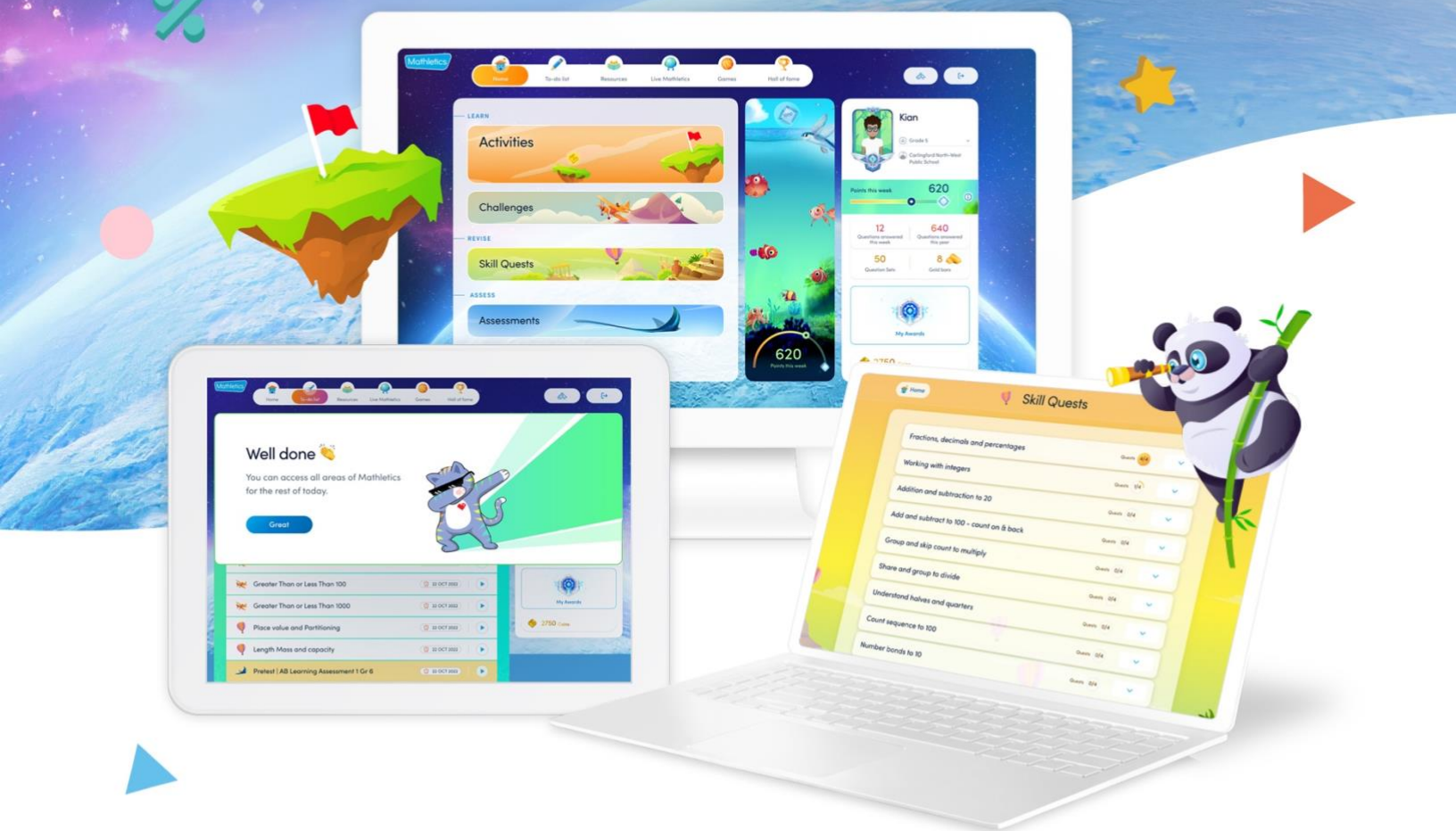
Mathletics

Nova Scotia Curriculum

Activities (Courses) and Skill Quests



Grades 7-8

July, 2025

Mathletics

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Nova Scotia Curriculum

Skill Quests & Activities

July, 2025

Grade 7

1 Number

1.1 Students will be expected to develop number sense.

7.N01 Students will be expected to 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.	
Skill Quests	**Skills**
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
Course Topic	**Activities Title**
Divisibility tests	Divisibility Tests
	Divisibility Tests (2, 5, 10)
	Divisibility Tests (3, 4, 9)
	Tests of Divisibility 1

7.N02 Students will be expected to demonstrate an understanding of the addition, subtraction, multiplication, and division of decimals to solve problems (for more than one-digit divisors or more than two-digit multipliers, the use of technology is expected).	
Skill Quests	**Skills**
Operations with decimals	Adding decimals
	Subtracting decimals
	Multiplying decimals
	Multiplying decimals using place value
	Dividing decimals
	Applying order of operations, decimals
	Solving decimal word problems, 4 operations
Course Topic	**Activities Title**
Add & subtract decimals	Decimal Complements
	Adding Decimals
	Add Decimals 2
	Subtracting Decimals
	Subtract Decimals 1
	Subtract Decimals 2
	Adding and Subtracting Decimals

Multiply & divide decimals	Multiply Decimals: 10, 100, 1000
	Multiply Decimals and Powers of 10
	Multiply Decimals 1
	Multiply Decimals: Area Model
	Decimal by Whole Number
	Decimal by Decimal
	Divide Decimal by Whole Number
	Divide Decimals
	Divide Decimal by Decimal
	Missing Values: Decimals

7.N03 Students will be expected to solve problems involving percents from 1% to 100% (limited to whole numbers).	
Skill Quests	**Skills**
Percents, fractions & decimals	Solving word problems involving percentages
	Converting percents into fractions & decimals
Course Topic	**Activities Title**
Percents	Decimals to Percentages
	Percentages to Decimals
	Percentages to Fractions (with and without simplification)
	Fractions to Percentages (Non-Calculator)
	Calculating Percentages (Mental)
	Calculating Percentages 1
	Percent Increase and Decrease
	Percentage Word Problems
	What percentage?
	Quantities to Percentages (no units)
	Solve Percent Equations

7.N04 Students will be expected to demonstrate an understanding of the relationship between positive terminating decimals and positive fractions and between positive repeating decimals (with one or two repeating digits) and positive fractions.	
Skill Quests	**Skills**
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
Course Topic	**Activities Title**
Terminating & recurring decimals	Fractions to Decimals
	Fractions to Decimals 2
	Decimals to Fractions 1
	Decimals to Fractions 2
	Recurring Decimals
	Recurring Decimals and Series

7.N05 Students will be expected to 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).	
Skill Quests	**Skills**
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
Course Topic	**Activities Title**
Fractions	Add: Common Denominator
	Add Like Fractions
	Add Unlike Fractions
	Add: No Common Denominator
	Add Like Mixed Numbers
	Add Mixed Numbers: Same Sign
	Add Unlike Mixed Numbers
	One Take Fraction
	Subtract: Common Denominator
	Subtract Like Fractions
	Subtract Unlike Fractions
	Subtract: No Common Denominator
	Subtract Like Mixed Numbers
	Subtract Mixed Numbers: Renaming
	Subtract Unlike Mixed Numbers
	Add Subtract Fractions 1

7.N06 Students will be expected to demonstrate an understanding of addition and subtraction of integers, concretely, pictorially, and symbolically.	
Skill Quests	**Skills**
Understand integers	Investigating integers
	Comparing & ordering integers
	Understanding opposites in context
Add & subtract integers	Adding & subtracting negative integers
	Adding & subtracting integers, word problems
	Adding integers with two-coloured counters
	Adding & subtracting integers on a number line
	Adding integers
	Subtracting integers
	Adding & subtracting integers, order of operations
Course Topic	**Activities Title**
Integers	Adding Integers: Positive, Negative or Zero
	Add Integers
	Subtract Integers
	Integers: Subtraction
	Integers: Add and Subtract
	Negative or Positive
	More with Integers

7.N07 Students will be expected to compare, order, and position positive fractions, positive decimals (to thousandths), and whole numbers by using benchmarks, place value, and equivalent fractions and/or decimals.	
Skill Quests	**Skills**
Compare & order fractions & decimals	Ordering fractions & decimals on a number line
	Identifying a number between 2 given numbers
	Comparing & ordering proper fractions
	Ordering terminating & repeating decimals
Course Topic	**Activities Title**
Order fractions & decimals	Identifying Fractions on a Number Line
	Counting with Fractions on a Number Line
	Equivalent Fractions on a Number Line 1
	Mixed and Improper Fractions on a Number Line
	Comparing Fractions 1
	Compare Fractions 1a
	Compare Fractions 2
	Comparing Fractions 2
	Ordering Fractions 1
	Decimals on the Number Line
	Decimal Order 1
	Decimal Order 2
	Comparing Decimals 1
	Comparing Decimals

2 Patterns and Relations

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

7.PR01 Students will be expected to demonstrate an understanding of oral and written patterns and their equivalent linear relations.	
Skill Quests	**Skills**
Patterns & linear relations	Representing written patterns as linear relations
Course Topic	**Activities Title**
Patterns, Tables & Graphs	Pick the Next Number
	Describing patterns

7.PR02 Students will be expected to create a table of values from a linear relation, graph the table of values, and analyze the graph to draw conclusions and solve problems.	
Skill Quests	**Skills**
Discrete linear relations	Graphing discrete linear relations using a table
	Matching graphs & linear relations
	Creating tables of values for linear relations
Course Topic	**Activities Title**
Patterns, Tables & Graphs	Pattern Rules and Tables
	Find the Pattern Rule
	Graphing from a Table of Values
	Reading Values from a Line
	y=ax

2.2 Students will be expected to represent algebraic expressions in multiple ways.

7.PR03 Students will be expected to demonstrate an understanding of preservation of equality by: modelling preservation of equality, concretely, pictorially, and symbolically, applying preservation of equality to solve equations	
Skill Quests	**Skills**
Preservation of equality	Understanding the preservation of equality
	Equivalent forms of equations
	Solving 1-step equations using a balance
Course Topic	**Activities Title**
Solving equations & substitution	Missing Values
	Missing Numbers: Variables

7.PR04 Students will be expected to explain the difference between an expression and an equation.	
Skill Quests	**Skills**
Expressions & equations	Distinguishing between expressions & equations
	Identifying parts of expressions & equations
Course Topic	**Activities Title**
Teacher directed	Teacher directed

7.PR05 Students will be expected to evaluate an expression given the value of the variable(s).	
Skill Quests	**Skills**
Evaluate an expression	Evaluating expressions using substitution
Course Topic	**Activities Title**
Solving equations & substitution	Simple Substitution 1
	Simple Substitution 2
	Simple Substitution 3
	Checking solutions
	Complex Substitution

7.PR06 Students will be expected to 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.	
Skill Quests	**Skills**
Linear equations, integers	Solving linear equations with integers
	Modeling & solving 1-step equations, algebra tiles
	Solving 1-step equations
Course Topic	**Activities Title**
Solving equations & substitution	Solve Equations: Add. Subtract 1
	Solving One-Step Equations
	Solving Simple Equations
	Writing Equations

7.PR07 Students will be expected to model and solve, concretely, pictorially, and symbolically, where a, b and c are whole numbers, problems that can be represented by linear equations of the form: ax + b = c; ax = b; x/a = b, a ≠ 0	
Skill Quests	**Skills**
Linear equations, whole numbers	Solving 2-step equations
	Modeling & solving 2-step equations, algebra tiles
	Modeling real-life scenarios using equations
	Checking solutions of 2-step equations
Course Topic	**Activities Title**
Solving equations & substitution	Solving One-Step Equations
	Solving Simple Equations
	Find the Mistake
	Writing Equations

3 Measurement

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

7.M01 Students will be expected to 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.	
Skill Quests	**Skills**
Circles	Introducing the parts of a circle
	Introducing circumference
	Finding the circumference of circles
	Determining sum of the central angles of a circle
Course Topic	**Activities Title**
Circles & circumference	Identify Parts of Circles 1
	Circle Terms
	Circumference: Circles
	Perimeter and Circles

7.M02 Students will be expected to develop and apply a formula for determining the area of triangles, parallelograms, and circles.	
Skill Quests	**Skills**
Determine the area	Determining the area of a triangle
	Determining the area of a parallelogram
	Determining the area of a circle
Course Topic	**Activities Title**
Area	Area: Triangles
	Area: Parallelograms (Metric)
	Area: Circles 1

4 Geometry

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

7.G02 Students will be expected to identify and plot points in the four quadrants of a Cartesian plane, using integral ordered pairs.	
Skill Quests	**Skills**
The Cartesian plane	Introducing Cartesian coordinates
	Drawing shapes on the coordinate plane
Course Topic	**Activities Title**
Cartesian plane	Coordinate Graphs: 1st Quadrant
	Ordered Pairs

5 Statistics and Probability

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

7.SP01 Students will be expected to 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	
Skill Quests	**Skills**
Measures of central tendency & range	Mean
	Median
	Mode
	Range
	Choosing statistical measures for data
Course Topic	**Activities Title**
Collect, display & analyze data	Finding the Average
	Mean
	Mean from Frequency Table
	Mode
	Mode from Frequency Table
	Stem and Leaf Plots: Concept
	Mode from Stem and Leaf Plot
	Median
	Median from Frequency
	Median from Stem and Leaf Plot
	Which measure of Central Tendency?
	Stem and Leaf Plots with Range
	Data extremes and range

7.SP02 Students will be expected to determine the effect on the mean, median, and mode when an outlier is included in a data set.	
Skill Quests	**Skills**
Investigate outliers	Investigating the effect of outliers
Course Topic	**Activities Title**
Teacher directed	Teacher directed

7.SP03 Students will be expected to construct, label, and interpret circle graphs to solve problems.	
Skill Quests	**Skills**
Circle graphs	Interpreting & constructing circle graphs
Course Topic	**Activities Title**
Collect, display & analyze data	Circle Graphs
	Sector Graph Calculations
	Sector Graph Angles
	Creating a Sector Graph

7.SP04 Students will be expected to express probabilities as ratios, fractions, and percents.	
Skill Quests	**Skills**
Probability: decimal, fraction, percent	Probability: decimals, fractions & percents
Course Topic	**Activities Title**
Probability	Dice and Coins
	Complementary Events
	Relative Frequency
	Probability Tables
	Probability – Replacement
	Probability - No Replacement
	Tree Diagrams
	Two-way Table Probability

7.SP06 Students will be expected to 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.	
Skill Quests	**Skills**
Theoretical & experimental probability	Understanding independent events
	Determining theoretical probability, tree diagrams
	Exploring fair games
Course Topic	**Activities Title**
Teacher directed	Teacher directed

Grade 8

1 Number

1.1 Students will be expected to develop number sense.

8.N01 Students will be expected to demonstrate an understanding of perfect squares and square roots, concretely, pictorially, and symbolically (limited to whole numbers).	
Skill Quests	**Skills**
Squares & square roots	Perfect squares
	Finding square roots
Course Topic	**Activities Title**
Square roots	Square Roots

8.N02 Students will be expected to determine the approximate square root of numbers that are not perfect squares (limited to whole numbers).	
Skill Quests	**Skills**
Estimate square roots	Estimating square roots
Course Topic	**Activities Title**
Square roots	Estimate Square Roots

8.N03 Students will be expected to demonstrate an understanding of and solve problems involving percents greater than or equal to 0%.	
Skill Quests	**Skills**
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
Course Topic	**Activities Title**
Percents	Percent of a Number (Mental)
	Percent Increase and Decrease
	Percentage Composition
	Solve Percent Equations
	Percentage Word Problems
	Percentages of a quantity (>100%)
	Decimal to Percentage
	Percents and Decimals
	Percentage to Fraction
	Fractions to Percentages (Non-Calculator)

	Decimals to Fractions 2
	Fraction to Terminating Decimal
	Fractions to Decimals 2

8.N04 Students will be expected to demonstrate an understanding of ratio and rate.	
Skill Quests	**Skills**
Understand ratio & rate	Unit rate
	Introduction to ratios
Course Topic	**Activities Title**
Ratio & rates	Equivalent Ratios
	Ratio
	Ratios
	Solve Proportions
	Simplify Ratios: 2 Whole Numbers
	Simplify Ratios: 3 Whole Numbers
	Simplify Ratios: Mixed Numbers
	Dividing a Quantity in a Ratio
	Travel Graphs
	Average Speed
	Distance Travelled
	Time Taken
	Rates

8.N05 Students will be expected to solve problems that involve rates, ratios, and proportional reasoning.	
Skill Quests	**Skills**
Rates, ratios & proportional reasoning	Simplifying & comparing rates
	Solving rate problems
	Dividing a quantity in a given ratio
	Solving ratio problems
	Solving proportions problems
Course Topic	**Activities Title**
Ratio & rates	Ratio and Proportion
	Proportional Relationships
	Ratio Word Problems
	Best Buy
	Rate Word Problems
	Rates Calculations
	Converting Rates

8.N06 Students will be expected to demonstrate an understanding of multiplying and dividing positive fractions and mixed numbers, concretely, pictorially, and symbolically.	
Skill Quests	**Skills**
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
Course Topic	**Activities Title**
Multiply & divide fractions	Model fractions to multiply
	Multiply Fraction by Fraction
	Multiply Two Fractions 1
	Converting Mixed and Improper
	Multiply Mixed Numbers
	Divide by a Unit Fraction
	Divide Whole Number by Fraction
	Divide Fractions Visual Model
	Divide Fractions by Fractions 1
	Divide Mixed Numbers

8.N07 Students will be expected to demonstrate an understanding of multiplication and division of integers, concretely, pictorially, and symbolically.	
Skill Quests	**Skills**
Multiply & divide integers	Multiplying integers using models
	Multiplying integers
	Dividing integers using models
	Dividing integers
	Multiplying & dividing integers
Course Topic	**Activities Title**
Multiply & divide integers	Multiplying and Dividing Integers
	Integers: Multiply and Divide
	Integers: Order of Operations (BEDMAS)
	Powers of Integers

2 Patterns and Relations

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

8.PR01 Students will be expected to graph and analyze two-variable linear relations.	
Skill Quests	**Skills**
Linear relations	Graphing discrete linear relations
	Identifying an equation from a discrete linear graph
Course Topic	**Activities Title**
Patterns, Tables & Graphs	Graphing from a Table of Values 2
	Pattern Rules and Tables
	Find the Pattern Rule
	Reading Values from a Line
	y=ax
	Equation of a Line 1
	Determining a Rule for a Line
	Intercepts
	Which Straight Line?

2.2 Students will be expected to represent algebraic expressions in multiple ways.

8.PR02 Students will be expected to model and solve problems, concretely, pictorially, and symbolically, where a, b, and c are integers, using linear equations of the form: $ax = b$; $x/a = b$, $a \neq 0$; $ax + b = c$; $x/a + b = c$, $a \neq 0$; $a(x + b) = c$	
Skill Quests	**Skills**
Linear equations, integers	Solving 1-step linear equations, add & subtract
	Solving 1-step linear equations, multiply & divide
	Solving 1-step linear equations, mixed operations
	Modelling & solving 2-step linear equations
	Solving 2-step linear equations, mixed operations
	Solving linear equations, distributive property
	Solving linear equation word problems
	Checking solutions using substitution
Course Topic	**Activities Title**
Solving equations	Solve Equations: Add, Subtract 2
	Solve Equations: Multiply, Divide 2
	Solving One-Step Equations
	Solving Simple Equations
	Find the Mistake
	Writing Equations

3 Measurement

3.1 Students will be expected to use direct or indirect measurement to solve problems.

8.M01 Students will be expected to develop and apply the Pythagorean theorem to solve problems.	
Skill Quests	**Skills**
Pythagorean theorem	Identifying the sides of a right triangle
	Pythagorean theorem proof & converse
	Finding the length of the missing side, hypotenuse
	Finding the length of the missing side, short side
	Finding the length of the missing side
	Matching right triangles to word problems
	Identifying Pythagorean triples
Course Topic	**Activities Title**
Pythagorean theorem	Hypotenuse, Adjacent, Opposite
	Pythagorean Theorem
	Pythagoras' Theorem
	Pythagorean Triads
	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)
	Find Slant Height
	Pythagoras and Perimeter

8.M02 Students will be expected to draw and construct nets for 3-D objects.	
Skill Quests	**Skills**
Nets of 3-D objects	Connecting prisms with their nets
	Connecting 3-D objects with their nets
Course Topic	**Activities Title**
Nets & Surface area	Nets

8.M03 Students will be expected to determine the surface area of right rectangular prisms, right triangular prisms, and right cylinders to solve problems.	
Skill Quests	**Skills**
Surface area	Finding the surface area of rectangular prisms
	Finding the surface area of triangular prisms
	Finding the surface area of cylinders
Course Topic	**Activities Title**
Nets & Surface area	Surface Area: Rectangular Prisms 1
	Surface Area: Triangular Prisms 1
	Surface Area: Cylinders

8.M04 Students will be expected to develop and apply formulas for determining the volume of right rectangular prisms, right triangular prisms, and right cylinders.	
Skill Quests	**Skills**
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
Course Topic	**Activities Title**
Volume	Volume: Prisms
	Volume: Cuboid 2
	Volume: Rectangular Prisms 2
	Volume: Triangular Prisms
	Volume: Cylinders

4 Geometry

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

8.G01 Students will be expected to draw and interpret top, front, and side views of 3-D objects composed of right rectangular prisms.	
Skill Quests	**Skills**
Top, front & side views of 3-D objects	Drawing top, front & side views of 3-D objects
Course Topic	**Activities Title**
Teacher directed	Teacher directed

5 Statistics and Probability

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

8.SP01 Students will be expected to critique ways in which data is presented.	
Skill Quests	**Skills**
Critique data displays	Critiquing data displays
Course Topic	**Activities Title**
Critique data displays	Data Types
	Grouped Frequency
	Histograms
	Histograms for Grouped Data
	Double Stem and Leaf Plots
	Step Graphs

For more information about Mathletics,
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