Mathletics
New Brunswick Curriculum (2025)

Activities (Courses) and Skill Quests

Grades 6-8

July, 2025

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Grade 6

1 Number

1.1 Number Sense

6.N1	
Describe numbers, ways of representing numbers, relationships among numbers, and number systems	
Course Topics	**Activities**
Number-Place Value	Understanding Place Value 3
	Numbers from Words to Digits 3
	Place Value to Billions
	Comparing Numbers
	Place Value 2 (×10 and ÷10)
	Place Value – Millions
Number-Multiples & Factors	Multiples
	Factors
	Find the Factor
	Product of Prime Factors
	Prime Factoring
	Prime or Composite?
	Greatest Common Factor
	Least Common Multiple
Number-Ratios	Fractions to Decimals
	Fractions to Decimals 2
Topics	**Skill Quests**
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
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
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

6.N2	
Describe percentage, ratio, and rate	
Course Topics	**Activities**
Number-Ratios	Ratio
	Ratios
	Simplify Ratios: 2 Whole Numbers
	Equivalent Ratios
	Dividing a Quantity Into a Ratio
	Solve Proportions
	Ratio Word Problems
	Unitary Method
	Best Buy
	Ratio and Proportion
	Converting Rates
Number-Percents	Percent Increase and Decrease
	Percent of a Number
	Percents to Fractions
	Calculating Percentages
	Solve Percent Equations
	Modelling Percentages
	What Percentage?
	Match Decimals and Percentages
	Decimal to Percentage
	Percents and Decimals
	Percentage Word Problems
	Percentages of a quantity (>100%)
Topics	**Skill Quests**
Introduction to ratios	Introducing ratios
	Simplifying ratios
	Dividing a quantity into a given ratio
	Identifying equivalent ratios
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

1.2 Operations

6.N3	
Add, subtract, multiply, and divide decimals to solve problems (1-digit whole number multipliers and 1-digit natural number divisors)	
Course Topics	**Activities**
Number-Decimals	Multiply Decimals and Powers of 10
	Multiply Decimals: 10, 100, 1000
	Divide Decimal by Whole Number
	Divide Decimals: 10, 100, 1000
	Missing Values: Decimals
	Divide by Powers of 10
	Decimal by Whole Number
	Rounding Decimals 1
	Rounding Decimals 2
	Money Problems: Four Operations
Number-Operations with Numbers	Estimate Decimal Operations
	Estimate Decimal Differences 2
	Estimate Decimal Sums 2
	Estimate Decimal Differences 1
	Estimate Decimal Sums 1
Topics	**Skill Quests**
Multiply decimals to hundredths	Multiplying decimals to hundredths
Divide decimals to hundredths	Dividing decimals to hundredths

6.N4	
Add, subtract, multiply, and divide benchmark fractions and mixed numbers to solve problems (limited to positive sums and differences)	
Course Topics	**Activities**
Number-Fractions	What Mixed Number Is Shaded?
	Converting Mixed and Improper
	Mixed to Improper
	Improper to Mixed
	Comparing Fractions 2
	Identifying fractions beyond 1
	Mixed and Improper Numbers on a Number Line
	Multiply Fraction by Whole Number
Topics	**Skill Quests**
Teacher directed	

6.N5	
Apply the order of operations (excluding exponents, limited to whole numbers)	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
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 and Relations

2.1 Algebra

6.PR1	
Develop equations using letter variables	
Course Topics	**Activities**
Pattern, Relations, Variables, Equations	Write an Equation: Word Problems
	Writing Equations
	Writing Algebraic Expressions
	Solving Simple Equations
	Missing Numbers: Variables
	Simple Substitution
Topics	**Skill Quests**
Patterns, expressions & equations	Writing an equation to represent a table of values
	Writing expressions, rule for a pattern
Understand variables	Matching equations & word problems
	Writing & solving equations given a problem
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

3 Shape and Space

3.1 Measurement

6.SS1	
Investigate perimeter, area, volume, and their relationships	
Course Topics	**Activities**
Shape & Space-Shapes	Perimeter: Squares and Rectangles
	Perimeter: Composite Shapes
	Perimeter Detectives 1
	Perimeter Detectives 2
	Perimeter: Triangles
	Perimeter: Triangles 2
	Area: Squares and Rectangles
	Area: Squares and Rectangles 1
	Area: Squares and Rectangles 2
	Volume: Rectangular Prisms 2
	Volume: Rectangular Prisms 1
Topics	**Skill Quests**
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

6.SS2	
Describe angles	
Course Topics	**Activities**
Shape & Space-Angles & Triangles	Classifying Angles
	Estimating Angles
	Equal Angles
	Comparing Angles
	Labelling Angles
	Measuring Angles
	Angle Sum of a Triangle
	Angle Measures in a Triangle
	Angle Sum of a Quadrilateral
	Triangles: Acute, Right, Obtuse
	Angles of Revolution: Unknown Values
Topics	**Skill Quests**
Angle measurement & classification	Classifying angles
Angles up to 360°	Measuring & estimating angles of up to 360°
	Measuring angles with a circular protractor
Sum of interior angles	Finding the missing angle of a triangle
	Finding the missing angle of a quadrilateral

3.2 2-D Shapes and 3-D Objects

6.SS3 Describe 3D objects	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

4 Statistics and Probability

4.1 Data Analysis

6.SP1	
Collect and represent data	
Course Topics	**Activities**
Statistics & Probability	Data Types
	Data sampling
	Line Graphs: Interpretation
	Pie Charts
	Circle Graphs
	Stem and Leaf Introduction
	Bar Graphs 1
	Bar Graphs 2
	Column Graphs
	Compound Bar Chart
	Divided Bar Graphs
	Stem-and-Leaf Plots
Topics	**Skill Quests**
Construct line graphs	Constructing a line graph
	Interpreting data in a line graph
	Choosing graphs, continuous vs discrete data
Data collection	Collecting data: questionnaires
Select data displays	Selecting data displays

6.SP2	
Analyze tables of values and graphs of linear relations of the forms: ?=?+?, ?=???, ?=??, y=(x/a), ??0	
Course Topics	**Activities**
Pattern, Relations, Variables, Equations	Table of Values
	Pattern Rules and Tables
	Find the Pattern Rule
	Function Rules and Tables
	Find the Function Rule
Topics	**Skill Quests**
Relationships within tables	Determining missing values in a table of values
	Making predictions about linear growing patterns
Patterns in tables of values & graphs	Creating a table of values, visual pattern
	Representing linear patterns, tables & graphs

6.SP3 Identify points and transformations in the first quadrant of the Cartesian Plane using whole number ordered pairs	
Course Topics	**Activities**
Pattern, Relations, Variables, Equations	Coordinate Graphs: 1st Quadrant
	Graphing from a Table of Values
	Magic Symbols 2
	Pyramid Puzzles 2
	Missing Values
Shape & Space-Shapes	Transformations
	Congruent Figures
	Flip, Slide, Turn
Topics	**Skill Quests**
The Cartesian plane, first quadrant	Plotting points in the first quadrant
	Plotting points that create a shape
Transformations in the first quadrant	Investigating translations in the first quadrant
	Identifying reflections in the first quadrant
	Identifying rotations in the first quadrant

4.2 Chance and Uncertainty

6.SP4 Determine the probability of outcomes to solve problems.	
Course Topics	**Activities**
Statistics & Probability	Will it Happen?
	Probability Scale
Topics	**Skill Quests**
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

Grade 7

1 Number

1.1 Number sense

7.N1	
Describe numbers, ways of representing numbers, relationships among numbers, and number systems	
Course Topics	**Activities**
Number-Compare and Order	Integers on a Number Line
	Ordering Integers (Number Line)
	Comparing Integers
	Comparing Integers (<, =, >)
Topics	**Skill Quests**
Understand integers	Investigating integers
	Comparing & ordering integers
	Understanding opposites in context

1.2 Operations

7.N2	
Add and subtract positive and negative integers to solve problems	
Course Topics	**Activities**
Number-Integers	More with Integers
	Integers: Add and Subtract
	Add Integers
	Subtract Integers
	Negative or Positive?
	Integers: Subtraction
Topics	**Skill Quests**
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

7.N3	
Add, subtract, multiply, and divide decimals to solve problems (1-digit divisors and 2-digit multipliers)	
Course Topics	**Activities**
Number-Decimals	Multiply Decimals: 10, 100, 1000
	Divide Decimals: 10, 100, 1000
	Divide Decimal by Whole Number
	Decimal by Whole Number

Multiply Decimals and Powers of 10
Decimal Complements
Missing Values: Decimals
Adding Decimals
Add Decimals 2
Subtract Decimals 1
Subtract Decimals 2
Subtracting Decimals
Divide by Powers of 10
Adding and Subtracting Decimals
Multiply Decimals: Area Model

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
	Applying order of operations, decimals

7.N4
Add, subtract, multiply, and divide positive fractions and mixed numbers to solve problems

Course Topics	Activities
Number-Fractions	Add: Common Denominator
	Simplifying Fractions
	Subtract: Common Denominator
	Add Unlike Fractions
	Add: No Common Denominator
	Subtract: No Common Denominator
	Add subtract fractions 1
	Improper to Mixed
	Mixed to Improper
	Add Like Mixed Numbers
	Subtract Unlike Fractions
	Add Unlike Mixed Numbers
	Subtract Unlike Mixed Numbers
	Subtract Mixed Numbers: Renaming
	Add Mixed Numbers: Same Sign
	One take Fraction

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
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

2 Statistics and Probability

2.1 Data Analysis

7.SP1	
Calculate measures of central tendency to solve problems	
Course Topics	**Activities**
Statistics & Probability-Data Analysis	Mean
	Mean from Frequency Table
	Mode
	Mode from Frequency Table
	Median
	Median from Frequency
	Grouped Frequency
Topics	**Skill Quests**
Measures of central tendency & range	Mean
	Median
	Mode
	Range
	Choosing statistical measures for data
Investigate outliers	Investigating the effect of outliers

7.SP2	
Analyze linear relations of the forms shown below and compare graphs to solve problems. (e.g., ?=?+?, ?=???, ?=??, y=(x/a), ??0)	
Course Topics	**Activities**
Patterns & Relations-Patterns	Find the Pattern Rule
	Pattern Rules and Tables
	Table of Values
	Graphing from a Table of Values
	Reading Values from a Line
Topics	**Skill Quests**
Patterns & linear relations	Representing written patterns as linear relations
Discrete linear relations	Graphing discrete linear relations using a table
	Matching graphs & linear relations
	Creating tables of values for linear relations
Linear equations, integers	Solving linear equations with integers
	Modeling & solving 1-step equations, algebra tiles
Linear equations, whole numbers	Solving 2-step equations
	Modeling & solving 2-step equations, algebra tiles
	Modeling real-life scenarios using equations
	Solving 1-step equations
	Solving 1-step equations using algebra tiles
	Checking solutions of two-step equations

7.SP3	
Identify points and transformations in the four quadrants of the Cartesian Plane using integral ordered pairs	
Course Topics	**Activities**
Shape & Space-Transformations	Transformations
	Transformations: Coordinate Plane
	Rotations: Coordinate Plane
	Rotational Symmetry
	Vertical and horizontal shift
Topics	**Skill Quests**
The Cartesian plane	Introducing Cartesian coordinates
	Drawing shapes on the coordinate plane
Transformations on the Cartesian plane	Successive translations on the coordinate plane
	Plotting rotations on the coordinate plane
	Plotting reflections on the coordinate plane
	Plotting combinations of transformations

2.2 Chance and Uncertainty

7.SP4	
Determine the probability of outcomes to solve problems	
Course Topics	**Activities**
Stat.-Probability-Chance & Uncertainty	Ratios
	Simple Probability
	Find the Probability
	Probability Tables
	Probability Scale
	Tree Diagrams
	Probability With Replacement
	Probability Without Replacement
	Two-way Table Probability
	Complementary Events
	Dice and Coins
Topics	**Skill Quests**
Probability: decimal, fraction, percent	Probability: decimals, fractions & percents
Sample space	Identifying the sample space
Theoretical & experimental probability	Understanding independent events
	Determining theoretical probability, tree diagrams
	Exploring fair games

3 Patterns and Relations

3.1 Algebra

7.PR1 Solve linear equations	
Course Topics	**Activities**
Patterns & Relations-Patterns	Patterns, Rules and Equations
	Solve Equations: Add, Subtract 1
	Solve Equations: Multiply, Divide 1
	Solve Proportions
	Solving Simple Equations
Patterns-Relations-Variables-Equations	Solve Equations: Add, Subtract 2
	Solve Equations: Multiply, Divide 2
	Solve Two-Step Equations
	Solve Multi-Step Equations
	Writing Algebraic Expressions
	Simple Substitution 1
	Writing Equations
	More Substitution in Formulae
	Missing Numbers: Variables
	Solving More Equations
	Equations with Fractions
	Equations with Decimals
	Equations: Variables, Both Sides
	Write an Equation: Word Problems
	Checking Solutions
	Identifying errors in applying the order of operations
	Find the Mistake
Topics	**Skill Quests**
Preservation of equality	Understanding the preservation of equality
	Equivalent forms of equations
	Solving 1-step equations using a balance
Expressions & equations	Distinguishing between expressions & equations
	Identifying parts of expressions & equations
Evaluate an expression	Evaluating expressions using substitution

4 Shape and Space

4.1 Measurement

7.SS1	
Apply the formulae for perimeter of polygons, area of rectangles, area of triangles, area of parallelograms, and volume of right prisms to solve problems	
Course Topics	**Activities**
Shape & Space-Shapes	Area of Triangles
	Area: Triangles
	Area: Quadrilaterals
	Area: Right Angled Triangles
	Area: Parallelograms
Topics	**Skill Quests**
Determine the area	Determining the area of a triangle
	Determining the area of a parallelogram
	Determining the area of a circle

7.SS2	
Perform geometric constructions	
Course Topics	**Activities**
Shape & Space-Shapes	Parallel Lines
	What Line Am I?
Topics	**Skill Quests**
Identify lines & angles	Identifying parallel & perpendicular lines

4.2 2-D Shapes and 3-D Objects

7.SS3	
Draw and verify nets.	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Nets of 3-D objects	Connecting prisms with their nets
	Connecting 3-D objects with their nets

Grade 8

1 Number

1.1 Number Sense

8.N1	
Describe numbers, ways of representing numbers, relationships among numbers, and number systems	
Course Topics	**Activities**
Number-Square Roots	Square Roots
	Equations with Square Roots
	Estimate Square Roots
	Estimating Square Roots
	Square and Cube Roots
Number-Percents	Calculating Percentages
	Calculating Percentages 1
	Decimal to Percentage
	Percentage Composition
	Percentage to Fraction
	Solve Percent Equations
	Percents and Decimals
	Percentage Word Problems
	Percentages of a quantity (>100%)
	Percent of a Number (Mental)
	Quantities to Percentages (with units)
Topics	**Skill Quests**
Squares & square roots	Perfect squares
	Finding square roots
Estimate square roots	Estimating square roots
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

1.2 Operations

8.N2	
Multiply and divide integers to solve problems (2-digit by 1-digit)	
Course Topics	**Activities**
Number-Integers	Integers: Multiply and Divide
	Integers: Multiply and Divide 1
	Multiplying and Dividing Integers
Topics	**Skill Quests**
Multiply & divide integers	Multiplying integers
	Dividing integers
	Multiplying & dividing integers
	Multiplying integers using models
	Dividing integers using models

8.N3	
Apply the order of operations including whole numbers, positive fractions, and decimals	
Course Topics	**Activities**
Number-Integers	Integers: Order of Operations (BEDMAS)
	Order of Operations 1 (BEDMAS)
Topics	**Skill Quests**
Linear relations	Graphing discrete linear relationships
	Identifying equation from a discrete linear graph

2 Statistics and Probability

2.1 Data Analysis

8.SP1	
Compare and critique graphs and the presentation of data	
Course Topics	**Activities**
Statistics	Step Graphs
	Histograms
	Frequency Histograms
	Histogram or Polygon?
	Cumulative Frequency Histogram
	Dot Plots
	Line Plots
	Pie Charts
	Divided Bar Graphs
Topics	**Skill Quests**
Critique data displays	Critiquing data displays
Circle graphs	Interpreting & constructing circle graphs

8.SP2	
Analyze linear relations of the forms shown below and compare graphs to solve problems. (e.g., ?=??+?, ?=????, y=(x/a)+b, ??0, y=(x/a)-b, ??0).	
Course Topics	**Activities**
Pattern, Relations, Variables, Equations	Graphing from a Table of Values 2
	Reading Values from a Line
Topics	**Skill Quests**
Teacher directed	

2.2 Chance and Uncertainty

8.SP3	
Determine the probability of outcomes to solve problems	
Course Topics	**Activities**
Probability	Dice and Coins
	Probability Scale
	Probability Tables
	Probability With Replacement
	Probability with Replacement 1
	Probability Without Replacement
	Probability without Replacement 1
	Simple Probability
	Simple Probability 1
	Find the Probability
	Two-way Table Probability
	Complementary Events
Topics	**Skill Quests**
Probability of independent events	Finding the probability of 2 independent events

3 Patterns and Relations

3.1 Algebra

<table>
<tr><td colspan="2" align="center">8.PR1
Solve linear equations</td></tr>
<tr><th align="center">Course Topics</th><th align="center">Activities</th></tr>
<tr><td rowspan="14">Pattern, Relations, Variables, Equations</td><td>Table of Values</td></tr>
<tr><td>Graphing from a Table of Values 2</td></tr>
<tr><td>Pattern Rules and Tables</td></tr>
<tr><td>Find the Pattern Rule</td></tr>
<tr><td>Find the Function Rule</td></tr>
<tr><td>Reading Values from a Line</td></tr>
<tr><td>y=ax</td></tr>
<tr><td>Equation of a Line 2</td></tr>
<tr><td>Which Straight Line?</td></tr>
<tr><td>Solve Equations: Add, Subtract 2</td></tr>
<tr><td>Solve Equations: Multiply, Divide 2</td></tr>
<tr><td>Equations to Solve Problems</td></tr>
<tr><td>Solving More Equations</td></tr>
<tr><td>Equations with Grouping Symbols</td></tr>
<tr><td></td><td>Equations with Fractions</td></tr>
<tr><th align="center">Topics</th><th align="center">Skill Quests</th></tr>
<tr><td rowspan="8">Linear equations, integers</td><td>Modelling & solving 2-step linear equations</td></tr>
<tr><td>Solving linear equation word problems</td></tr>
<tr><td>Solving 2-step linear equations, mixed operations</td></tr>
<tr><td>Solving 1-step linear equations, add & subtract</td></tr>
<tr><td>Solving 1-step linear equations, multiply & divide</td></tr>
<tr><td>Solving 1-step linear equations, mixed operations</td></tr>
<tr><td>Solving linear equations, distributive property</td></tr>
<tr><td>Checking solutions using substitution</td></tr>
</table>

4 Shape and Space

4.1 Measurement

8.SS1	
Apply the formulae for volume of right cylinders to solve problems	
Course Topics	**Activities**
Shape and Space	Volume: Cylinders
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

8.SS2	
Apply properties of circles to solve problems	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Circles	Finding the circumference of circles
	Introducing the parts of a circle
	Introducing circumference
	Determining sum of the central angles of a circle

8.SS3	
Apply the Pythagorean Theorem to solve problems	
Course Topics	**Activities**
Shape and Space	Hypotenuse of a Right Triangle
	Pythagoras' Theorem
	Pythagorean Triads
	Find Slant Height
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

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