

# Mathletics

## Saskatchewan Curriculum

### Activities (Courses) and Skill Quests



**Grades 7-8**

July, 2025

**Mathletics**

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# Grade 7

## 1 Number

### 1.1 Number

<b>N7.1</b> Demonstrate understanding of the probability of independent events concretely, pictorially, orally, and symbolically.	
Course Topics	Activities
Number - Integers	Prime or Composite?
	Divisibility Tests
	Product of Prime Factors
	Prime Factoring
	Factors
	Tests of Divisibility 1
	Divisibility Tests (2, 5, 10)
	Divisibility Tests (3, 4, 9)
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

<b>N7.2</b> Expand and demonstrate understanding of the addition, subtraction, multiplication, and division of decimals to greater numbers of decimal places, and the order of operations.	
<b>Course Topics</b>	<b>Activities</b>
Number - Decimals	Decimal Order 1
	Add Decimals 2
	Subtract Decimals 2
	Decimal by Whole Number
	Adding and Subtracting Decimals
	Decimal by Decimal
	Recurring Decimals
	Divide Decimal by Whole Number
	Divide Decimal by Decimal
	Estimate Decimal Differences 1
	Estimate Decimal Sums 1
	Estimate Decimal Differences 2
	Estimate Decimal Sums 2
	Estimate Decimal Operations
<b>Topics</b>	<b>Skill Quests</b>
Operations with decimals	Solving decimal word problems, 4 operations
	Adding decimals
	Subtracting decimals
	Multiplying decimals
	Multiplying decimals, place value
	Dividing decimals
	Order of operations, decimals

<b>N7.3</b> Demonstrate an understanding of the relationships between positive decimals, positive fractions (including mixed numbers, proper fractions and improper fractions), and whole numbers.	
<b>Course Topics</b>	<b>Activities</b>
Number - Decimals	Fractions to Decimals 1
	Decimals to Fractions 1
	Decimals to Fractions 2
	Fraction to Terminating Decimal
	Fractions to Decimals 2
<b>Topics</b>	<b>Skill Quests</b>
Decimals & fractions	Investigating terminating & repeating decimals
	Ordering fractions & decimals on a number line
	Converting terminating decimals to fractions
	Converting repeating decimals to fractions
	Converting fractions to terminating decimals
	Converting fractions to repeating decimals
	Identifying a number between 2 given numbers
	Comparing & ordering proper fractions
	Ordering terminating & repeating decimals

<b>N7.4</b> Expand and demonstrate an understanding of percent to include fractional percents between 1% and 100%.	
Course Topics	Activities
Number - Fractions and Percentages	Percent of a Number
	Percents and Decimals
	Percentage to Fraction
	Percents to Fractions
	Percentage Composition
	Percentage Word Problems
	Simple Interest
	Solve Percent Equations
	Modelling Percentages
Topics	Skill Quests
Percents, fractions & decimals	Solving word problems involving percentages
	Converting percents into fractions & decimals

<b>N7.5</b> Develop and 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 1	Simplifying Fractions
	Mixed to Improper
	Improper to Mixed
	Add: Common Denominator
	Add Like Fractions
	Add: No Common Denominator
	Add Unlike Fractions
	Mixed Numerals
	Add Unlike Mixed Numbers
	Ordering Fractions
	Add Like Mixed Numbers
	Fractions of a Collection 1
Number - Fractions and Percentages	Common Denominator
	No Common Denominator
Number - Fractions 2	Subtract: Common Denominator
	Subtract Like Fractions
	Subtract: No Common Denominator
	Subtract Mixed Numbers: Renaming
	Subtract Unlike Fractions
	Common Denominator
	Subtract Unlike Mixed Numbers
	Add Subtract Fractions 1
Topics	Skill Quests
Add fractions & mixed numbers	Adding fractions, like denominator
	Adding a whole number & a fraction

	Adding improper fractions, like denominator
	Adding with mixed numbers, like denominator
	Adding fractions, unlike denominator
	Adding improper fractions, unlike denominator
	Adding with 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

<b>N7.6</b> Demonstrate an understanding of addition and subtraction of integers, concretely, pictorially, and symbolically.	
Course Topics	Activities
Number - Integers	Integers: Add and Subtract
	Negative or Positive?
	Ordering Integers
	More with Integers
	Directed Numbers
	Integers on a Number Line
Topics	Skill Quests
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, number line
	Adding integers
	Subtracting integers
	Adding & subtracting integers, order of operations

## 2 Patterns and Relationships

### 2.1 Patterns and Relationships

<b>P7.1</b>	
Demonstrate an understanding of the relationships between oral and written patterns, graphs and linear relations.	
<b>Course Topics</b>	<b>Activities</b>
Patterns and Relations - Lines	Find the Pattern Rule
	Pattern Rules and Tables
	Are they Parallel?
	Are they Perpendicular?
	Determining a Rule for a Line
<b>Topics</b>	<b>Skill Quests</b>
Discrete linear relations	Graphing discrete linear relations using a table
	Matching graphs & linear relations
	Creating tables of values for linear relations

<b>P7.2</b>	
Demonstrate an understanding of equations and expressions by: distinguishing between equations and expressions, evaluating expressions, verifying solutions to equations.	
<b>Course Topics</b>	<b>Activities</b>
Patterns and Relations - Skills	Simple Substitution 1
	Solving Simple Equations
	Solve Two-Step Equations
	Solving More Equations
	Equations with Grouping Symbols
	Equations: Variables, Both Sides
	Solve Multi-Step Equations
	Equations to Solve Problems
	Writing Equations
	Checking Solutions
	Writing Algebraic Expressions
	Simple Substitution 2
	Solve Equations: Add, Subtract 1
	Solve Equations: Add, Subtract 2
	Solve Equations: Multiply, Divide 1
	Algebra Tiles
Patterns and Relations - Lines	Checking Solutions
<b>Topics</b>	<b>Skill Quests</b>
Equations & expressions	Evaluating expressions using substitution
	Checking solutions of twostep equations
	Distinguishing between expressions & equations
	Identifying parts of expressions & equations

<b>P7.3</b>	
Demonstrate an understanding of one- and two-step linear equations of the form $ax/b + c = d$ (where a, b, c, and d are whole numbers, $c \leq d$ and $b \neq 0$ ) by modeling the solution of the equations concretely, pictorially, physically, and symbolically and explaining the solution in terms of the preservation of equality.	
Course Topics	Activities
Patterns and Relations - Skills	Find the Mistake
	Checking Solutions
Topics	Skill Quests
Linear equations, whole numbers	Understanding the preservation of equality
	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 a balance
	Solving 1-step equations using algebra tiles

<b>P7.4</b>	
Demonstrate an understanding of linear equations of the form $x + a = b$ (where a and b are integers) by modeling problems as a linear equation and solving the problems concretely, pictorially, and symbolically.	
Course Topics	Activities
Patterns and Relations - Skills	Equations with Decimals
	Equations with Fractions
Patterns and Relations - Lines	Graphing from a Table of Values
	Graphing from a Table of Values 2
	Intercepts
	Reading Values from a Line
	Which Straight Line?
	Conversion Graphs
Topics	Skill Quests
Linear equations, integers	Solving linear equations with integers
	Modeling & solving 1-step equations, algebra tiles



## 3 Shape and Space

### 3.1 Shape and Space

SS7.1	
Demonstrate an understanding of circles including circumference and central angles.	
Course Topics	Activities
Shape	Labelling Circles
	Circumference: Circles
	Circle Terms
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

SS7.2	
Develop and apply formulas for determining the area of: triangles, parallelograms, and circles.	
Course Topics	Activities
Shape	Perimeter: Squares and Rectangles
	Perimeter: Triangles
	Area: Squares and Rectangles
	Area: Triangles
	Area: Right Triangles
	Area: Circles
	Area: Quadrilaterals
	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

SS7.3	
Demonstrate an understanding of 2-D relationships involving lines and angles.	
Course Topics	Activities
Space	Angles in a Revolution
	Parallel Lines
	Equal, Complement, or Supplement?
	Angles and Parallel Lines
Topics	Skill Quests
Lines & angles	Identifying parallel & perpendicular lines

<b>SS7.4</b> Demonstrate an understanding of the Cartesian plane and ordered pairs with integral coordinates.	
<b>Course Topics</b>	<b>Activities</b>
Shape	Ordered Pairs
	Coordinate Graphs
	Coordinate Graphs: 1st Quadrant
	Vertical and horizontal shift
<b>Topics</b>	<b>Skill Quests</b>
The Cartesian plane	Introducing Cartesian coordinates
	Drawing shapes on the coordinate plane

<b>SS7.5</b> Expand and demonstrate an understanding of transformations (translations, rotations, and reflections) of 2-D shapes in all four quadrants of the Cartesian plane.	
<b>Course Topics</b>	<b>Activities</b>
Space	Flip, Slide, Turn
	Transformations
	Symmetry or Not?
	Transformations: Coordinate Plane
	Rotations: Coordinate Plane
<b>Topics</b>	<b>Skill Quests</b>
Transformations on the Cartesian plane	Successive translations on the coordinate plane
	Rotations on the coordinate plane
	Reflections on the coordinate plane
	Combinations of transformations

## 4 Statistics and Probability

### 4.1 Statistics and Probability

<b>SP7.1</b>	
Demonstrate an understanding of the measures of central tendency and range for sets of data.	
<b>Course Topics</b>	<b>Activities</b>
Statistics	Mean
	Median
	Mode
	Mean from Frequency Table
	Mode from Frequency Table
	Median from Frequency
	Difference and Deviation from Mean
	Grouped Frequency
<b>Topics</b>	<b>Skill Quests</b>
Measures of central tendency & range	Understanding mean
	Understanding median
	Understanding mode
	Understanding range
	Choosing statistical measures for data
	Investigating the effect of outliers

<b>SP7.2</b>	
Demonstrate an understanding of circle graphs.	
<b>Course Topics</b>	<b>Activities</b>
Probability	Circle Graphs
	Sector Graph Calculations
	Creating a Sector Graph
	Sector Graph Angles
<b>Topics</b>	<b>Skill Quests</b>
Circle graphs	Interpreting & constructing circle graphs

<b>SP7.3</b> Demonstrate an understanding of theoretical and experimental probabilities for two independent events where the combined sample space has 36 or fewer elements.	
Course Topics	Activities
Probability	Line Graphs: Interpretation
	Simple Probability
	Probability Scale
	Probability With Replacement
	Dice and Coins
	Find the Probability
	Probability Without Replacement
	Scatter Plots
	Tree Diagrams
	Probability - 'And' and 'Or'
Topics	Skill Quests
Theoretical & experimental probability	Understanding independent events
	Determining theoretical probability, tree diagrams
	Identifying the sample space
	Exploring fair games
	Probability: decimals, fractions & percents

# Grade 8

## 1 Number

### 1.1 Number

<b>N8.1</b> Demonstrate understanding of the square and principle square root of whole numbers concretely or pictorially and symbolically.	
Course Topics	Activities
Number	Expanding Numbers
	Expanded Notation
	Prime or Composite?
	Estimate Square Roots
	Least Common Multiple
	Prime Factoring
	Square Roots
Topics	Skill Quests
Squares & square roots	Perfect squares
	Finding square roots
	Finding square roots, fractions
	Estimating square roots

<b>N8.2</b> Expand and demonstrate understanding of percents greater than or equal to 0% (including fractional and decimal percents) concretely, pictorially, and symbolically.	
Course Topics	Activities
Number - Percents	Percents and Decimals
	Percents to Fractions
	What Percentage?
	Percentage Word Problems
	Successive Discounts
	Percent Increase and Decrease
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

<b>N8.3</b> Demonstrate understanding of rates, ratios, and proportional reasoning concretely, pictorially, and symbolically.	
Course Topics	Activities
Rates and Ratio	Ratios
	Equivalent Ratios
	Dividing a Quantity in a Ratio
	Rate Word Problems
	Ratio Word Problems
	Best Buy
	Rates
	Solve Proportions
	Rates Calculations
	Unitary Method
	Simplify Ratios: 2 Whole Numbers
Topics	Skill Quests
Rates, ratios & proportional reasoning	Unit rate
	Introduction to ratios
	Simplifying & comparing rates
	Solving rate problems
	Dividing a quantity in a given ratio
	Solving ratio problems
	Solving proportions

<b>N8.4</b> Demonstrate understanding of multiplying and dividing positive fractions and mixed numbers, concretely, pictorially, and symbolically.	
Course Topics	Activities
Number - Fractions	Multiplying Fractions
	Multiply Two Fractions 1
	Dividing Fractions
	Divide Fractions by Fractions 1
	Equations with Fractions
	Divide Fractions by Fractions 2
	Multiply Two Fractions 2
	Multiply Mixed Numbers
	Divide Mixed Numbers
	Operations with Fractions
	Divide by a unit fraction
	Divide Fractions Visual Model
	Fractions of a Collection 2
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

N8.5	
Demonstrate understanding of multiplication and division of integers concretely, pictorially, and symbolically.	
Course Topics	Activities
Number	Order of Operations 1 (BEDMAS)
	More with Integers
	Integers: Multiply and Divide
	Integers: Order of Operations (BEDMAS)
	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

## 2 Patterns and Relations

### 2.1 Patterns and Relations

P8.1	
Demonstrate understanding of linear relations concretely, pictorially (including graphs), physically, and symbolically.	
Course Topics	Activities
Linear Relations	Table of Values
	Find the Pattern Rule
	Pattern Rules and Tables
	Ordered Pairs
	Graphing from a Table of Values
	Graphing from a Table of Values 2
	Reading Values from a Line
	Determining a Rule for a Line
	Which Straight Line?
	Equation of a Line 1
	Solve Systems by Graphing
	Modelling Linear Relationships
	$y=ax$
	Conversion Graphs
Topics	Skill Quests
Linear relations	Graphing discrete linear relations
	Identify an equation from a discrete linear graph
	Graphing a linear relation using a table of values

P8.2	
Model and solve problems using linear equations of the form: $ax = b$ , $x/a = b$ , $a \neq 0$ , $ax + b = c$ , $x/a + b = c$ , $a \neq 0$ , $a(x + b) = c$ concretely, pictorially, and symbolically, where $a$ , $b$ , and $c$ are integers.	
Course Topics	Activities
Linear Equations	Simple Substitution
	Simple Substitution 1
	Recognizing Like Terms
	Like Terms: Add, Subtract
	Algebraic Multiplication
	Dividing Expressions
	Expanding with Negatives
	Using the Distributive Property
	Complex Substitution
	Equations: Variables, Both Sides
	Expand then Simplify
	Simple Substitution 2
	Algebra Tiles



Linear Equations - Solve	Solving More Equations
	Equations with Grouping Symbols
	Solve Multi-Step Equations
	Equations to Solve Problems
	Find the Mistake
	Checking Solutions
	Solve Equations: Add, Subtract 2
	Solve Equations: Multiply, Divide 2
<b>Topics</b>	<b>Skill Quests</b>
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

## 3 Shape and Space

### 3.1 Shape and Space

SS8.1	
Demonstrate understanding of the Pythagorean Theorem concretely or pictorially and symbolically and by solving problems.	
Course Topics	Activities
Shape	Pythagorean Triads
	Pythagorean Theorem
	Pythagoras and Perimeter
	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

SS8.2	
Demonstrate understanding of the surface area of 3-D objects limited to right prisms and cylinders (concretely, pictorially, and symbolically) by: analyzing views, sketching and constructing 3-D objects, nets, and top, side, and front views, generalizing strategies and formulae, analyzing the effect of orientation, solving problems.	
Course Topics	Activities
Shape	Surface Area: Rectangular Prisms
	Surface Area: Triangular Prisms
	Nets
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
Construction, views & nets: 3-D objects	Drawing top, front & side views of 3-D objects
	Connecting prisms with their nets
	Connecting 3-D objects with their nets

<b>SS8.3</b> Demonstrate understanding of volume limited to right prisms and cylinders (concretely, pictorially, or symbolically) by: relating area to volume, generalizing strategies and formulae, analyzing the effect of orientation, solving problems.	
Course Topics	Activities
Shape	Volume: Rectangular Prisms 2
	Volume: Cylinders
	Volume: Triangular Prisms
	Similar Areas and Volumes
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

<b>SS8.4</b> Demonstrate an understanding of tessellation by: explaining the properties of shapes that make tessellating possible, creating tessellations, identifying tessellations in the environment.	
Course Topics	Activities
Teacher directed	
Topics	Skill Quests
Tessellation	Investigating tessellations using transformations
	Recognizing tessellations

## 4 Statistics and Probability

### 4.1 Statistics and Probability

<b>SP8.1</b>	
Analyze the modes of displaying data and the reasonableness of conclusions.	
<b>Course Topics</b>	<b>Activities</b>
Statistics and Probability	Line Graphs: Interpretation
	Sector Graphs
	Circle Graphs
	Pie Charts
	Divided Bar Graphs
	Compound Bar Chart
	Negative or Positive?
	Frequency Histograms
	Histograms
	Line Plots
<b>Topics</b>	<b>Skill Quests</b>
Analyze data displays	Analyzing misleading data displays

<b>SP8.2</b>	
Demonstrate understanding of the probability of independent events concretely, pictorially, orally, and symbolically.	
<b>Course Topics</b>	<b>Activities</b>
Statistics and Probability	Simple Probability
	Probability Scale
	Complementary Events
	Probability with Replacement
	Dice and Coins
	Probability Without Replacement
	Two-way Table Probability
	Fair Games
<b>Topics</b>	<b>Skill Quests</b>
Probability of independent events	Finding the probability of 2 independent events



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