles of a Triangle
	Equal, Complement or Supplement?
	Hypotenuse, Adjacent, Opposite
	Measuring Angles

3 Number

3.1 Develop number sense and critical thinking skills

10-3.N.1 Solve problems that involve unit pricing and currency exchange, using proportional reasoning	
Course Topics	**Activities**
Number and Money	Purchase Options
	Best Buy
	Unitary Method
	Rates
	Solve Proportions

10-3.N.2 Demonstrate an understanding of income, including: wages, salary, contracts, commissions, piecework to calculate gross pay and net pay	
Course Topics	**Activities**
Number and Money	Wages and Salaries
	Commission
	Working Overtime
	Calculating Income Tax
	Budgeting
	Simple Interest
	Successive Discounts
	Piecework and Royalties

4 Algebra

4.1 Develop algebraic reasoning

10-3.A.1 Solve problems that require the manipulation and application of formulas related to: perimeter, area, the Pythagorean theorem, primary trigonometric ratios, income	
Course Topics	**Activities**
Algebra	Perimeter: Triangles
	Perimeter: Triangles 1
	Complex Substitution
	Substitution in Formulae
	More Substitution in Formulae
	Real Formulae
	Changing the Subject
	Rearranging the Equation
	Surface Area: Rearranging Formula
	Perimeter Detectives 2
	Perimeter, Area, Dimension Change
Measurement-Area	Area: Squares and Rectangles
	Area: Right Triangles
	Area: Composite Shapes
	Area: Compound Figures

Grade 10-4

1 Number Concepts and Operations

1.1 Develop and demonstrate a number sense for whole numbers, common fractions, decimals, percent and integers and apply arithmetic operations to solve everyday problems

KE10-4.N.1 Use estimation strategies to estimate and round numbers to the nearest unit, tenth and hundredth to solve problems in everyday contexts	
Course Topics	**Activities**
Number-Place Value, Estimate, Round	Expanding Numbers
	Place Value to Thousands
	Place Value to Millions
	Place Value to Billions
	Rounding Numbers
	Rounding Decimals
	Nearest 100?
	Nearest 1000?
	Estimate Sums
	Estimate Differences
	Estimate Products
	Estimate Quotients

KE10-4.N.2 Represent and describe the relationships between proper/improper fractions, equivalent fractions and mixed numbers concretely, pictorially and symbolically	
Course Topics	**Activities**
Number-Fraction Relationships	Mixed to Improper
	Equivalent Fractions on a Number Line 1
	Equivalent Fractions on a Number Line 2
	Equivalent Fractions
	Improper to Mixed
	Common Denominator
	No Common Denominator
	Converting Mixed and Improper

KE10-4.N.3 Convert among fractions, decimals and percents concretely, pictorially and symbolically to facilitate the solving of problems	
Course Topics	**Activities**

Number-Decimals	Decimals to Fractions 1
	Decimals to Fractions 2
	Fractions to Decimals
	Fractions to Decimals 2
Number-Percent	Percentage to Fraction
	Match Decimals and Percentages
	Percents and Decimals
	Percents to Fractions

KE10-4.N.4 Represent and explain the meaning of integers in everyday contexts concretely, pictorially and symbolically	
Course Topics	**Activities**
Number-Integers and Exponents	Integers on a Number Line
	Ordering Integers
	Comparing Integers

KE10-4.N.5 Estimate and apply arithmetic operations to solve everyday problems involving: whole numbers, decimals, fractions, mixed numbers, percents	
Course Topics	**Activities**
Number-Decimals	Adding and Subtracting Decimals
	Decimal by Whole Number
	Decimal by Decimal
	Divide Decimal by Whole Number
	Divide Decimal by Decimal
	Multiply Decimals and Powers of 10
	Multiply Decimals: 10, 100, 1000
	Divide Decimals: 10, 100, 1000
Number-Operations with Fractions	Add Like Fractions
	Add Unlike Fractions
	Subtract Like Fractions
	Subtract Unlike Fractions
	Multiplying Fractions
	Dividing Fractions
	Estimating Products with Fractions
	Divide Whole Number by Fraction
	Fraction Word Problems
	Add Like Mixed Numbers
	Add Unlike Mixed Numbers
	Subtract Unlike Mixed Numbers
	Subtract Like Mixed Numbers
	Operations with Fractions
	Divide Mixed Numbers
	Multiply Mixed Numbers
Number-Percent	Percent of a Number
	Solve Percent Equations
	Percentage Word Problems
	What Percentage?

	Calculating Percentages
	Percentage of a Quantity

KE10-4.N.6 Estimate, add and subtract integers concretely, pictorially and symbolically in everyday contexts	
Course Topics	**Activities**
Number-Integers and Exponents	Integers: Order of Operations (BEDMAS)
	Order of Operations 1 (BEDMAS)
	Add Integers
	Subtract Integers
	More with Integers
	Integers: Add and Subtract

KE10-4.N.7 Assess the reasonableness of applied calculations and problem-solving strategies using a variety of tools and/or strategies; eg, estimation, charts, graphs, calculators and/or computers	
Course Topics	**Activities**
Number-Operations with Fractions	Estimate Products with Fractions
Variables and Equations	Find the Mistake
	Checking Solutions

KE10-4.N.8 Calculate and compare rates and unit prices by writing ratios that involve numbers with different units	
Course Topics	**Activities**
Number-Rates and Ratios	Unitary Method
	Ratio and Proportion
	Ratio
	Ratios
	Equivalent Ratios
	Ratio Word Problems
	Converting Rates

KE10-4.N.9 Determine the value of a power, using a whole number base with exponents of 2 and 3	
Course Topics	**Activities**
Number-Integers and Exponents	Exponents
	Exponent Notation
	The Zero Exponent

KE10-4.N.10 Recognize and explain numbers in scientific notation form	
Course Topics	**Activities**

Number-Integers and Exponents	Scientific Notation

2 Patterns and Relations

2.1 Express and use patterns, variables and expressions, including those used in business and industry, with graphs to solve problems at home, in the community and in the workplace

KE10-4.PR.1 Identify, describe and draw conclusions, in oral and written form, about patterns and relationships in nature and everyday contexts	
Course Topics	**Activities**
Teacher directed	

KE10-4.PR.2 Create expressions, make predictions and develop rules to describe, complete and extend patterns and relationships in everyday contexts	
Course Topics	**Activities**
Variables and Equations	Pattern Rules and Tables
	Find the Pattern Rule
	Find the Function Rule
	Function Rules and Tables

KE10-4.PR.3 Distinguish between the use of variables and constants in everyday situations	
Course Topics	**Activities**
Teacher directed	

KE10-4.PR.4 Graph relationships, using everyday home, community and workplace contexts and draw conclusions using patterns and relationships	
Course Topics	**Activities**
Teacher directed	

KE10-4.PR.5 Use variables, formulas and/or substitutions to solve problems in practical situations	
Course Topics	**Activities**
Variables and Equations	Simple Substitutions 1
	Simple Substitutions 2
	Simple Substitutions 3
	Complex Substitution
	Writing Algebraic Expressions
	Writing Equations
	Equations to Solve Problems

	Constructing Formulae

KE10-4.PR.6 Substitute numbers for variables in expressions and graph and examine the relationship	
Course Topics	**Activities**
Variables and Equations	Simple Substitutions 1
	Simple Substitutions 2
	Simple Substitutions 3
	Complex Substitution
	Graphing from a Table of Values
	Reading Values from a Line

3 Shape and Space (Measurement)

3.1 Estimate, measure and compare, using whole numbers, decimals, fractions and metric (SI) and imperial units of measure, to solve everyday problems

KE10-4.SS.1 Select and use appropriate metric (SI) and imperial measuring devices and units to take measurements in home and work-related contexts, including: length, mass (weight), volume (capacity)	
Course Topics	**Activities**
Measurement	Operations with Length
	Grams and Kilograms
	Grams and Milligrams
	Centimetres and Metres
	Mass Addition
	Millilitres and Litres
	Capacity Addition
	Capacity Word Problems
	Mass Word Problems

KE10-4.SS.2 Measure within acceptable degrees of accuracy	
Course Topics	**Activities**
Teacher directed	

KE10-4.SS.3 Compare, convert and apply metric (SI) and imperial units of measure, as appropriate in everyday contexts	
Course Topics	**Activities**
Measurement	Converting Units of Length
	Converting Units of Mass
	Converting cm and mm
	Converting Units of Area
	Converting Volume

KE10-4.SS.4 Solve problems involving perimeter, area, mass (weight), and volume (capacity)	
Course Topics	**Activities**
Perimeter, Area and Volume	Perimeter: Squares and Rectangles
	Perimeter: Triangles
	Perimeter and Circles
	Perimeter: Composite Shapes
	Perimeter Detectives 2
	Area: Squares and Rectangles
	Area: Triangles
	Area: Right Angled Triangles
	Area: Quadrilaterals

	Area: Composite Shapes
	Area Problems
	Volume: Rectangular Prisms 1
	Volume: Triangular Prisms
	Volume: Prisms
	Volume: Cylinders
	Volume: Pyramids

KE10-4.SS.5 Use conversion charts, calculators and/or other tools to compare and convert common metric (SI) and imperial units of measure, as required in everyday contexts	
Course Topics	**Activities**
Measurement	Grams and Milligrams
	Centimetres and Metres
	Millilitres and Litres
	Converting Units of Length
	Converting Units of Mass
	Converting cm and mm
	Converting Units of Area
	Converting Volume

KE10-4.SS.6 Estimate the measurements of angles in a diagram and in various environments	
Course Topics	**Activities**
Angles and Circles	Classifying Angles
	Measuring Angles
	Estimating Angles
	Comparing Angles
	Equal Angles
	Right Angle Relation
	Labelling Angles
	Equal, Complement or Supplement?

KE10-4.SS.7 Measure and draw angles using a straight edge, protractor and other technology	
Course Topics	**Activities**
Angles and Circles	Measuring Angles

KE10-4.SS.8 Estimate, measure and calculate the area of a circle	
Course Topics	**Activities**
Angles and Circles	Area: Circles 1

KE10-4.SS.9 Calculate the unknown when given the circumference, diameter and/or radius of a circle to solve everyday problems	
Course Topics	**Activities**
Angles and Circles	Circumference: Circles
	Circle Terms
	Labelling Circles
	Identify Parts of Circles 1

KE10-4.SS.10 Estimate and calculate the area of a circle to solve problems in everyday contexts	
Course Topics	**Activities**
Angles and Circles	Area: Circles 1

KE10-4.SS.11 Estimate and apply a variety of arithmetic operations, using hours and minutes, in everyday applications	
Course Topics	**Activities**
Time and Temperature	Hours and Minutes
	Elapsed Time
	Time Zones
	24 Hour Time

KE10-4.SS.12 Estimate and measure temperature and calculate changes in temperature	
Course Topics	**Activities**
Time and Temperature	Temperature

4 Shape and Space (3-D Objects and 2-DShapes and Transformations)

4.1 Extend their awareness of objects and shapes, using visualization and symmetry, and create and examine patterns and designs, using visualization, congruence symmetry, translation, rotation and reflection

KE10-4.SS.13 Measure and classify pairs of angles as either complementary or supplementary	
Course Topics	**Activities**
Angles and Circles	Equal, Complement or Supplement?

KE10-4.SS.14 Represent, examine and describe enlargements and reductions	
Course Topics	**Activities**
3-D Objects and 2-D Shapes	Scale
	Scale Factor
	Scale Measurement

KE10-4.SS.15 Interpret scale models and identify the geometric properties associated with figures and shapes used in representations	
Course Topics	**Activities**
3-D Objects and 2-D Shapes	Floor Plans

KE10-4.SS.16 Reproduce drawings or objects to scale, using a variety of strategies; e.g., grid paper, dot paper and/or computer software	
Course Topics	**Activities**
Teacher directed	

KE10-4.SS.17 Draw designs, using ordered pairs in all four quadrants of a coordinate grid, with translation and reflection images	
Course Topics	**Activities**
3-D Objects and 2-D Shapes	Ordered Pairs
	Coordinate Graphs
	Flip, Slide, Turn
	Symmetry
	Symmetry or Not?
	Rotational Symmetry
	Rotations: Coordinate Plane
	Transformations
	Transformations: Coordinate Plane

5 Statistics and Probability (Collecting and Analyzing Information)

5.1 Develop and implement a plan for the collection, display and examination of data and information, using technology and other strategies as required

KE10-4.SP.1 Predict, interpret, make comparisons and communicate information from graphs, tables, charts and other sources at home and in the workplace	
Course Topics	**Activities**
Collecting and Analyzing Data	Venn diagrams

KE10-4.SP.2 Recognize the uses of data and data collection and display tools in everyday and work-related situations	
Course Topics	**Activities**
Collecting and Analyzing Data	Histograms
	Stem and Leaf Introduction
	Stem-and-Leaf Plots
	Divided Bar Graphs
	Bar Graphs 2
	Reading from a Bar Chart
	Circle Graphs

KE10-4.SP.3 Record information and organize files and directories, using computers and/or other tools	
Course Topics	**Activities**
Collecting and Analyzing Data	Caroll Diagram
	Venn Diagram

KE10-4.SP.4 Examine a plan for collecting and processing information and modify as appropriate for everyday situations	
Course Topics	**Activities**
Teacher directed	

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