Mathletics
Ontario Curriculum

Activities (Courses) and Skill Quests

Grades 7-10

July, 2025

Mathletics

Grade 7

B. Number

B1. Number Sense: Rational Numbers

7.B1.1	
represent and compare whole numbers up to and including one billion, including in expanded form using powers of ten, and describe various ways they are used in everyday life	
Course Topics	**Activities**
B1 Rational numbers	Place Value to Billions
	Equal, less or Greater Than?
Topics	**Skill Quests**
Teacher directed	

7.B1.2	
identify and represent perfect squares, and determine their square roots, in various contexts	
Course Topics	**Activities**
B1 Rational numbers	Square Roots 1
	Square Roots
Topics	**Skill Quests**
Teacher directed	

7.B1.3	
read, represent, compare, and order rational numbers, including positive and negative fractions and decimal numbers to thousandths, in various contexts	
Course Topics	**Activities**
B1 Rational numbers	Integers on a Number Line
	Comparing Integers
	Ordering Integers (Number Line)
	Identifying Fractions on a Number Line
	Mixed and Improper Fractions on a Number Line
	Comparing Fractions with Signs
	Decimals on a Number Line
	Decimal Order 1
	Comparing Decimals 1
Topics	**Skill Quests**
Teacher directed	

B1. Number Sense: Fractions, Decimals, and Percents

7.B1.4	
use equivalent fractions to simplify fractions, when appropriate, in various contexts	
Course Topics	**Activities**
B1 Fractions, decimals & percents	Simplify Fractions
Topics	**Skill Quests**
Teacher directed	

7.B1.5	
generate fractions and decimal numbers between any two quantities	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

7.B1.6	
round decimal numbers to the nearest tenth, hundredth, or whole number, as applicable, in various contexts	
Course Topics	**Activities**
B1 Fractions, decimals & percents	Nearest Whole Number
	Rounding Decimals 1
Topics	**Skill Quests**
Teacher directed	

7.B1.7	
convert between fractions, decimal numbers, and percents, in various contexts	
Course Topics	**Activities**
B1 Fractions, decimals & percents	Fractions to Decimals
	Decimals to Fractions 1
	Convert Decimals to Fractions 2
	Percents to Fractions
	Percents and Decimals
	Fraction to Terminating Decimal
Topics	**Skill Quests**
Teacher directed	

B2. Operations: Properties and Relationships

7.B2.1	
use the properties and order of operations, and the relationships between operations, to solve problems involving whole numbers, decimal numbers, fractions, ratios, rates, and percents, including those requiring multiple steps or multiple operations	
Course Topics	**Activities**
B2 Order of operations	Addition Properties
	Multiplication Properties
	Order of Operations 1 (BEDMAS)
	Money Problems: Four Operations

Topics	Skill Quests
What Percentage?	
Percentage Word Problems	
Teacher directed	

B2. Operations: Math Facts

7.B2.2
understand and recall commonly used percents, fractions, and decimal equivalents

Course Topics	Activities
B2 Order of operations	Match Decimals and Percentages
	Common Fractions as Percentages
	Fractions to Percentages (Non-Calculator)
Topics	**Skill Quests**
Teacher directed	

B2. Operations: Mental Math

7.B2.3
use mental math strategies to increase and decrease a whole number by 1%, 5%, 10%, 25%, 50%, and 100%, and explain the strategies used

Course Topics	Activities
B2 Order of operations	Percent of a Number (Mental)
	Percentage Change: Increase and Decrease
	Percent Increase and Decrease
Topics	**Skill Quests**
Teacher directed	

B2. Operations: Addition and Subtraction

7.B2.4
use objects, diagrams, and equations to represent, describe, and solve situations involving addition and subtraction of integers

Course Topics	Activities
B2 Addition & subtraction of integers	Add Integers
	Subtract Integers
	Integers: Add and Subtract
	Negative or Positive?
	More with Integers
Topics	**Skill Quests**

Teacher directed

<table>
<tr><td colspan="2" align="center">7.B2.5
add and subtract fractions, including by creating equivalent fractions, in various contexts</td></tr>
<tr><td align="center">Course Topics</td><td align="center">Activities</td></tr>
<tr><td rowspan="6">B2 Addition & subtraction of integers</td><td>Equivalent Fractions</td></tr>
<tr><td>Add: Common Denominator</td></tr>
<tr><td>Add: No Common Denominator</td></tr>
<tr><td>One Take Fraction</td></tr>
<tr><td>Subtract: Common Denominator</td></tr>
<tr><td>Subtract: No Common Denominator</td></tr>
<tr><td align="center">Topics</td><td align="center">Skill Quests</td></tr>
<tr><td colspan="2">Teacher directed</td></tr>
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B2. Operations: Multiplication and Division

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<tr><td colspan="2" align="center">7.B2.6
determine the greatest common factor for a variety of whole numbers up to 144 and the lowest common multiple for two and three whole numbers</td></tr>
<tr><td align="center">Course Topics</td><td align="center">Activities</td></tr>
<tr><td rowspan="2">B2 Multiplication & division</td><td>Greatest Common Factor</td></tr>
<tr><td>Lowest Common Multiple</td></tr>
<tr><td align="center">Topics</td><td align="center">Skill Quests</td></tr>
<tr><td colspan="2">Teacher directed</td></tr>
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<table>
<tr><td colspan="2" align="center">7.B2.7
evaluate and express repeated multiplication of whole numbers using exponential notation, in various contexts</td></tr>
<tr><td align="center">Course Topics</td><td align="center">Activities</td></tr>
<tr><td rowspan="2">B2 Multiplication & division</td><td>Exponent Notation</td></tr>
<tr><td>Exponent Form to Numbers</td></tr>
<tr><td align="center">Topics</td><td align="center">Skill Quests</td></tr>
<tr><td colspan="2">Teacher directed</td></tr>
<tr><td colspan="2" align="center">7.B2.8
multiply and divide fractions by fractions, using tools in various contexts</td></tr>
<tr><td align="center">Course Topics</td><td align="center">Activities</td></tr>
<tr><td rowspan="8">B2 Multiplication & division</td><td>Model Fractions to Multiply</td></tr>
<tr><td>Multiply Fraction by Whole Number</td></tr>
<tr><td>Multiply Fraction by Fraction</td></tr>
<tr><td>Multiplying Fractions</td></tr>
<tr><td>Divide by a Unit Fraction</td></tr>
<tr><td>Divide Whole Number by Fraction</td></tr>
<tr><td>Divide Fractions Visual Model</td></tr>
<tr><td>Dividing Fractions</td></tr>
<tr><td align="center">Topics</td><td align="center">Skill Quests</td></tr>
<tr><td colspan="2">Teacher directed</td></tr>
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7.B2.9	
multiply and divide decimal numbers by decimal numbers, in various contexts	
Course Topics	**Activities**
B2 Multiplication & division	Multiply Decimals: 10, 100, 1000
	Multiply Decimal by Whole Number
	Multiply Decimals: Area Model
	Multiply Decimals 1
	Divide Decimals: 10, 100, 1000
	Divide Decimal by Whole Number
	Divide Decimals
Topics	**Skill Quests**
Teacher directed	

7.B2.10	
identify proportional and non-proportional situations and apply proportional reasoning to solve problems	
Course Topics	**Activities**
B2 Ratio & rates	Ratio Word Problems
	Solve Proportions
	Ratio and Proportion
	Best Buy
	Average Speed
	Rate Word Problems
	Rates
Topics	**Skill Quests**
Teacher directed	

C. Algebra

C1. Patterns and Relationships: Patterns

7.C1.1
identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing patterns on the basis of their constant rates and initial values

Course Topics	Activities
C1 Patterns	Describing Patterns
Topics	**Skill Quests**
Teacher directed	

7.C1.2
create and translate repeating, growing, and shrinking patterns involving whole numbers and decimal numbers using various representations, including algebraic expressions and equations for linear growing patterns

Course Topics	Activities
C1 Patterns	Increasing Patterns
	Decreasing Patterns
Topics	**Skill Quests**
Teacher directed	

7.C1.3
determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in repeating, growing, and shrinking patterns involving whole numbers and decimal numbers, and use algebraic representations of the pattern rules to solve for unknown values in linear growing patterns

Course Topics	Activities
C1 Patterns	Table of Values
	Find the Pattern Rule
	Pattern Rules and Tables
Topics	**Skill Quests**
Teacher directed	

7.C1.4
create and describe patterns to illustrate relationships among integers

Course Topics	Activities
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

C2. Equations and Inequalities: Variables and Expressions

7.C2.1	
add and subtract monomials with a degree of 1 that involve whole numbers, using tools	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

7.C2.2	
evaluate algebraic expressions that involve whole numbers and decimal numbers	
Course Topics	**Activities**
C2 Variables & expressions	Simple Substitution 1
	Simple Substitution
	Simple Substitution 2
	Simple Substitution 3
Topics	**Skill Quests**
Teacher directed	

C2. Equations and Inequalities: Equalities and Inequalities

7.C2.3	
solve equations that involve multiple terms, whole numbers, and decimal numbers in various contexts, and verify solutions	
Course Topics	**Activities**
C2 Equations & inequalities	Solve Equations: Add, Subtract 1
	Solve Equations: Add, Subtract 2
	Solve Equations: Multiply, Divide 1
	Solve Equations: Multiply, Divide 2
	Solving Simple Equations
	Solve One-Step Equations
	Solving More Equations
	Checking Solutions
Topics	**Skill Quests**
Teacher directed	

7.C2.4	
solve inequalities that involve multiple terms and whole numbers, and verify and graph the solutions	
Course Topics	**Activities**
C2 Equations & inequalities	Solve One-Step Inequalities 1
	Solve One-Step Inequalities 2
	Graphing Inequalities 2
	Graphing Inequalities on Number Line
Topics	**Skill Quests**
Teacher directed	

C3. Coding: Coding Skills

7.C3.1

solve problems and create computational representations of mathematical situations by writing and executing efficient code, including code that involves events influenced by a defined count and/or sub-program and other control structures

Course Topics	Activities
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

7.C3.2

read and alter existing code, including code that involves events influenced by a defined count and/or sub-program and other control structures, and describe how changes to the code affect the outcomes and the efficiency of the code

Course Topics	Activities
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

D. Data

D1. Data Literacy: Data Collection and Organization

7.D1.1
explain why percentages are used to represent the distribution of a variable for a population or sample in large sets of data, and provide examples

Course Topics	Activities
Teacher directed	

Topics	Skill Quests
Teacher directed	

7.D1.2
collect qualitative data and discrete and continuous quantitative data to answer questions of interest, and organize the sets of data as appropriate, including using percentages

Course Topics	Activities
D1 Data literacy	Tally Charts
	Grouped Frequency

Topics	Skill Quests
Teacher directed	

D1. Data Literacy: Data Visualization

7.D1.3
select from among a variety of graphs, including circle graphs, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs

Course Topics	Activities
Teacher directed	

Topics	Skill Quests
Teacher directed	

7.D1.4
create an infographic about a data set, representing the data in appropriate ways, including in tables and circle graphs, and incorporating any other relevant information that helps to tell a story about the data

Course Topics	Activities
Teacher directed	

Topics	Skill Quests
Teacher directed	

D1. Data Literacy: Data Analysis

7.D1.5
determine the impact of adding or removing data from a data set on a measure of central tendency, and describe how these changes alter the shape and distribution of the data

Course Topics	Activities
D1 Data literacy	Mean from Frequency Table
	Median from Frequency Table
	Mode from Frequency Table
	Which Measure of Central Tendency?
Topics	**Skill Quests**
Teacher directed	

7.D1.6
analyse different sets of data presented in various ways, including in circle graphs and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions

Course Topics	Activities
D1 Data literacy	Interpreting Data Tables
	Bar Graphs 1
	Divided Bar Graphs
	Frequency Histograms
	Histograms
	Line Graphs: Interpretation
	Circle Graphs
	Stem and Leaf Plots: Concept
	Double Stem and Leaf Plots
Topics	**Skill Quests**
Teacher directed	

D2. Probability: Probability

7.D2.1
describe the difference between independent and dependent events, and explain how their probabilities differ, providing examples

Course Topics	Activities
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

7.D2.2
determine and compare the theoretical and experimental probabilities of two independent events happening and of two dependent events happening

Course Topics	Activities
D2 Probability	Simple Probability

Topics	Skill Quests
	Introductory Probability
	Find the Probability
	Relative Frequency
	Probability With Replacement
	Dice and Coins
Topics	**Skill Quests**
Teacher directed	

E. Spatial Sense

E1. Geometric and Spatial Reasoning: Geometric Reasoning

7.E1.1	
describe and classify cylinders, pyramids, and prisms according to their geometric properties, including plane and rotational symmetry	
Course Topics	**Activities**
E1 Geometry & Spatial reasoning	Match the Object
	Collect the Objects 2
	Properties of Solids
Topics	**Skill Quests**
Teacher directed	

7.E1.2	
draw top, front, and side views, as well as perspective views, of objects and physical spaces, using appropriate scales	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

E1. Geometric and Spatial Reasoning: Location and Movement

7.E1.3	
perform dilations and describe the similarity between the image and the original shape	
Course Topics	**Activities**
E1 Geometry & Spatial reasoning	Scale Factor
	Similar Figures
	Similar Figures 1
Topics	**Skill Quests**
Teacher directed	

7.E1.4	
describe and perform translations, reflections, and rotations on a Cartesian plane, and predict the results of these transformations	
Course Topics	**Activities**
E1 Geometry & Spatial reasoning	Transformations
	Transformations: Coordinate Plane
	Rotations: Coordinate Plane
	Rotational Symmetry
Topics	**Skill Quests**
Teacher directed	

E2. Measurement: The Metric System

7.E2.1	
describe the differences and similarities between volume and capacity, and apply the relationship between millilitres (mL) and cubic centimetres (cm³) to solve problems	
Course Topics	**Activities**
E2 Measurement	Capacity Word Problems
Topics	**Skill Quests**
Teacher directed	

7.E2.2	
solve problems involving perimeter, area, and volume that require converting from one metric unit of measurement to another	
Course Topics	**Activities**
E2 Measurement	Converting cm and mm
	Metres and Kilometres
	Converting Units of Length
	Converting Units of Mass
	Converting Units of Area
	Converting Volume
	Perimeter: Triangles
	Calculate Area of Squares and Rectangles
	Area: Quadrilaterals
	Surface Area: Rectangular Prisms
	Volume: Rectangular Prisms 1
Topics	**Skill Quests**
Teacher directed	

E2. Measurement: Circles

7.E2.3	
use the relationships between the radius, diameter, and circumference of a circle to explain the formula for finding the circumference and to solve related problems	
Course Topics	**Activities**
E2 Measurement	Identify Parts of Circles 1
	Calculate Circumference of Circles
Topics	**Skill Quests**
Teacher directed	

7.E2.4	
construct circles when given the radius, diameter, or circumference	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

7.E2.5
show the relationships between the radius, diameter, and area of a circle, and use these relationships to explain the formula for measuring the area of a circle and to solve related problems

Course Topics	Activities
E2 Measurement	Area: Circles 1

Topics	Skill Quests
Teacher directed	

E2. Measurement: Volume and Surface Area

7.E2.6
represent cylinders as nets and determine their surface area by adding the areas of their parts

Course Topics	Activities
E2 Measurement	Surface Area: Cylinders

Topics	Skill Quests
Teacher directed	

7.E2.7
show that the volume of a prism or cylinder can be determined by multiplying the area of its base by its height, and apply this relationship to find the area of the base, volume, and height of prisms and cylinders when given two of the three measurements

Course Topics	Activities
E2 Measurement	Volume: Cylinders

Topics	Skill Quests
Teacher directed	

F. Financial Literacy

F1. Money and Finances: Money Concepts

7.F1.1	
identify and compare exchange rates, and convert foreign currencies to Canadian dollars and vice versa	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

F1. Money and Finances: Financial Management

7.F1.2	
identify and describe various reliable sources of information that can help with planning for and reaching a financial goal	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

7.F1.3	
create, track, and adjust sample budgets designed to meet longer-term financial goals for various scenarios	
Course Topics	**Activities**
F1 Money & finances	Budgeting
Topics	**Skill Quests**
Teacher directed	

7.F1.4	
identify various societal and personal factors that may influence financial decision making, and describe the effects that each might have	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

F1. Money and Finances: Consumer and Civic Awareness

7.F1.5

explain how interest rates can impact savings, investments, and the cost of borrowing to pay for goods and services over time

Course Topics	Activities
F1 Money & finances	Simple Interest
	Compound Interest
	Credit Card Repayments
Topics	**Skill Quests**
Teacher directed	

7.F1.6

compare interest rates and fees for different accounts and loans offered by various financial institutions, and determine the best option for different scenarios

Course Topics	Activities
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

Grade 8

B. Number

B1. Number Sense: Rational and Irrational Numbers

8.B1.1	
represent and compare very large and very small numbers, including through the use of scientific notation, and describe various ways they are used in everyday life	
Course Topics	**Activities**
B1 Rational & irrational numbers	Scientific Notation 1
	Scientific Notation
	Scientific Notation 2
Topics	**Skill Quests**
Scientific notation	Introducing scientific notation
	Writing & comparing numbers in scientific notation

8.B1.2	
describe, compare, and order numbers in the real number system (rational and irrational numbers), separately and in combination, in various contexts	
Course Topics	**Activities**
B1 Rational & irrational numbers	Irrational Numbers
	Ordering Integers (Number Line)
	Mixed and Improper Fractions on a Number Line
	Comparing Fractions with Signs
	Decimals on the Number Line
	Decimal Order 1
	Comparing Decimals 1
Topics	**Skill Quests**
The real number system	Classifying real numbers
	Comparing rational & irrational numbers

8.B1.3	
estimate and calculate square roots, in various contexts	
Course Topics	**Activities**
B1 Rational & irrational numbers	Square Roots 1
	Square Roots
	Estimating Square Roots
Topics	**Skill Quests**
Square roots	Square roots of non-perfect squares
	Finding square roots

B1. Number Sense: Fractions, Decimals, and Percents

8.B1.4	
use fractions, decimal numbers, and percents, including percents of more than 100% or less than 1%, interchangeably and flexibly to solve a variety of problems	
Course Topics	**Activities**
B1 Fractions, decimals & percents	Percentage Word Problems
	Percentage of an amount using fractions (<100%)
	Percentages of a quantity (>100%)
	Quantities to Percentages (no units)
	Percentage of an amount using decimals (calculator)
	Solve Percent Equations
	Percent Increase and Decrease
	Successive Discounts
	Commission
	Profit and Loss
Topics	**Skill Quests**
Fractions, decimals & percents	Converting decimals to percents & fractions
	Converting fractions to decimals & percents
	Converting percents to fractions
	Converting percents to decimals
	Solving word problems involving percents
	Percents greater than 100%
	Solving problems involving consecutive percents
	Increasing & decreasing amounts by percents
	Solving problems involving combined percents

B2. Operations: Properties and Relationships

8.B2.1	
use the properties and order of operations, and the relationships between operations, to solve problems involving rational numbers, ratios, rates, and percents, including those requiring multiple steps or multiple operations	
Course Topics	**Activities**
B2 Operations	Addition Properties
	Multiplication Properties
	Order of Operations 1 (BEDMAS)
	Adding and Subtracting Decimals
	Decimal by Decimal
	Divide Decimals
Topics	**Skill Quests**
Properties & order of operations	The commutative property
	The associative property
	The distributive property
	Order of operations, integers
	Order of operations, decimals & fractions

B2. Operations: Math Facts

8.B2.2	
understand and recall commonly used square numbers and their square roots	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Recall square numbers & square roots	Recalling square numbers & their square roots

B2. Operations: Mental Math

8.B2.3	
use mental math strategies to multiply and divide whole numbers and decimal numbers up to thousandths by powers of ten, and explain the strategies used	
Course Topics	**Activities**
B2 Operations	Mental Methods Multiplication 1
	Mental Methods Multiplication 2
	Mental Methods Multiplication 3
	Mental Methods Division 1
	Mental Methods Division 2
	Mental Methods Division 3
Topics	**Skill Quests**
Multiply & divide by powers of 10	Multiplying decimals by powers of 10
	Dividing decimals by powers of 10

B2. Operations: Addition and Subtraction

8.B2.4	
add and subtract integers, using appropriate strategies, in various contexts	
Course Topics	**Activities**
B2 Addition & subtraction of integers	Add Integers
	Subtract Integers
	Integers: Add and Subtract
	Negative or Positive?
	More with Integers
Topics	**Skill Quests**
Add & subtract integers	Adding & subtracting integers
	Adding & subtracting integers with models

8.B2.5	
add and subtract fractions, using appropriate strategies, in various contexts	
Course Topics	**Activities**
B2 Addition & subtraction of integers	Add: Common Denominator
	Add: No Common Denominator
	Add Mixed Numbers: Same Sign
	Add Unlike Mixed Numbers
	One Take Fraction

Topics	Skill Quests
	Subtract: Common Denominator
	Subtract: No Common Denominator
	Subtract Like Mixed Numbers
	Subtract Mixed Numbers: Signs Differ
Topics	**Skill Quests**
Add fractions & mixed numbers	Adding fractions, like denominator
	Adding a whole number & a fraction
	Adding fractions, unlike denominator
Subtract fractions & mixed numbers	Subtracting fractions, like denominator
	Subtracting a fraction from a whole number
	Subtracting fractions, unlike denominator
Add & subtract fractions, word problems	Adding & subtracting fractions, word problems

B2. Operations: Multiplication and Division

8.B2.6 multiply and divide fractions by fractions, as well as by whole numbers and mixed numbers, in various contexts	
Course Topics	**Activities**
B2 Multiplication & division	Multiply Fraction by Whole Number
	Multiply Fraction by Fraction
	Multiplying Fractions
	Dividing Fractions
Topics	**Skill Quests**
Multiply fractions & mixed numbers	Multiplying fractions by whole numbers
	Multiplying fractions & mixed numbers
Divide fractions & mixed numbers	Dividing fractions & whole numbers
	Dividing fractions & mixed numbers

8.B2.7 multiply and divide integers, using appropriate strategies, in various contexts	
Course Topics	**Activities**
B2 Multiplication & division	Multiplying and Dividing Integers
	Integers: Multiply and Divide
Topics	**Skill Quests**
Multiply & divide integers	Multiplying integers
	Dividing integers
	Multiplying & dividing integers

8.B2.8 compare proportional situations and determine unknown values in proportional situations, and apply proportional reasoning to solve problems in various contexts	
Course Topics	**Activities**
B2 Multiplication & division	Ratio Word Problems

Topics	Skill Quests
	Solve Proportions
	Ratio and Proportion
Proportional reasoning	Solving proportions problems
	Comparing rates
	Identifying the constant of proportionality
	Comparing proportional relationships
	Graphs of proportional relationships

C. Algebra

C1. Patterns and Relationships: Patterns

8.C1.1
identify and compare a variety of repeating, growing, and shrinking patterns, including patterns found in real-life contexts, and compare linear growing and shrinking patterns on the basis of their constant rates and initial values

Course Topics	Activities
C1 Patterns	Describing Patterns

Topics	Skill Quests
Identify & compare patterns	Comparing linear growing & shrinking patterns

8.C1.2
create and translate repeating, growing, and shrinking patterns involving rational numbers using various representations, including algebraic expressions and equations for linear growing and shrinking patterns

Course Topics	Activities
Teacher directed	

Topics	Skill Quests
Create patterns, rational numbers	Modelling real-life relationships
	Continuing & creating sequences, rational numbers
	Representing linear growing patterns

8.C1.3
determine pattern rules and use them to extend patterns, make and justify predictions, and identify missing elements in growing and shrinking patterns involving rational numbers, and use algebraic representations of the pattern rules to solve for unknown values in linear growing and shrinking patterns

Course Topics	Activities
C1 Patterns	Table of Values
	Increasing Patterns
	Decreasing Patterns
	Find the Pattern Rule
	Pattern Rules and Tables

Topics	Skill Quests
Pattern rules, rational numbers	Finding the nth term, rational coefficients
	Use the nth term rule for a linear pattern
	Investigate linear relationships, Cartesian plane

8.C1.4
create and describe patterns to illustrate relationships among rational numbers

Course Topics	Activities
Teacher directed	

Topics	Skill Quests
Teacher directed	

C2. Equations and Inequalities: Variables and Expressions

8.C2.1	
add and subtract monomials with a degree of 1, and add binomials with a degree of 1 that involve integers, using tools	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Add & subtract monomials & binomials	Adding & subtracting monomials & binomials

8.C2.2	
evaluate algebraic expressions that involve rational numbers	
Course Topics	**Activities**
C2 Variables & expressions	Substitution with Fractions
	Complex Substitution
Topics	**Skill Quests**
Evaluate algebraic expressions	Evaluating algebraic expressions

C2. Equations and Inequalities: Equalities and Inequalities

8.C2.3	
solve equations that involve multiple terms, integers, and decimal numbers in various contexts, and verify solutions	
Course Topics	**Activities**
C2 Equations & inequalities	Equations with Grouping Symbols
	Solve Multi-Step Equations
	Equations with Decimals
	Equations: Variables, Both Sides
	Solving More Equations
	Equations to Solve Problems
	Checking Solutions
Topics	**Skill Quests**
Solve equations: integers, decimals	Solving 1-step equations, add & subtract
	Solving 1-step equations, multiply & divide
	Solving 1 & 2-step equations, mixed operations
	Solving 3-step equations, mixed operations
	Solving linear equations, variables on both sides
	Solving linear equations, expanding brackets
	Checking solutions to equations by substituting

8.C2.4	
solve inequalities that involve integers, and verify and graph the solutions	

Course Topics	Activities
C2 Equations & inequalities	Solving Inequalities 1
	Solve Two-Step Inequalities
	Solving Inequalities 2
	Solving Inequalities 3
	Graphing Inequalities 3

Topics	Skill Quests
Solve inequalities involving integers	Solving 1-step inequalities
	Solving 2-step inequalities
	Solving inequalities with variables on both sides
	Graphing solutions of inequalities, number line
	Checking solutions of inequalities
	Graphing inequalities with two variables

C3. Coding: Coding Skills

8.C3.1	
solve problems and create computational representations of mathematical situations by writing and executing code, including code that involves the analysis of data in order to inform and communicate decisions	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

8.C3.2	
read and alter existing code involving the analysis of data in order to inform and communicate decisions, and describe how changes to the code affect the outcomes and the efficiency of the code	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

D. Data

D1. Data Literacy: Data Collection and Organization

8.D1.1	
identify situations involving one-variable data and situations involving two-variable data, and explain when each type of data is needed	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Identify one & two-variable data	Identifying one & two-variable data

8.D1.2	
collect continuous data to answer questions of interest involving two variables, and organize the data sets as appropriate in a table of values	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

D1. Data Literacy: Data Visualization

8.D1.3	
select from among a variety of graphs, including scatter plots, the type of graph best suited to represent various sets of data; display the data in the graphs with proper sources, titles, and labels, and appropriate scales; and justify their choice of graphs	
Course Topics	**Activities**
D1 Bivariate data	Travel Graphs
	Data Analysis: Scatter Plots
Topics	**Skill Quests**
Select graphs & display data	Constructing line plots
	Constructing histograms
	Constructing line graphs
	Constructing scatter plots

8.D1.4	
create an infographic about a data set, representing the data in appropriate ways, including in tables and scatter plots, and incorporating any other relevant information that helps to tell a story about the data	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

D1. Data Literacy: Data Analysis

8.D1.5
use mathematical language, including the terms "strong", "weak", "none", "positive", and "negative", to describe the relationship between two variables for various data sets with and without outliers

Course Topics	Activities
D1 Bivariate data	Scatter Plots
	Correlation
Topics	**Skill Quests**
Relationships in two-variable data	Describing relationships in scatter plots

8.D1.6
analyse different sets of data presented in various ways, including in scatter plots and in misleading graphs, by asking and answering questions about the data, challenging preconceived notions, and drawing conclusions, then make convincing arguments and informed decisions

Course Topics	Activities
D1 Bivariate data	Line Graphs: Interpretation
	Travel Graphs
	Data Analysis: Scatter Plots
Topics	**Skill Quests**
Analyse & interpret graphs	Interpreting information from secondary sources
	Interpreting data in various graphs
	Analyzing misleading graphs

D2. Probability: Probability

8.D2.1
solve various problems that involve probability, using appropriate tools and strategies, including Venn and tree diagrams

Course Topics	Activities
D2 Probability	Venn Diagrams
	Venn Diagram 1
	Tree Diagrams
	Tree Diagram
	Probability Tables
	Two-way Table Probability
Topics	**Skill Quests**
Probability with Venn & tree diagrams	Theoretical probability with tree diagrams
	Identifying & representing the sample space
	Probability: independent/dependent combined events
	Using data presented in Venn diagrams
	The counting principle

8.D2.2
determine and compare the theoretical and experimental probabilities of multiple independent events happening and of multiple dependent events happening

Course Topics	Activities

D2 Probability	Relative Frequency
Topics	**Skill Quests**
Probability independent/ dependent events	Comparing experimental & theoretical probability
	Finding the probability of independent events
	Finding the probability of dependent events

E. Spatial Sense

E1. Geometric and Spatial Reasoning: Geometric Reasoning

8.E1.1	
identify geometric properties of tessellating shapes and identify the transformations that occur in the tessellations	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Tessellations	Recognizing tessellations
	Rotational symmetry

8.E1.2	
make objects and models using appropriate scales, given their top, front, and side views or their perspective views	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Top, front & side views of 3- D objects	Drawing top, front & side views of 3-D objects
Nets of 3-D objects	Connecting 3-D objects with their nets

8.E1.3	
use scale drawings to calculate actual lengths and areas, and reproduce scale drawings at different ratios	
Course Topics	**Activities**
E1 Spatial reasoning	Floor Plans
	Similar Triangles
	Ratio of Intercepts
Topics	**Skill Quests**
Scale drawings	Using scales on maps
	Solving problems using scale drawings

E1. Geometric and Spatial Reasoning: Location and Movement

8.E1.4	
describe and perform translations, reflections, rotations, and dilations on a Cartesian plane, and predict the results of these transformations	
Course Topics	**Activities**
E1 Spatial reasoning	Transformations: Coordinate Plane
	Rotations: Coordinate Plane
Topics	**Skill Quests**
	Plotting transformations on the Cartesian plane

Transformations on a Cartesian plane	Dilations with mapping rules
	Translations with mapping rules
	Rotations with mapping rules
	Reflections with mapping rules
	Combinations of transformations with mapping rules
	Congruency
	Similarity
	Identifying the scale factor

E2. Measurement: The Metric System

8.E2.1	
represent very large (mega, giga, tera) and very small (micro, nano, pico) metric units using models, base ten relationships, and exponential notation	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Very large & small metric units	Very large & small metric units, exponents

E2. Measurement: Lines and Angles

8.E2.2	
solve problems involving angle properties, including the properties of intersecting and parallel lines and of polygons	
Course Topics	**Activities**
E2 Angle relationships	Angle Measures in a Triangle
	Exterior Angles of a Triangle
	Interior Angles
	Quadrilaterals: Angle Sum with Equations
	Plane Figure Theorems
	Vertically Opposite: Value of x
	Equal, Complementary or Supplementary Angles?
	Complementary, Supplementary or Neither
	Angles of Revolution: Unknown Values
	Parallel Lines
	Introduction to Angles on Parallel Lines 1
	Angles on Parallel Lines
	Introduction to Angles on Parallel Lines 3
	Are the Lines Parallel?
Topics	**Skill Quests**
Solve problems using angle properties	Calculating the interior angles of polygons
	Calculating supplementary & complementary angles
	Angles on parallel lines cut by a transversal

E2. Measurement: Length, Area, and Volume

8.E2.3

solve problems involving the perimeter, circumference, area, volume, and surface area of composite two-dimensional shapes and three-dimensional objects, using appropriate formulas

Course Topics	Activities
E2 Perimeter, area & volume	Perimeter Detectives 1
	Perimeter Detectives 2
	Calculate Circumference of Circles
	Area: Triangles
	Area: Composite Shapes
	Area: Sectors (Degrees)
	Surface Area: Triangular Prisms 1
	Volume: Prisms
	Volume of Triangular Prisms
	Volume: Composite Figures
	Similar Areas and Volumes

Topics	Skill Quests
Composite shapes & objects	Calculating the area of composite shapes
	Calculating the perimeter of composite shapes
	Calculating the volume of composite shapes
	Calculating the surface area of composite shapes

8.E2.4

describe the Pythagorean relationship using various geometric models, and apply the theorem to solve problems involving an unknown side length for a given right triangle

Course Topics	Activities
E2 Pythagoras' Theorem	Pythagorean Theorem
	Pythagoras' Theorem
	Pythagorean Triads
	Pythagoras: Find a Short Side (integers only)
	Pythagoras: Find a Short Side (rounding needed)
	Pythagoras: Find a Short Side (decimal values)

Topics	Skill Quests
The Pythagorean theorem	Identifying the sides of a right triangle
	Identifying right triangles, Pythagorean Theorem
	Identifying Pythagorean triples
	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

F. Financial Literacy

F1. Money and Finances: Money Concepts

8.F1.1	
describe some advantages and disadvantages of various methods of payment that can be used when dealing with multiple currencies and exchange rates	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

F1. Money and Finances: Financial Management

8.F1.2	
create a financial plan to reach a long-term financial goal, accounting for income, expenses, and tax implications	
Course Topics	**Activities**
F1 Money & finances	Calculating Income Tax
	Net Pay
	Deductions and Net Pay
	Wages and Salaries
Topics	**Skill Quests**
Create simple financial plans	Creating simple financial plans

8.F1.3	
identify different ways to maintain a balanced budget, and use appropriate tools to track all income and spending, for several different scenarios	
Course Topics	**Activities**
F1 Money & finances	Budgeting
Topics	**Skill Quests**
Teacher directed	

8.F1.4	
determine the growth of simple and compound interest at various rates using digital tools, and explain the impact interest has on long-term financial planning	
Course Topics	**Activities**
F1 Money & finances	Simple Interest
	Compound Interest
Topics	**Skill Quests**
Simple & compound interest	Solving problems involving simple interest
	Solving problems involving compound interest
	Comparing simple & compound interest

F1. Money and Finances: Consumer and Civic Awareness

8.F1.5
compare various ways for consumers to get more value for their money when spending, including taking advantage of sales and customer loyalty and incentive programs, and determine the best choice for different scenarios

Course Topics	Activities
F1 Money & finances	Purchase Options
	Best Buy
Topics	**Skill Quests**
Teacher directed	

8.F1.6
compare interest rates, annual fees, and rewards and other incentives offered by various credit card companies and consumer contracts to determine the best value and the best choice for different scenarios

Course Topics	Activities
F1 Money & finances	Credit Card Repayments
Topics	**Skill Quests**
Teacher directed	

Grade 9

B. Number

B1. Development of Numbers and Number Sets: demonstrate an understanding of the development and use of numbers, and make connections between sets of numbers

B1.1	
Development and Use of Numbers: research a number concept to tell a story about its development and use in a specific culture, and describe its relevance in a current context	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

B1.2	
Number Sets: describe how various subsets of a number system are defined, and describe similarities and differences between these subsets	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Real numbers	Distinguishing between different sets of numbers

B1.3	
Number Sets: use patterns and number relationships to explain density, infinity, and limit as they relate to number sets	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Infinite nature of sets of real numbers	Understanding the infinite nature of number sets
Pattern & number relationships	Finding the nth term of a linear sequence
	Recognizing geometric sequences & common ratios

B2. Powers: Represent numbers in various ways, evaluate powers, and simplify expressions by using the relationships between powers and their exponents

B2.1	
B2.1 Powers: analyse, through the use of patterning, the relationship between the sign and size of an exponent and the value of a power, and use this relationship to express numbers in scientific notation and evaluate powers	
Course Topics	**Activities**
B2 Scientific notation	Scientific Notation 1
	Scientific Notation
	Scientific Notation 2
	Scientific notation to decimal
	Ordering Scientific Notation
Topics	**Skill Quests**
Investigate exponent notation	Investigating exponent notation
Scientific notation	Writing numbers in scientific notation
	Scientific notation: small numbers
	Scientific notation: large numbers

B2.2	
B2.2 Powers: analyse, through the use of patterning, the relationships between the exponents of powers and the operations with powers, and use these relationships to simplify numeric and algebraic expressions	
Course Topics	**Activities**
B2 Powers	Exponent Notation
	Powers of Integers
	Exponent Form to Numbers
	Properties of Exponents
	Simplifying with Exponent Laws 1
	Simplifying with Exponent Laws 2
	Integer Exponents
	The Zero Exponent
	Zero Exponent and Algebra
	Exponent Notation and Algebra
	Multiplication with Exponents
	Exponent Laws and Algebra
	Exponent Laws with Brackets
Topics	**Skill Quests**
Exponent laws	Applying exponent laws with negative exponents
	Applying exponent laws for multiplication
	Applying exponent laws for division
	Applying exponent laws for power of a power
	Applying the zero exponent law
	Applying mixed exponent laws
	Exponent laws for multiplication: algebraic bases
	Exponent laws for division: algebraic bases
	Exponent laws, power of a power: algebraic bases
	Simplifying expressions with negative powers
	Exponent laws for zero exponent: algebraic bases
	Mixed exponent laws: algebraic bases
	Numerical expressions: negative exponents

B3. Number Sense and Operations: apply an understanding of rational numbers, ratios, rates, percentages, and proportions, in various mathematical contexts, and to solve problems

B3.1	
Rational Numbers: apply an understanding of integers to describe location, direction, amount, and changes in any of these, in various contexts	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Integers	Investigating & interpreting integers
Opposites on the number line	Opposites on the number line
Graph in the 4 quadrants	Graphing coordinates in the 4 quadrants
	Graphing coordinates across the x-axis & y-axis
Graph rational numbers	Placing rational numbers on the number line
	Graphing rational numbers on the coordinate plane
Order rational numbers	Exploring the everyday language of integers
	Statements of order: rational numbers
	Interpreting meanings of integers in context

B3.2	
Rational Numbers: apply an understanding of unit fractions and their relationship to other fractional amounts, in various contexts, including the use of measuring tools	
Course Topics	**Activities**
B3 Fractions	Unit Fractions
	Divide by a Unit Fraction
	Fraction Length Models 1
Topics	**Skill Quests**
Calculate unit rates	Calculating unit rates

B3.3	
Rational Numbers: apply an understanding of integers to explain the effects that positive and negative signs have on the values of ratios, rates, fractions, and decimals, in various contexts	
Course Topics	**Activities**
B3 Fractions	Add: No Common Denominator
	Add Unlike Mixed Numbers
	Subtract: No Common Denominator
	Subtract Mixed Numbers: Signs Differ
Topics	**Skill Quests**
Compare & order integers	Comparing & ordering integers

B3.4	
Applications: solve problems involving operations with positive and negative fractions and mixed numbers, including problems involving formulas, measurements, and linear relations, using technology when appropriate	
Course Topics	**Activities**
B3 Fractions	Multiply Two Fractions 2

Topics	Skill Quests
	Divide Fractions by Fractions 2
	Divide Mixed Numbers with Signs
	Operations with Fractions
Topics	**Skill Quests**
Positive & negative fractions	Adding & subtracting signed fractions
	Multiplying & dividing signed fractions

B3.5

Applications: Pose and solve problems involving rates, percentages, and proportions in various contexts, including contexts connected to real-life applications of data, measurement, geometry, linear relations, and financial literacy

Course Topics	Activities
B3 Rates, ratio & percents	Rates Word Problems
	Converting Rates
	Rates Calculations
	Rates of Change
	Ratio Word Problems
	Word Problems: Ratio
	Best Buy
	Unitary Method
	Percentage Word Problems
	Percentage Change: Increase and Decrease
	Percent Increase and Decrease
	Solve Percent Equations
	Commission
	Profit and Loss
Topics	**Skill Quests**
Pose & solve real-life Problems	Solving real-life percentage problems
	Solving real-life ratio problems
	Real-life ratio & proportions problems, bar models

C. Algebra

C1. Algebraic Expressions and Equations: demonstrate an understanding of the development and use of algebraic concepts and of their connection to numbers, using various tools and representations

C1.1	
Development and Use of Algebra: research an algebraic concept to tell a story about its development and use in a specific culture, and describe its relevance in a current context	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

C1.2	
Algebraic Expressions and Equations: create algebraic expressions to generalize relationships expressed in words, numbers, and visual representations, in various contexts	
Course Topics	**Activities**
C1 Expressions & operations	Writing Algebraic Expressions
	Find the Pattern Rule
	Pattern Rules and Tables
Topics	**Skill Quests**
Write algebraic expressions	Writing algebraic expressions

C1.3	
Algebraic Expressions and Equations: compare algebraic expressions using concrete, numerical, graphical, and algebraic methods to identify those that are equivalent, and justify their choices	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Equivalent expressions	Verifying equivalent expressions: linear sequences
	Equivalent algebraic expressions

C1.4	
Algebraic Expressions and Equations: simplify algebraic expressions by applying properties of operations of numbers, using various representations and tools, in different contexts	
Course Topics	**Activities**
C1 Expressions & operations	Algebraic Multiplication
	Dividing Expressions
	Expanding Brackets
	Expanding with Negatives
	Expand then Simplify
Topics	**Skill Quests**
Apply properties to simplify expressions	Applying properties to simplify expressions

C1.5	
Algebraic Expressions and Equations: create and solve equations for various contexts, and verify their solutions	
Course Topics	**Activities**
C1 Equations	Equations with Grouping Symbols
	Solve Multi-Step Equations
	Equations with Decimals
	Equations: Variables, Both Sides
	Equations with Fractions
	Equations to Solve Problems
	Checking Solutions
Topics	**Skill Quests**
Create & solve equations	Translating & solving word problems
	2-step linear equations, integer solutions
	2-step linear equations, non-integer solutions
	3-step linear equations
	Linear equations with variables on both sides
	Linear equations with grouping symbols

C2. Coding: apply coding skills to represent mathematical concepts and relationships dynamically, and to solve problems, in algebra and across the other strands

C2.1	
Coding: use coding to demonstrate an understanding of algebraic concepts including variables, parameters, equations, and inequalities	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

C2.2	
Coding: create code by decomposing situations into computational steps in order to represent mathematical concepts and relationships, and to solve problems	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

C2.3	
Coding: read code to predict its outcome, and alter code to adjust constraints, parameters, and outcomes to represent a similar or new mathematical situation	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**

Teacher directed

C3. Application of Relations: represent and compare linear and non-linear relations that model real-life situations, and use these representations to make predictions

C3.1	
Application of Linear and Non-Linear Relations: compare the shapes of graphs of linear and non-linear relations to describe their rates of change, to make connections to growing and shrinking patterns, and to make predictions	
Course Topics	**Activities**
C3 Linear & non-linear graphs	Identifying Graphs
	Non Linear Graphs
	Graphing Parabolas
	Graphing Cubics
	Graphing Exponentials
	Graphing Circles
	Graphing Hyperbolas
Topics	**Skill Quests**
Graphs of linear & non-linear relations	Exploring graphs of non-linear relationships
	Graphs of linear & non-linear relationships

C3.2	
Application of Linear and Non-Linear Relations: represent linear relations using concrete materials, tables of values, graphs, and equations, and make connections between the various representations to demonstrate an understanding of rates of change and initial values	
Course Topics	**Activities**
C3 Linear & non-linear graphs	Graphing from a Table of Values
	Reading Values from a Line
	Determining a Rule for a Line
Topics	**Skill Quests**
Linear relations	Graphing a linear relation by making a table
	Equations in the form y = ax + b
	Determining rate of change & initial value

C3.3	
Application of Linear and Non-Linear Relations: compare two linear relations of the form y = ax + b graphically and algebraically, and interpret the meaning of their point of intersection in terms of a given context	
Course Topics	**Activities**
C3 Linear & non-linear graphs	Intersecting Linear Regions
	Modelling Linear Relationships
	Gradients for Real
	Simultaneous Linear Equations

Topics	Skill Quests
Simultaneous equations	Understanding simultaneous equations
	Solving simultaneous equations graphically
	Solving simultaneous equations algebraically
	Checking answers to simultaneous equations

C4. Characteristics of Relations: demonstrate an understanding of the characteristics of various representations of linear and non-linear relations, using tools, including coding when appropriate

C4.1	
Characteristics of Linear and Non-Linear Relations: compare characteristics of graphs, tables of values, and equations of linear and non-linear relations	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Compare linear relationships	Comparing linear relationships, Cartesian plane

C4.2	
Characteristics of Linear and Non-Linear Relations: graph relations represented as algebraic equations of the forms x = k, y = k, x + y = k, x – y = k, ax + by = k, and xy = k, and their associated inequalities, where a, b, and k are constants, to identify various characteristics and the points and/or regions defined by these equations and inequalities	
Course Topics	**Activities**
C4 Linear & non-linear equations	Horizontal and Vertical Lines
Topics	**Skill Quests**
Graph horizontal & vertical lines	Graphing horizontal & vertical lines

C4.3	
Characteristics of Linear and Non-Linear Relations: translate, reflect, and rotate lines defined by y = ax, where a is a constant, and describe how each transformation affects the graphs and equations of the defined lines	
Course Topics	**Activities**
C4 Linear & non-linear equations	Are they Parallel?
	Perpendicular and Parallel Lines
	Are they Perpendicular?
Topics	**Skill Quests**
Teacher directed	

C4.4

Characteristics of Linear and Non-Linear Relations: determine the equations of lines from graphs, tables of values, and concrete representations of linear relations by making connections between rates of change and slopes, and between initial values and y-intercepts, and use these equations to solve problems

Course Topics	Activities
C4 Linear & non-linear equations	Slope of a Line
	Equation of a Line 1
	Intercepts
	Which Straight Line?
	Equation from Point and Gradient
	Equation from Two Points
	General Form of a Line
	Solve Systems by Graphing
	Breakeven Point
Topics	**Skill Quests**
Model real-life relationships	Modelling real-life relationships: constant rates
	Determining the equation from a graph

D. Data

D1. Collection, Representation, and Analysis of Data: describe the collection and use of data, and represent and analyse data involving one and two variables

D1.1	
Application of Data: identify a current context involving a large amount of data, and describe potential implications and consequences of its collection, storage, representation, and use	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

D1.2	
Representation and Analysis of Data: represent and statistically analyse data from a real-life situation involving a single variable in various ways, including the use of quartile values and box plots	
Course Topics	**Activities**
D1 Data analysis & D2 Data sampling	Calculating Interquartile Range
	Box-and-Whisker Plots 1
	Box-and-Whisker Plots 2
Topics	**Skill Quests**
Box plots	Constructing box plots
	Analysing box plots
Define quartiles & interquartile range	Defining quartiles & interquartile range

D1.3	
Representation and Analysis of Data: create a scatter plot to represent the relationship between two variables, determine the correlation between these variables by testing different regression models using technology, and use a model to make predictions when appropriate	
Course Topics	**Activities**
D1 Data analysis & D2 Data sampling	Data Analysis: Scatter Plots
	Scatter Plots
	Correlation
Topics	**Skill Quests**
Scatter plots	Constructing scatter plots
	Analysing scatter plots

D2. Mathematical Modelling: apply the process of mathematical modelling, using data and mathematical concepts from other strands, to represent, analyse, make predictions, and provide insight into real-life situations

D2.1

Application of Mathematical Modelling: describe the value of mathematical modelling and how it is used in real life to inform decisions

Course Topics	Activities
Teacher directed	

Topics	Skill Quests
Teacher directed	

D2.2

Process of Mathematical Modelling: identify a question of interest requiring the collection and analysis of data, and identify the information needed to answer the question

Course Topics	Activities
Teacher directed	

Topics	Skill Quests
Teacher directed	

D2.3

Process of Mathematical Modelling: create a plan to collect the necessary data on the question of interest from an appropriate source, identify assumptions, identify what may vary and what may remain the same in the situation, and then carry out the plan

Course Topics	Activities
D1 Data analysis & D2 Data sampling	Methods of Data Sampling
	Data sampling

Topics	Skill Quests
Construct & conduct a survey	Constructing & conducting a survey

D2.4

Process of Mathematical Modelling: Determine ways to display and analyse the data in order to create a mathematical model to answer the original question of interest, taking into account the nature of the data, the context, and the assumptions made

Course Topics	Activities
Teacher directed	

Topics	Skill Quests
Teacher directed	

D2.5

Process of Mathematical Modelling: report how the model can be used to answer the question of interest, how well the model fits the context, potential limitations of the model, and what predictions can be made based on the model

Course Topics	Activities
Teacher directed	

Topics	Skill Quests
Teacher directed	

E. Geometry and Measurement

E1. Geometric and Measurement Relationships: demonstrate an understanding of the development and use of geometric and measurement relationships, and apply these relationships to solve problems, including problems involving real-life situations

E1.1	
Geometric and Measurement Relationships: research a geometric concept or a measurement system to tell a story about its development and use in a specific culture or community, and describe its relevance in connection to careers and to other disciplines	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

E1.2	
Geometric and Measurement Relationships: create and analyse designs involving geometric relationships and circle and triangle properties, using various tools	
Course Topics	**Activities**
E1 Angle relationships	Parallel Lines
	Introduction to Angles on Parallel Lines 1
	Angles on Parallel Lines
	Introduction to Angles on Parallel Lines 3
	Are the Lines Parallel?
	Circle Theorems
Topics	**Skill Quests**
Tessellations	Investigating tessellations using transformations

E1.3	
Geometric and Measurement Relationships: solve problems involving different units within a measurement system and between measurement systems, including those from various cultures or communities, using various representations and technology, when appropriate	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Unit conversions	Converting between metric & imperial units: length
	Converting between metric & imperial units: mass
Solve problems using scale drawings	Solving problems using scale drawings

E1.4
Geometric and Measurement Relationships: show how changing one or more dimensions of a two-

Course Topics	Activities
dimensional shape and a three-dimensional object affects perimeter/circumference, area, surface area, and volume, using technology when appropriate	
E1 Surface area & volume	Perimeter, Area, Dimension Change
	Surface Area: Square Pyramids
	Surface Area: Rectangular Pyramids
	Surface Area: Cones
	Surface Area: Rearrange Formula
Topics	**Skill Quests**
Teacher directed	

E1.5
Geometric and Measurement Relationships: solve problems involving the side-length relationship for right triangles in real-life situations, including problems that involve composite shapes

Course Topics	Activities
Teacher directed	
Topics	**Skill Quests**
Real-life problems, Pythagorean Theorem	Pythagorean Theorem: bearings
	Solving real-life problems, Pythagorean Theorem

E1.6
Geometric and Measurement Relationships: solve problems using the relationships between the volume of prisms and pyramids and between the volume of cylinders and cones, involving various units of measure

Course Topics	Activities
E1 Surface area & volume	Volume: Composite Figures
	Volume: Pyramids
	Volume: Cylinders
	Volume: Cones
Topics	**Skill Quests**
Volume of pyramids & prisms	Finding the volume of pyramids
	Finding the volume of any prisms
	Finding the volume of composite/irregular prisms
	Finding the volume of rectangular prisms
	Finding the height of prisms
	Finding missing dimensions of rectangular prisms
	Finding the volume of triangular prisms
	Finding the missing dimension of triangular prisms
Volume of cylinders & cones	Developing the formula for the volume of cylinders
	Finding the volume of cones

F. Financial Literacy

F1. Financial Decisions: demonstrate the knowledge and skills needed to make informed financial decisions

F1.1	
Financial Decisions: identify a past or current financial situation and explain how it can inform financial decisions, by applying an understanding of the context of the situation and related mathematical knowledge	
Course Topics	**Activities**
Teacher directed	
Topics	**Skill Quests**
Teacher directed	

F1.2	
Financial Decisions: identify financial situations that involve appreciation and depreciation, and use associated graphs to answer related questions	
Course Topics	**Activities**
F1 Appreciation & depreciation	Future Value of Investments 1
	Future Value of Investments 2
	Depreciation
	Straight Line Depreciation
	Declining Balance Depreciation
Topics	**Skill Quests**
Appreciation & depreciation	Understanding appreciation & depreciation

F1.3	
Financial Decisions: compare the effects that different interest rates, lengths of borrowing time, ways in which interest is calculated, and amounts of down payments have on the overall costs associated with purchasing goods or services, using appropriate tools	
Course Topics	**Activities**
F1 Interest rates, loans & budgets	Simple Interest
	Compound Interest
	Compound Interest by Formula
	Purchase Options
	Successive Discounts
	Credit Card Repayments
	Comparing Loans
	Comparing Home Loans
Topics	**Skill Quests**
Calculate interest	Calculating simple interest
	Calculating compound interest
	Comparing simple & compound interest

F1.4	
Financial Decisions: modify budgets displayed in various ways to reflect specific changes in circumstances, and provide a rationale for the modifications	
Course Topics	**Activities**
F1 Interest rates, loans & budgets	Budgeting
Topics	**Skill Quests**
Teacher directed	

Grade 10, Academic

1 Quadratic Relations of the Form y = ax² + bx + c

1.1 Investigating the Basic Properties of Quadratic Relations

Collect data that can be represented as a quadratic relation, from experiments using appropriate equipment and technology, or from secondary sources; graph the data and draw a curve of best fit, if appropriate, with or without the use of technology.	
Course Topics	**Activities**
Teacher directed	

Determine, through investigation with and without the use of technology, that a quadratic relation of the form y = ax2 + bx + c (a ≠ 0) can be graphically represented as a parabola, and that the table of values yields a constant second difference.	
Course Topics	**Activities**
Quadratic Relations 1	Graphing Parabolas

Identify the key features of a graph of a parabola, and use the appropriate terminology to describe them.	
Course Topics	**Activities**
Quadratic Relations 1	Vertex of a Parabola
	Parabolas and Marbles
	Parabolas and Rectangles

Compare, through investigation using technology, the features of the graph of y = x² and the graph of y = 2^x, and determine the meaning of a negative exponent and of zero as an exponent	
Course Topics	**Activities**
Quadratic Relations 1	Graphing Exponentials

1.2 Relating the Graph of y = x² and Its Transformations

Identify, through investigation using technology, the effect on the graph of y = x² of transformations by considering separately each parameter a, h, and k	
Course Topics	**Activities**
Quadratic Relations 1	Symmetries of Graphs 1

Explain the roles of a, h, and k in y = a(x – h)² + k, using the appropriate terminology to describe the transformations, and identify the vertex and the equation of the axis of symmetry.	
Course Topics	**Activities**

Quadratic Relations 1	Vertex of a Parabola
	Symmetries of Graphs 1

Sketch, by hand, the graph of y = a(x − h)² + k by applying transformations to the graph of y = x².	
Course Topics	**Activities**
Teacher directed	

Determine the equation, in the form y = a(x − h)² + k, of a given graph of a parabola.	
Course Topics	**Activities**
Teacher directed	

1.3 Solving Quadratic Equations

Expand and simplify second-degree polynomial expressions, using a variety of tools and strategies.	
Course Topics	**Activities**
Quadratic Relations 1	Expand then Simplify
	Expanding Binomial Products
	Special Binomial Products

Factor polynomial expressions involving common factors, trinomials, and differences of squares, using a variety of tools and strategies.	
Course Topics	**Activities**
Quadratic Relations 1	Grouping in Pairs
	Factoring Quadratics 1
	Factoring Quadratics 2

Determine, through investigation, and describe the connection between the factors of a quadratic expression and the x-intercepts of the graph of the corresponding quadratic relation, expressed in the form y = a(x − r)(x − s).	
Course Topics	**Activities**
Quadratic Relations 1	Quadratic Equations 1
	Quadratic Equations 2
	Solve Quadratics: Coefficient of 1

Interpret real and non-real roots of quadratic equations, through investigation using graphing technology, and relate the roots to the x-intercepts of the corresponding relations.	
Course Topics	**Activities**
Quadratic Relations 1	Checking Quadratic Solutions
	Quadratic Formula
	The Discriminant
	Roots of the Quadratic

Express $y = ax^2 + bx + c$ in the form $y = a(x - h)^2 + k$ by completing the square in situations involving no fractions, using a variety of tools.	
Course Topics	**Activities**
Quadratic Relations 1	Completing the Square
	Completing the Square 2

Sketch or graph a quadratic relation whose equation is given in the form $y = ax^2 + bx + c$, using a variety of methods.	
Course Topics	**Activities**
Quadratic Relations 1	Graphing Parabolas

Explore the algebraic development of the quadratic formula.	
Course Topics	**Activities**
Teacher directed	

Solve quadratic equations that have real roots, using a variety of methods.	
Course Topics	**Activities**
Quadratic Relations 1	Factoring Quadratics 1
	Factoring Quadratics 2
	Quadratic Formula
	Graphing Parabolas

1.4 Solving Problems Involving Quadratic Relations

Determine the zeros and the maximum or minimum value of a quadratic relation from its graph or from its defining equation.	
Course Topics	**Activities**
Quadratic Relations 1	Parabolas and Marbles
	Parabolas and Rectangles
	Vertex of a Parabola

Solve problems arising from a realistic situation represented by a graph or an equation of a quadratic relation, with and without the use of technology.	
Course Topics	**Activities**
Quadratic Relations 1	Parabolas and Marbles
	Parabolas and Rectangles

2 Analytic Geometry

2.1 Using Linear Systems to Solve Problems

Solve systems of two linear equations involving two variables, using the algebraic method of substitution or elimination.	
Course Topics	**Activities**
Analytic Geometry	Simultaneous Linear Equations
	Simultaneous Equations 1
	Simultaneous Equations 2

Solve problems that arise from realistic situations described in words or represented by linear systems of two equations involving two variables, by choosing an appropriate algebraic or graphical method.	
Course Topics	**Activities**
Analytic Geometry	Breakeven Point

2.2 Solving Problems Involving Properties of Line Segments

Develop the formula for the midpoint of a line segment, and use this formula to solve problems.	
Course Topics	**Activities**
Analytic Geometry	Midpoint by Formula

Develop the formula for the length of a line segment, and use this formula to solve problems.	
Course Topics	**Activities**
Analytic Geometry	Distance Between Two Points

Develop the equation for a circle with centre (0, 0) and radius r, by applying the formula for the length of a line segment.	
Course Topics	**Activities**
Teacher directed	

Determine the radius of a circle with centre (0, 0), given its equation; write the equation of a circle with centre (0, 0), given the radius; and sketch the circle, given the equation in the form $x^2 + y^2 = r^2$.	
Course Topics	**Activities**
Teacher directed	

Solve problems involving the slope, length, and midpoint of a line segment.	
Course Topics	**Activities**
Analytic Geometry	Midpoint by Formula
	Distance Between Two Points

	Are They Parallel?
	Are They Perpendicular?
	Perpendicular and Parallel Lines
	Equation of a Line 3
	Perpendicular Distance 1
	Perpendicular Distance 2

2.3 Using Analytic Geometry to Verify Geometric Properties

Determine, through investigation, some characteristics and properties of geometric figures.	
Course Topics	**Activities**
Analytic Geometry	Plane Figure Theorems

Verify, using algebraic techniques and analytic geometry, some characteristics of geometric figures.	
Course Topics	**Activities**
Analytic Geometry	Coordinate Methods in Geometry

Plan and implement a multi-step strategy that uses analytic geometry and algebraic techniques to verify a geometric property	
Course Topics	**Activities**
Teacher directed	

3 Trigonometry

3.1 Investigating Similarity and Solving Problems Involving Similar Triangles

Verify, through investigation, the properties of similar triangles.	
Course Topics	**Activities**
Similarity and Congruence	Similar Triangles
	Scale Factor
	Similar Figures

Describe and compare the concepts of similarity and congruence.	
Course Topics	**Activities**
Similarity and Congruence	Scale Factor
	Similar Triangles
	Similar Figures
	Congruent Triangles
	Congruent Figures (Grid)
	Congruent Figures: Find Values

Solve problems involving similar triangles in realistic situations.	
Course Topics	**Activities**
Teacher directed	

3.2 Solving Problems Involving the Trigonometry of Right Triangles

Determine, through investigation, the relationship between the ratio of two sides in a right triangle and the ratio of the two corresponding sides in a similar right triangle, and define the sine, cosine, and tangent ratios.	
Course Topics	**Activities**
Trigonometry	Hypotenuse, Adjacent, Opposite
	Sin A
	Cos A
	Tan A

Determine the measures of the sides and angles in right triangles, using the primary trigonometric ratios and the Pythagorean theorem.	
Course Topics	**Activities**
Trigonometry	Pythagorean Theorem
	Sin A
	Cos A
	Tan A
	Find Unknown Sides
	Find Unknown Angles

Solve problems involving the measures of sides and angles in right triangles in reallife applications, using the primary trigonometric ratios and the Pythagorean theorem.	
Course Topics	**Activities**
Trigonometry	Elevation and Depression
	Trigonometry Problems 1
	Trigonometry Problems 2
	Bearings

3.3 Solving Problems Involving the Trigonometry of Acute Triangles

Explore the development of the sine law within acute triangles.	
Course Topics	**Activities**
Trigonometry	Sine Rule 1

Explore the development of the cosine law within acute triangles.	
Course Topics	**Activities**
Teacher directed	

Determine the measures of sides and angles in acute triangles, using the sine law and the cosine law	
Course Topics	**Activities**
Trigonometry	Sine Rule 1
	Cosine Rule 1
	Cosine Rule 2

Solve problems involving the measures of sides and angles in acute triangles.	
Course Topics	**Activities**
Trigonometry	Sine Rule 1
	Cosine Rule 1
	Cosine Rule 2

Grade 10, Applied

1 Measurement and Trigonometry

1.1 Solving Problems Involving Similar Triangles

Verify, through investigation, properties of similar triangles.	
Course Topics	**Activities**
Trigonometry	Similar Triangles

Determine the lengths of sides of similar triangles, using proportional reasoning.	
Course Topics	**Activities**
Trigonometry	Similar Triangles

Solve problems involving similar triangles in realistic situations.	
Course Topics	**Activities**
Teacher directed	

1.2 Solving Problems Involving the Trigonometry of Right Triangles

Determine, through investigation, the relationship between the ratio of two sides in a right triangle and the ratio of the two corresponding sides in a similar right triangle, and define the sine, cosine, and tangent ratios.	
Course Topics	**Activities**
Trigonometry	Hypotenuse, Adjacent, Opposite

Determine the measures of the sides and angles in right triangles, using the primary trigonometric ratios and the Pythagorean theorem.	
Course Topics	**Activities**
Trigonometry	Pythagorean Theorem
	Sin A
	Cos A
	Tan A
	Find Unknown Sides
	Find Unknown Angles

Solve problems involving the measures of sides and angles in right triangles in real- life applications, using the primary trigonometric ratios and the Pythagorean theorem.	
Course Topics	**Activities**
Trigonometry	Elevation and Depression
	Trigonometry Problems 1
	Trigonometry Problems 2
	Bearings
Describe, through participation in an activity, the application of trigonometry in an occupation.	

Course Topics	Activities
Teacher directed	

1.3 Solving Problems Involving Surface Area and Volume, Using the Imperial and Metric Systems of Measurement

Use the imperial system when solving measurement problems.	
Course Topics	**Activities**
Measurement	Perimeter: Squares and Rectangles
	Calculate Area of Shapes (inches, feet, yards)

Perform everyday conversions between the imperial system and the metric system and within these systems, as necessary to solve problems involving measurement.	
Course Topics	**Activities**
Measurement	Customary Units of Capacity
	Customary Units of Length
	Customary Units of Weight 1
	Converting Units of Length
	Converting Units of Mass
	Operations with Length

Determine, through investigation, the relationship for calculating the surface area of a pyramid.	
Course Topics	**Activities**
Surface Area and Volume	Nets
	Surface Area: Square Pyramids
	Surface Area: Rectangular Pyramids

Solve problems involving the surface areas of prisms, pyramids, and cylinders, and the volumes of prisms, pyramids, cylinders, cones, and spheres, including problems involving combinations of these figures, using the metric system or the imperial system, as appropriate.	
Course Topics	**Activities**
Surface Area and Volume	Surface Area: Rectangular Prisms
	Surface Area: Triangular Prisms
	Surface Area: Cylinders
	Surface Area: Cones
	Surface Area: Spheres
	Surface Area: Square Pyramids
	Surface Area: Rectangular Pyramids
	Volume: Rectangular Prisms 1
	Volume: Rectangular Prisms 2
	Volume: Triangular Prisms
	Volume: Prisms
	Volume: Pyramids
	Volume: Cylinders
	Volume: Cones
	Volume: Spheres

	Volume: Composite Figures

2 Modelling Linear Relations

2.1 Manipulating and Solving Algebraic Equations

Solve first-degree equations involving one variable, including equations with fractional coefficients.	
Course Topics	**Activities**
Linear Equations	Checking Solutions
	Solving Simple Equations
	Solve Two-Step Equations
	Solve Multi-Step Equations
	Solving More Equations
	Equations with Grouping Symbols
	Equations: Variables, Both Sides
	Equations with Decimals
	Equations with Fractions
	Equations with Fractions 2

Determine the value of a variable in the first degree, using a formula.	
Course Topics	**Activities**
Teacher directed	

Express the equation of a line in the form y = mx + b, given the form Ax + By + C = 0	
Course Topics	**Activities**
Linear Equations	General Form of a Line

2.2 Graphing and Writing Equations of Lines

Connect the rate of change of a linear relation to the slope of the line, and define the slope as the ratio m = rise/ruin	
Course Topics	**Activities**
Linear Equations	Gradient

Identify, through investigation, y = mx + b as a common form for the equation of a straight line, and identify the special cases x = a, y = b.	
Course Topics	**Activities**
Linear Equations	Which Straight Line?
	Horizontal and Vertical Lines

Identify, through investigation with technology, the geometric significance of m and b in the equation y = mx + b.	
Course Topics	**Activities**

Linear Equations	Gradient
	Intercepts
	Which Straight Line?
	Equation of a Line 1

Identify, through investigation, properties of the slopes of lines and line segments, using graphing technology to facilitate investigations, where appropriate.	
Course Topics	**Activities**
Linear Equations	y=ax
	Equation of a Line 1
	Are They Parallel?

Graph lines by hand, using a variety of techniques.	
Course Topics	**Activities**
Linear Equations	y=ax
	Which Straight Line?

Determine the equation of a line, given its graph, the slope and y-intercept, the slope and a point on the line, or two points on the line.	
Course Topics	**Activities**
Linear Equations	Determining the Rule for a Line 1
	Equation of a Line 1
	Equation from Point and Gradient
	Equation from Two Points

2.3 Solving and Interpreting Systems of Linear Equations

Determine graphically the point of intersection of two linear relations.	
Course Topics	**Activities**
Systems of Linear Equations	Solve Systems by Graphing

Solve systems of two linear equations involving two variables with integral coefficients, using the algebraic method of substitution or elimination.	
Course Topics	**Activities**
Systems of Linear Equations	Simultaneous Equations 1
	Simultaneous Equations 2
	Simultaneous Linear Equations

Solve problems that arise from realistic situations described in words or represented by given linear systems of two equations involving two variables, by choosing an appropriate algebraic or graphical method.	
Course Topics	**Activities**
Systems of Linear Equations	Breakeven Point

3 Quadratic Relations of the Form y = ax² + bx + c

3.1 Manipulating Quadratic Expressions

Expand and simplify second-degree polynomial expressions involving one variable that consist of the product of two binomials, using a variety of tools and strategies.	
Course Topics	**Activities**
Quadratic Relations	Expand then Simplify
	Expanding Binomial Products
	Special Binomial Products

Factor binomials and trinomials involving one variable up to degree two, by determining a common factor using a variety of tools and strategies.	
Course Topics	**Activities**
Quadratic Relations	Factoring
	Factoring Expressions

Factor simple trinomials of the form $x^2 + bx + c$, using a variety of tools and strategies.	
Course Topics	**Activities**
Quadratic Relations	Grouping in Pairs
	Factoring Quadratics 1

Factor the difference of squares of the form $x^2 - a^2$.	
Course Topics	**Activities**
Teacher directed	

3.2 Identifying Characteristics of Quadratic Relations

Collect data that can be represented as a quadratic relation, from experiments using appropriate equipment and technology, or from secondary sources; graph the data and draw a curve of best fit, if appropriate, with or without the use of technology.	
Course Topics	**Activities**
Teacher directed	

Determine, through investigation using technology, that a quadratic relation of the form $y = ax^2 + bx + c$ (a ≠ 0) can be graphically represented as a parabola, and determine that the table of values yields a constant second difference.	
Course Topics	**Activities**
Quadratic Relations	Graphing Parabolas

Identify the key features of a graph of a parabola, using a given graph or a graph generated with technology from its equation, and use the appropriate terminology to describe the features.	

Course Topics	Activities
Quadratic Relations	Vertex of a Parabola

Compare, through investigation using technology, the graphical representations of a quadratic relation in the form $y = x^2 + bx + c$ and the same relation in the factored form $y = (x - r)(x - s)$, and describe the connections between each algebraic representation and the graph.	
Course Topics	**Activities**
Teacher directed	

3.3 Solving Problems by Interpreting Graphs of Quadratic Relations

Solve problems involving a quadratic relation by interpreting a given graph or a graph generated with technology from its equation.	
Course Topics	**Activities**
Quadratic Relations	Parabolas and Rectangles
	Parabolas and Marbles

Solve problems by interpreting the significance of the key features of graphs obtained by collecting experimental data involving quadratic relations.	
Course Topics	**Activities**
Teacher directed	

Grade 10 LDCC

1 Extending Money Sense

1.1 Understanding and Using Decimal Numbers in Solving Problems

EMS1.01	
Read and interpret money values given in words, write money values as decimals, and round money values appropriately, in solving problems found in everyday contexts	
Course Topics	**Activities**
Money Sense	Money
	Everyday Money
	Who has the Money?

EMS1.02	
Explain the meaning of negative numbers as they apply to money and use them to solve problems involving money.	
Course Topics	**Activities**
Teacher directed	

EMS1.03	
Interpret numerical data drawn from the media and explain its significance, using other number references.	
Course Topics	**Activities**
Teacher directed	

EMS1.04	
Demonstrate the effective use of a calculator in operations with decimals.	
Course Topics	**Activities**
Teacher directed	

EMS1.05	
Judge the reasonableness of calculations involving decimals through estimation.	
Course Topics	**Activities**
Money Sense	Estimate Decimal Sums 1
	Estimate Decimal Sums 2
	Estimate Decimal Sums 1
	Estimate Decimal Sums 2

EMS1.06

Solve problems involving sales tax, discounts, restaurant tips, and commission earnings.	
Course Topics	**Activities**
Money Sense	Commission
	Successive Discounts

EMS1.07
Investigate and identify possible part-time jobs, determine hourly rates of pay, and calculate possible weekly, monthly, and yearly total incomes.

Course Topics	**Activities**
Teacher directed	

EMS1.08
Solve problems involving the accomplishment of a particular goal, including investigating, planning, gathering, and organizing data, and making relevant calculations.

Course Topics	**Activities**
Money Sense	Budgeting

1.2 Communicating Information about Money

EMS2.01
Verbalize their observations and reflections regarding money sense and ask questions to clarify their understanding.

Course Topics	**Activities**
Teacher directed	

EMS2.02
Explain their reasoning used in problem solving and in judging reasonableness.

Course Topics	**Activities**
Teacher directed	

EMS2.03
Communicate, orally and in writing, the solutions to money problems and the results of investigations, using appropriate terminology, symbols, and form.

Course Topics	**Activities**
Teacher directed	

2 Extending Understanding of Measurement

2.1 Estimating and Measuring Using the Metric System

EUM1.01	
Demonstrate accuracy in measuring length, capacity, and mass in everyday applications, using appropriate tools, and record the measurements using the correct abbreviations for metric units.	
Course Topics	**Activities**
Teacher directed	

EUM1.02	
Solve problems drawn from everyday applications requiring the conversion between commonly used metric units.	
Course Topics	**Activities**
Measurement	Capacity Addition
	Converting cm and mm
	Converting Units of Mass
	Mass Addition

EUM1.03	
Estimate, using standard units, measurements of length, capacity, and mass that arise from their everyday experience.	
Course Topics	**Activities**
Teacher directed	

EUM1.04	
Read and use schedules to solve problems.	
Course Topics	**Activities**
Measurement	Using Timetables
	Elapsed Time

EUM1.05	
Read, write, and interpret dates, using a specified numerical format	
Course Topics	**Activities**
Teacher directed	

EUM1.06	
Solve problems to determine the elapsed time between two given dates or two given times.	
Course Topics	**Activities**
Measurement	Time Zones
	What Time Will it Be?
EUM1.07	
Identify and use personal referents to aid in the estimation of temperature.	

Course Topics	Activities
Teacher directed	

EUM1.08
Describe applications from everyday life and the workplace that involve a combination of perimeter, area, volume, mass, capacity, time, and/or money.

Course Topics	Activities
Teacher directed	

2.2 Estimating and Measuring Using the Imperial System

EUM2.01
Measure length in feet and inches, to accuracies of 1/8 inch and 1/16 inch, using tape measures and 12-inch rulers

Course Topics	Activities
Teacher directed	

EUM2.02
Record linear measurements, using commonly accepted abbreviations for the chosen units.

Course Topics	Activities
Teacher directed	

EUM2.03
Make estimates and accurate measurements of length in the Imperial system to construct a model.

Course Topics	Activities
Teacher directed	

EUM2.04
Explore and identify approximate relationships between non-linear units of measure in the metric and Imperial systems.

Course Topics	Activities
Teacher directed	

2.3 Solving Problems Involving Circumference, Perimeter, Area, and Volume

EUM3.01
Identify the parts of a circle, using the correct terminology.

Course Topics	Activities
Measurement	Labelling Circles

EUM3.02
Determine an approximate value for π (pi) by investigating the relationship between the circumference and the diameter of a circle, using concrete materials to obtain measurements.

Course Topics	Activities
Teacher directed	

EUM3.03
Validate the formula for the circumference of a circle by comparing measurements of the circumference to the calculations, using the formula C = π d

Course Topics	Activities
Teacher directed	

EUM3.04
Solve authentic problems requiring the calculation of the circumference of a circle.

Course Topics	Activities
Measurement	Calculate Circumference of Circles

EUM3.05
Solve authentic problems requiring the calculation of the perimeter of composite figures made up of straight line segments and half- and quarter-circles.

Course Topics	Activities
Measurement	Perimeter Detectives 1
	Perimeter Detectives 2

EUM3.06
Estimate the size of a given angle by comparing it to angles of 30°, 45°, 60°, 90°, 180°, or 360°.

Course Topics	Activities
Measurement	Estimating Angles

EUM3.07
Estimate and calculate the areas of circles and fractions of circles drawn from applications in the environment.

Course Topics	Activities
Measurement	Area: Circles 1
	Area: Sectors (Degrees)

EUM3.08
Validate the formula for the area of a circle by comparing approximate measurements of the area to the calculations, using the formula $A = \pi r^2$.

Course Topics	Activities
Teacher directed	

EUM3.09
Construct reasonably accurate diagrams of the angles 180°, 90°, 45°, 30°, and 60°, by dividing a given circle into the appropriate number of parts.

Course Topics	Activities
Teacher directed	

EUM3.10	
Solve authentic problems requiring the calculation of the areas of composite figures made up of rectangles and half- or quarter-circles.	
Course Topics	**Activities**
Measurement	Area: Circles 1
	Area: Annulus

EUM3.11	
Establish that the volume of a cylinder is found by multiplying the area of its base by its height by comparing the structure of a prism to that of a cylinder.	
Course Topics	**Activities**
Measurement	Volume: Rectangular Prisms 1
	Volume: Prisms
	Volume: Cylinders

EUM3.12	
Solve problems drawn from everyday situations involving the perimeters and the areas of circles and rectangles, and the volumes of cylinders and rectangular prisms.	
Course Topics	**Activities**
Teacher directed	

2.4 Communicating Information about Measurement

EUM4.01	
Organize measurement information, using a simple framework, draw conclusions from this data, and make decisions based on it.	
Course Topics	**Activities**
Teacher directed	

EUM4.02	
Verbalize their observations and reflections regarding measurements and ask questions to clarify their understanding.	
Course Topics	**Activities**
Teacher directed	

EUM4.03	
Explain their reasoning used in problem solving and in judging reasonableness.	
Course Topics	**Activities**
Teacher directed	

EUM4.04
Communicate, orally and in writing, the solutions to measurement problems and the results of investigations, using appropriate terminology, symbols, and form.

Course Topics	Activities
Teacher directed	

3 Extending Understanding of Proportional Reasoning

3.1 Applying Fractions, Percent, Ratio, and Rate in Solving Problems

EPR1.01	
Determine the relationships among fractions, decimals, and percentages by constructing diagrams and building models.	
Course Topics	**Activities**
Proportional Reasoning	Modelling Percentages

EPR1.02	
Recall from memory the most commonly used equivalences or approximations between fractions and percentages.	
Course Topics	**Activities**
Proportional Reasoning	Common Fractions as Percentages

EPR1.03	
Solve problems involving the most commonly used equivalences between fractions and percentages.	
Course Topics	**Activities**
Proportional Reasoning	Percents to Fractions
	Percents and Decimals
	Decimals to Fractions 2

EPR1.04	
Round decimal values appropriately in solving problems drawn from everyday situations.	
Course Topics	**Activities**
Proportional Reasoning	Rounding Decimals 2

EPR1.05	
Solve problems involving fractions and percentages in practical situations, by converting to decimals and using a calculator, where appropriate.	
Course Topics	**Activities**
Teacher directed	

EPR1.06	
Measure areas of personal interest, using metric or Imperial units, and construct scale diagrams, using grid paper.	
Course Topics	**Activities**
Proportional Reasoning	Scale drawings
	Scale
	Scale Measurement
EPR1.07	
Write ratios describing relationships in the school environment.	

Course Topics	Activities
Teacher directed	

EPR1.08	
Describe the effects of changing the parts of a given ratio proportionately and disproportionately in activities in which the results are observable.	
Course Topics	**Activities**
Teacher directed	

EPR1.09	
Solve problems using proportions.	
Course Topics	**Activities**
Proportional Reasoning	Ratio Word Problems
	Rates Word Problems

EPR1.10	
Solve problems involving the calculation of rates drawn from a variety of everyday contexts and from familiar social issues.	
Course Topics	**Activities**
Proportional Reasoning	Rates Word Problems

3.2 Communicating Information

EPR2.01	
Read, interpret, and explain, orally and in writing, data displayed in tables and graphs.	
Course Topics	**Activities**
Proportional Reasoning	Interpreting Tables
	Line Graphs: Interpretation

EPR2.02	
Construct a variety of graphs (straight line, bar, circle), with and without the use of technology, to assist in identifying patterns in data or drawing conclusions from data.	
Course Topics	**Activities**
Teacher directed	

EPR2.03	
Identify graphs that misrepresent data and explain why the graphs are misleading.	
Course Topics	**Activities**
Teacher directed	

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